ISO9001 IATF16949 ISO14001 OHSAS18001 IECQ QC080000 CERTIFIED





HVDC Relay I

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ISO9001 IATF16949 ISO14001 OHSAS18001 IECQ QC080000 CERTIFIED

PROFESSIONAL AOTOMOTIVE RELAY & MODULE MANUFACTURER





COMPANY INTRODUCTION

HONGFA

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HONGFA(Stock code: 600885, SSE) always conforms to its business philosophy -- "Never rest on our laurels, make more progress" and uses this philosophy as the basis of its operational policy --"Market-oriented concept, win by high quality". The following companies are fully or partially owned by HONGFA--Zhangzhou Hongfa, Jinhai, Xi'an Hongfa, Hongyuanda, Hongfa Automotive Electronics, Hongfa Signal Electronics, Hongfa Power Electronics, Hongzhou, Hongfa Wufeng, Hongfa Electrical Safety & Control, Hongfa Electric, Jinyue, Jinbo, Jinghe, Hongfa Industrial Robot, Hongfa Precision Machinery, Shanghai Hongfa, Beijing Hongfa, Sichuan Hongfa(Sales), Hongfa Hongkong, Hongfa Europe GmbH, Hongfa America Inc., KG Technologies Inc. HONGFA products include as relays, low-voltage devices, switchgears, precise parts, automatic equipment, etc..

HONGFA is now the leading relays sellers and manufacturer in China and is ranked No. 1 in the industry for overall economic efficiency. From 1995, HONGFA has continuously ranked among 'China Top-100 Electronic Components Enterprises' with a current position of the 9th and has received many awards: HONGFA has recognized as one of the China Top 100 Enterprises Of Electronic Information for the first time as the first finalist in relay, in 2014. HONGFA is authorized as "the Advanced Enterprise to implement High Technology in Torch Plan" by the Ministry of Science and Technology of PRC. HONGFA has been awarded "National foreign trade transforming and upgrading base (Automotive Components)" by the Ministry of Commerce of PRC and National Development and Reform Commission. HONGFA is the only company being awarded this honor in the Chinese relay industry.

HONGFA has a full set of quality assurance systems including ISO9001, ISO/TS16949, ISO14001, OHSAS18001, GJB9001A, IECQ QC 080000. HONGFA has also been honorably awarded "High Quality Product exempt from National Inspection". HONGFA products are UL/CUL, VDE, TÜV, CQC and CCC approved. With high performance, top quality, competitive price and excellent technical services, HONGFA Relays have become the most perfect choice for the customers.

Since the establishment, HONGFA has been focusing on technology innovation. The technology and the equipment of all the mould tooling, parts manufacturing and products assembly and the production environment are in the leading position in Chinese relays industry. HONGFA Testing Centre is the biggest relays testing and analyzing laboratory with the most advanced technology in China, which is approved by CNAS, approved by America UL as a CTDP lab, and approved by Germany VDE as a TDAP lab -For VDE's TDAP lab, there is only one in China and only six in the world. Hongfa is able to supply to the customers accurate, credible and authorized inspection data and test reports.

HONGFA has a wide range of relays, including Signal relays, Power relays, Automotive relays & modules, Latching relays, HVDC relays, Industrial relays, Safety relays. The company has the annual production capacity of 2.8 billion pieces of relays.

Now HONGFA has become the world leading relays research and manufacturing base. Hongfa people are looking forward to growing, developing and prospering with all the partners and customers worldwide together.

NEVER REST ON OUR LAURELS, MAKE MORE PROGRESS

WE ARE CONTROL EXPERT

Hongfa is a professional relay manufacturer and has a wide range of relays. Hongfa relays are UL/CUL, VDE, TüV, CQC and CCC approved. They are widely used in those fields like industrial control, automotive, telecom equipment, home appliances, metering instruments, security and alarm systems, medical appliances and aviation.

HONGFA PRODUCTS:









Hermetically-sealed Relay







HFE82V-40

HFE10-L

Contractions

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HF-HFE85V 750-12-HB-C





MMM. Kcontau CONTENTS

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HFE80V-60 200-24-HTP

HFE82V-250C 750-12-H-C5-1

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Remarks:

1) In the "Load Terminal Structure", "Female" means the female screw, "Male" means male screw, "other" means please refer to the product specification of the model in the following page.

2)"Optional Rated Voltage" refers to the optional voltage of each model of product under standard configuration. If other rated voltage is required, special order is allowable. Please contact Hongfa for specific solutions.

If you have any questions about the selection, please contact Hongfa to get the most suitable configuration recommendations.

RELAY SELECTION GUIDE(Based on product model)

		New Energy	Vehicle Application		
	Main relay	Precharge relay	Fast charge relay	Normal change relay	Auxilliary relay
Passenger vehicle EV/PHEV	HFE82V-100DP32HFE82V-150DP37HFE82V-150FP42HFE82V-200BP46HFE82V-200WP57HFE82V-250CP68HFE82V-300CP74HFE82V-400MP84HFE85V-300MP84	HFE82V-20 P17 HFE80V-20B P98 HFE80V-20C P102 HFE80V-20D P107	HFE82V-150DP37HFE82V-200WP57HFE82V-250CP68HFE82V-300CP74HFE85V-300MP80HFE82V-400MP84	HFE82V-40 P21 HFE80V-40 P111	HFE82V-40 P21 HFE80V-20B P98 HFE80V-20C P102 HFE80V-40 P111
Passenger vehicle HEV	HFE82V-60P25HFE82V-100DP32HFE82V-150DP37	HFE80V-20BP98HFE80V-20CP102HFE80V-20DP107		_	HFE80V-20BP98HFE80V-20CP102HFE80V-40P111
Bus	HFE82V-250P63HFE82V-250CP68HFE82V-300CP74HFE82V-600P90	HFE82V-20 P17 HFE82V-40 P21	HFE82V-300C P74 HFE82V-400M P84 HFE82V-600 P90	HFE82V-150D P37	HFE82V-20 P17 HFE82V-40 P21 HFE82V-100D P32
Mild electric vehicle (Low speed EV)	HFE82V-60P25HFE82V-60BP28HFE82V-150DP37HFE82V-200BP46HFE80V-200P120	HFE80V-20B P98 HFE80V-20C P102 HFE80V-20D P107	HFE80V-200 P120	HFE80V-20BP98HFE80V-20CP102HFE80V-40P111HFE80V-60P116	HFE80V-20BP98HFE80V-20CP102HFE80V-40P111HFE80V-60P116
Logistics vehicle	HFE82V-150DP37HFE82V-200BP46HFE82V-250CP68	HFE80V-20B P98 HFE80V-20C P102 HFE80V-20D P107	•	HFE80V-20BP98HFE80V-20CP102HFE80V-40P111	HFE80V-20B P98 HFE80V-20C P102 HFE80V-20D P107

			PV and Energy Storag	e Application	
Relay type	HFE82P-20 HFE82P-60B HFE82P-200B HFE82P-250 HFE82P-250C	Page 126 Page 130 Page 134 Page 140 Page 145	HFE85P-150 HFE85P-250 HFE85P-300	Page 151 Page 155 Page 159	HFE88P-150 Page 163 HFE88P-250 Page 168 HFE88P-350 Page 173

Remarks: The above recommendations of partial model for typical applications are only for reference. In actual applications, the voltage, current, mounting and other factors shall be taken into consideration. Please contact with Hongfa for the most appropriate selection recommendation.

If you have any questions about the selection, please contact Hongfa to get the most suitable configuration recommendations.

Direct CTION CHART Direct CTION CHART Type IFER2/20 FIFER2/20 IFER2/20 FIFER2/20 Appearance Subscription Outline dimension(mm) 7.8/ x 30.8 x 46.1 GT.0 COL2E SAV.0 Contact arrangement TOTM > GT.0 COL2E SAV.0 Contact arrangement SUBSCR GT.0 COL2E SAV.0 Contact arrangement GT.0 COL2E SAV.0 GT.0 COL2E SAV.0 Contact arrangement GT.0 COL2E SAV.0 GT.0 COL2E SAV.0 Contact arrangement GT.0 COL2E SAV.0 GT.0 COL2E SAV.0 GT.0 COL2E SAV.0 SUBSCR SUBSCR SUBSCR SUBSCR SUBSCR SUBSCR SUBSCR <th< th=""><th colspan="4" rowspan="2"></th><th></th><th></th><th></th></th<>							
Discretation of the second s							
Direct current relay Type IFEB2V-20 HFEB2V-20 Appearance IFEB2V-20 Outline dimensions(mm) 7.8.0 x 39.8 x 46.1 Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Contact resistance IFOW NOT 1FOUR A Got for 0x32 6x47.0 Maxing current IFOW NOT 1FOUR A Got for 0x32 6x47.0 Maxing current IFOW NOT 1FOUR A Got for 0x32 6x47.0 Maxing current IFOW NOT 1FOUR A Got for 0x32 6x47.0 Maxing current <th< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></th<>							
Type HFE82V-20 HFE82V-20 Appearance Image: Second	SELECTION CH	ART			P	Direct current relay	
Appearance Image: state is an equation of the state is an equation	Туре		HFE82V-20	. A.	HFE8	2V-40	
Quiline dimension(m) Contact arrangement78.0 x 39.8 x 48.1 I67.0 x32.6 x47.0Contact arrangementIIIIIContact resistance \times 4.5 mQ(at 20A \ll 3mQ(at 40A)IIIPick-up votage(VDC) \sim 75% Un \sim 75% Un \sim 75%Contact rating $0 \ge 75\%$ Un $(000VDC) 1op$ $(000VDC) 1op$ $(000VDC) 1op$ Ioad votage 4500 $200A$ $(1000VDC) 1op$ $(000VDC) 1op$ $(300VDC) 1op$ $(300VDC) 1op$ Max. iswitching votage $1000VDC$ $1000VDC$ $1000VDC$ $(000VDC) 1op$ $(300VDC) 1op$ Max. iswitching power $18KW$ $30KW$ $30KW$ $30KW$ $30KW$ $30KW$ Electric endurance $S_{SVIChing}$ $(450VDC,20A)S_{SVIChing}(450VDC,40A)SVIChing, 2×10^{o}ops(750VDC,20A)SVIChing, 2×10^{o}ops(750VDC,20A)SVIChing, 2×10^{o}ops(750VDC,40A)SVIChing, 2×10^{o}ops(750VDC,40A)Delectric [coil & contacts]SVIChing, 2×10^{o}ops(450VDC,40A)SVIChing, 2×10^{o}ops(750VDC,40A)SVIChing, 2×10^{o}ops(750VDC,40A)Mect-areal enduranceZ \times 10^{o}ops(450VDC,40A)Z \times 10^{o}ops(450VDC,40A)SVIChing, 2×10^{o}ops(750VDC,40A)Coil & contactsZ \times 10^{o}ops(450VDC,40A)Z \times 10^{o}ops(450VDC,40A)Z \times 10^{o}ops(750VDC,40A)Delectric [coil & contacts]Z \times 10^{o}ops(450VDC,40A)Z \times 10^{o}ops(450VDC,40A)Z \times 10^{o}ops(450VDC,40A)Coil U = minal structureQ \subset Z \times UZ \times 10^{o}ops(400 Q \subset 25C)$	Appearance	TH LO2 V-20				HY SERVICE SALES	
Contact =rrangementI FORMI FORMContact =resistance $4 \le 4 \ SinQ(at 20A)$ $3 \le 3 \ Sin Q $	Outline dimensions(mm)		78.0 x 39.8 x 46.1	l	67.0x32	2.6x47.0	
$ \begin{array}{c c c } \label{eq:constraint} \begin{tabular}{ c c c c c c } \label{eq:constraint} \begin{tabular}{ c c c c c c c c c c c c c } \label{eq:constraint} \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Contact arrangement	×0`	1 Form A		1 Fo	rm A	
Pick- $2 imesite rating< < 75\% \ Un << < 75\% \ Un <Contact rating450V750V1000V450V750VMax. 2 imesite rating current(1000VDC) top(1000VDC) top(1000VDC) top400A400AMax. 2 imesite rating current(1000VDC) top(1000VDC) top(1000VDC) top(1000VDC) top1000VDCMax. 2 imesite rating current1000VDC1000VDC1000VDC1000VDC1000VDCMax. 2 imesite rating current18kW30kW36kW36kW66kWMax. 2 imesite rating currentSwitching: 5 imesite$	Contact resistance	C,	\leq 4.5m Ω (at 20A))	≪3mΩ((at 40A)	
$ \begin{array}{c c c } \label{eq:constraint} \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Pick-up voltage(VDC)	0	≪75% Un		≤75	% Un	
$ \begin{array}{c c c c } \label{eq:log} \label$	Contact rating		20A	1	40	A	
Max. breaking current(1000VDC) 100(1000VDC)10p(1000VDC)10p(1000VDC)10p(1000VDC)10pMax. switching voltage1000VDC1000VDC1000VDC1000VDC1000VDCMax. switching power18kW30kW30kW36kW60kWElectric lenduranceSwitching: 5 x 10°pos (450VDC,20A)Switching: 5 x 10°pos (750VDC,20A)Switching: 3 x 10°pos (1000VDC 40A)Switching: 7 × 10° ops (450VDC,40A)Switching: 7 × 10° ops (750VDC,40A)Dielectric coll 8 contacts4000VAC tmin4000VAC tmin4000VAC tminDielectric coll 8 contacts4000VAC tmin3000VAC tminMeter voltage(VDC)12, 24, 4812, 24Coll coll power2 × 10°ops2 × 10°opsColl toripColl power2 × 10°ops3000VAC tminColl uninal structureQCScrew terminal femaleUnit weightApprox.140gApprox.160gVibration resistance10Hz - 500Hz 49m/s²10Hz - 500Hz 49m/s²Humidity5% - 85% RH5% - 85% RHAmbient temperature-40°C - 85°C-40°C - 85°CLayout (Botton View)268.160.1648.02-40°C - 85°CApprox ElstandardsPANASONIC:AEV520** OMRON:G9EB/G9EJPANASONIC:AEVG160** LS:GER040Page1721	Load voltage	450V	750V	1000V	450V	750V	
Max: switching vollage 1000VDC 1000VDC 1000VDC 1000VDC 1000VDC Max: switching power 18kW 30kW 30kW 36kW 66kW Between Switching: 5 × 10° ops (750VDC.40A) Switching: 5 × 10° ops (750VDC.40A) Switching: 7 5 × 10° ops (750VDC.40A) Making: 7.5 × 10° ops (750VDC.40A) Delective: Between ontacts 4000VAC 1min 4000VAC 1min 4000VAC 1min Netrice: Between ontacts 3000VAC 1min 3000VAC 1min 4000VAC 1min Ketween ontacts 3000VAC 1min 3000VAC 1min 3000VAC 1min 4000VAC 1min Ketween ontacts 3000VAC 1min 3000VAC 1min 3000VAC 1min 3000VAC 1min Ketween ontacts 3000VAC 1min 3000VAC 1min 3000VAC 1min 3000VAC 1min Ketween ontacts 3000VAC 1min 3000VAC 1min 3000VAC 1min 3000VAC 1min Ketween ontacts 3000VAC 2000 QC 210 - 21 3000VAC 1min 3000VAC 1min Load texture QC QC Street minal structure QC Street minal structure 3000VAC 2001 300VAC 2001 300VAC 2001 300VAC 2001 300VAC 2001 300	Max. breaking current	200A (1000VDC) 1op	200A (1000VDC)1op	200A (1000VDC)1op	400A (300VDC) 1op	400A (300VDC)1op	
Nax. switching power18kW30kW30kW36kW60kWESwitching: 5 × 10°cps (50VDC,20A)Switching: 5 × 10°cps (50VDC,20A)Switching: 3 × 10°cps (450VDC,40A)Switching: 1 × 10°cps (750VDC,40A)Dielective IBetween Between coil & contacts $4000VAC 1min$ Switching: 3 × 10°cps (450VDC,40A)Dielective Between DielectiveBetween Between 	Max. switching voltage	1000VDC	1000VDC	1000VDC	1000VDC	1000VDC	
$ \begin{array}{c c c c c c } \label{eq:spectral} \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Max. switching power	18kW	30kW	30kW	36kW	60kW	
Dielectric coll & contactsBetween coll & contacts4000VAC 1min4000VAC 1minDielectric lopen contacts3000VAC 1min3000VAC 1minMetract2 x 10°ops2 x 10°opsColl lopenRated Voltage(VDC)12, 24, 4812, 24Coll power2.6W3WColl turminal structureQCLead wireLoad turminal structureQCScrew terminal femaleUnit weightApprox.140gApprox.160gVibration resistance10Hz ~ 500Hz 49m/s²10Hz ~ 500Hz 49m/s²Layout (Bottom View) $\frac{2x08.180.1}{6480.2}$ $\frac{5650.2}{2x04.50.1}$ Layout (Bottom View) $\frac{6440.2}{6440.2}$ $5000000000000000000000000000000000000$	Electrical endurance	Switching: 7.5 x 10 ⁴ ops (450VDC,20A)	Switching: 5 x 10⁴ops (750VDC,20A)	Switching: 3 x 10 ⁴ ops (1000VDC,20A)	Switching:2×10⁴ ops (450VDC,40A) Making:7.5×10⁴ ops (450VDC,40A)	Switching:1×10³ ops (750VDC,40A) Making:7.5×10⁴ ops (750VDC,40A)	
strengthBetween open contacts3000VAC 1min3000VAC 1minMechanical endurance $2 \times 10^5 ops$ $2 \times 10^5 ops$ CollRated Voltage(VDC)12, 24, 4812, 24CollColl power $2.6W$ $3W$ Coll tarminal structureQCLead wireLoad terminal structureQCScrew terminal femaleUnit weightApprox.140gApprox.160gVibration10Hz ~ 500Hz 49m/s²10Hz ~ 500Hz 49m/s²Humidity5% ~ 85% RH5% ~ 85% RHAmbient temperature40°C ~ 85°C $-40°C ~ 85°C$ Layout (Bottom View) $\frac{2006.120.1}{6420.2}$ $\frac{6420.2}{2.004.540.1}$ ApproxFerencePANASONIC.AEV520** OMRON.G9EB/G9EJPANASONIC.AEVG160** LS.GER040Page1721	Between Dielectric coil & contacts		4000VAC 1min		4000VAC 1min		
Her CollRated Voltage(VDC)2 x 10°ops2 x 10°opsCollRated Voltage(VDC)12, 24, 4812, 24Coll power2.6W3WCollColl powerColl Cead wireLoad turnQCLead wireLoad turnQCScrew terminal femaleUnit wightApprox.140gApprox.160gVibration resistance10Hz ~ 500Hz 49m/s²10Hz ~ 500Hz 49m/s²Humid turnGotton YeiswightS% ~ 85% RHS% ~ 85% RHLavit (Bottom View) $2 2 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 $	strength Between open contacts		3000VAC 1min	/	3000VAC 1min		
Rated Voltage(VDC)12, 24, 4812, 24Coil power2.6W3WCoil powerQCLead wireLoad trimal structureQCScrew terminal femaleLoad trimal structureQCScrew terminal femaleUnit weightApprox.140gApprox.160gVibration resistance10Hz ~ 500Hz 49m/s²10Hz ~ 500Hz 49m/s²Humid temperature5% ~ 85% RH5% ~ 85% RHAmbient temperature-40°C ~ 85°C-40°C ~ 85°CLyout (Bottom View) $\frac{2x06.120.1}{0.000000000000000000000000000000000$	Mechanical endurance		2 x 10⁵ops		2 x 10 ⁵ ops		
Coil power2.6W3WCoil powerQCLead wireLoad terminal structureQCScrew terminal femaleUnit weightApprox.140gApprox.160gVibration resistance10Hz ~ 500Hz 49m/s²10Hz ~ 500Hz 49m/s²Humidity5% ~ 85% RH5% ~ 85% RHAmbient temperature $40^{\circ}C ~ 85^{\circ}C$ $40^{\circ}C ~ 85^{\circ}C$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)$ $2x06.140.1 from View)$ $5640.2 from View)$ $2x06.140.1 from View)2x06.140.1 from View)2x06.140.1 fro$	Coil Rated Voltage(VDC)		12, 24, 48		12, 24		
Coil terminal structureQCLead wireLoad terminal structureQCScrew terminal femaleUnit weightApprox.140gApprox.160gVibration resistance10Hz ~ 500Hz 49m/s²10Hz ~ 500Hz 49m/s²Humidity5% ~ 85% RH5% ~ 85% RHAmbient temperature-40°C ~ 85°C-40°C ~ 85°CLayout (Bottom View)	Coil power		2.6W		31	N	
Load terminal structureQCScrew terminal femaleUnit weightApprox.140gApprox.160gVibration resistance10Hz ~ 500Hz 49m/s²10Hz ~ 500Hz 49m/s²Humidity $5\% ~ 85\%$ RH $5\% ~ 85\%$ RHAmbient temperature 40° C ~ 85° C -40° C ~ 85° CLayout (Bottom View) $2x06.1\pm0.1$ 64 ± 0.2 -40° C ~ 85° CApproved StandardsCross ReferencePANASONIC:AEV520** OMRON:G9EB/G9EJPANASONIC:AEVG160** LS:GER040Page1721	Coil terminal structure		QC		Lead	wire	
Unit weightApprox.140gApprox.160gVibration resistance $10Hz \sim 500Hz \ 49m/s^2$ $10Hz \sim 500Hz \ 49m/s^2$ Humidity $5\% \sim 85\% \ RH$ $5\% \sim 85\% \ RH$ Ambient temperature $-40^{\circ}C \sim 85^{\circ}C$ $-40^{\circ}C \sim 85^{\circ}C$ Layout (Bottom View) $40^{\circ}C \sim 100^{\circ}C \rightarrow 100^{\circ}C$	Load terminal structure		QC		Screw term	inal female	
Vibration resistance $10Hz \sim 500Hz \ 49m/s^2$ $10Hz \sim 500Hz \ 49m/s^2$ Humidity $5\% \sim 85\% \ RH$ $5\% \sim 85\% \ RH$ Ambient temperature -40° C ~ 85° C -40° C ~ 85° CLayout (Bottom View) $2x061\pm0.1$ 64 ± 0.2 -40° C ~ 45° CApproved Standards $-2x061\pm0.1$ -64 ± 0.2 -40° C ~ 45° CCross ReferencePANASONIC:AEV520** OMRON:G9EB/G9EJPANASONIC:AEVG160** LS:GER040Page1721	Unit weight		Approx.140g		Approx	x.160g	
Humidity $5\% \sim 85\%$ RH $5\% \sim 85\%$ RHAmbient temperature $-40^{\circ}C \sim 85^{\circ}C$ $-40^{\circ}C \sim 85^{\circ}C$ Layout (Bottom View) $2x06.1\pm0.1$ 64 ± 0.2 56 ± 0.2 $2x06.1\pm0.1$ 64 ± 0.2 56 ± 0.2 $2x06.1\pm0.1$ 64 ± 0.2 56 ± 0.2 Cross ReferencePANASONIC:AEV520** OMRON:G9EB/G9EJPANASONIC:AEVG160** LS:GER040Page1721	Vibration resistance	10)Hz ~ 500Hz 49m	/ S ²	10Hz ~ 500	Hz 49m/s ²	
Ambient temperature -40° C ~ 85°C -40° C ~ 85°CLayout (Bottom View) $2 \times 06.1 \pm 0.1$ 64 ± 0.2 -40° C ~ 85°CApproved Standards $2 \times 06.1 \pm 0.1$ 64 ± 0.2 -40° C ~ 85°CCross ReferencePANASONIC:AEV520** OMRON:G9EB/G9EJPANASONIC:AEVG160** LS:GER040Page1721	Humidity 5% ~ 85% RH		5% ~ 8	5% RH			
Layout (Bottom View)2xØ6.1±0.144±0.256±0.2Approved Standards	Ambient temperature		-40°C ~ 85°C		-40°C -	~ 85°C	
Approved StandardsPANASONIC:AEV520** OMRON:G9EB/G9EJPANASONIC:AEVG160** LS:GER040Page1721	Layout (Bottom View)			0.2 2xØ4.5±0.1			
Cross ReferencePANASONIC:AEV520** OMRON:G9EB/G9EJPANASONIC:AEVG160** LS:GER040Page1721	Approved Standards						
Page 17 21	Cross Reference	PANASONIC:	AEV520** OMRC	N:G9EB/G9EJ	PANASONIC:AEVG	6160** LS:GER040	
	Page		17	0.	2	1	

 Note:1) Seal chamber≥IP67;Relay body≥P40;

 2) Working altitude≥4000m;

 3) These specifications are for reference only and are subject to change without notice,If there are any questions, please contact Hongfa for technical service.

SELECT		ART	t) C	Direct current relay
Туре		HFE82V-60	HFE82V-60B	HFE82	2V-100D
Appearance		HFE82V-60 12H2 National Management Managemen			HERZY-1000 HCS Marginson
Outline dimer	nsions(mm)	55.0x39.8x37.0	64.0x33.0x52.8	76.0x36	6.0x72.0
Contact arrar	igement	1 Form A	1 Form A	1 Fc	prm A
Contact resis	tance	≪1mΩ(at 60A)	≪1mΩ(at 60A)	≪0.5mΩ	2(at 100A)
Pick-up volta	ge(VDC)	≪75% Un	≪75% Un	≤75	% Un
Contact rating		60A	60A	10	A00
Load voltage		450V/750V	450V/750V	450V	750V
Max. breaking	g current	600A(450VDC)1op	600A(450VDC)1op	1000A(300VDC)1op	1000A(300VDC)1op
Max. switchin	g voltage	1000VDC	1000VDC	750	VDC
Max. switchin	g power	54kW	54kW	90kW	150kW
Electrical end	urance	Switching:7.5x10⁴ops (20VDC,60A) Breaking:100ops (450VDC,200A)	Making:7.5x10⁴ops (450VDC,60A) Making:5x10⁴ops (750VDC,60A)	Switching:1x10³ops (450VDC, 100A) Making:2.5x10⁴ops (22.5VDC, τ =1ms, Inrush400A, Steady100A)	Switching:100ops (800VDC,100A) Making:1x10⁴ops (37.5VDC, ⊤ =1ms, Inrush400A, Steady100A)
Dielectric coil &	een	4000VAC 1min	3600VAC 1min	4000VA	AC 1min
strength Betw	/een	3000VAC 1min	3000VAC 1min	3000VA	AC 1min
Mechanical e	ndurance	2 x 10⁵ops	2 x 10⁵ops	2 x 1	0⁵ops
Rated \	/oltage(VDC)	12, 24	12, 24	12	, 24
Coil pov	ver	4.5W	5.2W	5.	5W
Coil terminal	structure	QC	Lead wire	Conr	nector
Load termina	structure	QC	Screw terminal female	Screw tern	ninal female
Unit weight		Approx.175g	Approx.170g	Appro	x.260g
Vibration resi	stance	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s²	10Hz ~ 500	0Hz 49m/s²
Humidity	•	5% ~ 85% RH	5% ~ 85% RH	5% ~ 8	35% RH
Ambient temperature		-40°C ~ 85°C	-40°C ~ 85°C	-40°C	~ 85°C
Layout (Botto	m View)	See"Outline dimensions"	2xØ6±0.1 52±0.3	2:0+22 2x06±	0.1 62±0.2
Approved Sta	Indards	UL:E133481 TüV:B0532860044	UL:E133481		
Cross Refere	nce		PANASONIC:AEVG160**	PANASONIC:A LS:GER100	AEVS160**M15
Daga		25	28		20

 Note:1) Seal chamber≥IP67;Relay body≥P40;

 2) Working altitude≥4000m;

 3) These specifications are for reference only and are subject to change without notice,If there are any questions, please contact Hongfa for technical service.

SE		ART		K	Direct current relay
Туре		HFE82	V-150D	HFE82V-150F	HFE82V-200B
Appea	arance		HE82V-1500 H05 100 H05	C HERVISOF Social Horizon	CHEER 2000
Outlin	e dimensions(mm)	76.0x36	5.0x72.0	77.0x37.7x71.3	81.0x39.0x70.0(HC5) 81.7x39.5x69.6(HC5Y)
Conta	act arrangement	1 Fo	rm A	1 Form A	1 Form A
Conta	act resistance	≤0.5mΩ	(at 150A)	≪0.5mΩ(at 150A)	≪0.5mΩ(at 200A)
Pick-ι	up voltage(VDC)	≤75	% Un	≪75% Un	≪75% Un
Conta	act rating	15	0A	150A	200A
Load	voltage	450V	750V	-	-
Max.	breaking current	1200A(300VDC)1op	1200A(300VDC)1op	1300A(400VDC)1op	2000A(450VDC)1op
Max.	switching voltage	750VDC		750VDC	750VDC
Max.	switching power	135kW	225kW	150kW	180kW
Electr	ical endurance	Switching:1x10³ops (450VDC,150A) Making:2.5x10⁴ops (22.5VDC, τ =1ms, Inrush400A,Steady150A)	Switching:100ops (750VDC,150A) Making:1x10 ⁴ ops (37.5VDC, τ =1ms, Inrush400A,Steady150A)	Breaking:5x10⁴ops (475VDC,20A) Making:7x10⁴ops (20VDC,100A)	Switching:1x10 ³ ops (450VDC,200A) Switching:500ops (750VDC,200A) Making:2x10 ⁴ ops (37.5VDC,RC=1ms, liprish400A Steady200A)
Dielec	Between tric coil & contacts	4000VA	C 1min	4000VAC 1min	4000VAC 1min
streng	th Between open contacts	3000VA	C 1min	3000VAC 1min	3000VAC 1min
Mech	anical endurance	2 x 1	0⁵ops	2 x 10⁵ops	2 x 10⁵ops
Coil	Rated Voltage(VDC)	12,	24	12, 24	12, 24
COII	Coil power	5.5	5W	6W	6W
Coil te	erminal structure	Conr	ector	QC	Connector
Load	terminal structure	Screw term	inal female	Screw terminal female	Screw terminal female
Unit v	veight	Appro	x.260g	Approx.285g	Approx.330g
Vibrat	tion resistance	10Hz ~ 500)Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²
Humi	dity	5% ~ 8	5% RH	5% ~ 85% RH	5% ~ 85% RH
Ambie	ent temperature	-40°C	~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layou	ut (Bottom View)	2 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0.1 (2±0.2	2xØ6±0.1	2xØ6.2±0.1 64.5±0.2
Appro	oved Standards				UL:E133481
Cross	Reference	PANASONIC:A TYCO:EV500	EVS160**M16	PANASONIC:AEVH900122 M	 PANASONIC:AEVF140** LS:GER200
Page		3	7	42	46

Note:1) Seal chamber≥IP67;Relay body≥P40;

2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice, If there are any questions, please contact Hongfa for technical service.

				10	
SEL	ECTION CH	ART			Direct current relay
Туре		HFE82	V-200D	HFE82V-200W	HFE82V-250
Appea	rance		HERAV-200D 6-12-105 March 10-10-10-10-10-10-10-10-10-10-10-10-10-1	C HEERVOOV ISAAGO	CHERNIZE TRANSFER
Outline	e dimensions(mm)	78.7x36	5.0x72.0	55.0x43.0x65.8	95.0x45.0x85.0(HL5) 97.0x45.5x84.7(HL5Y)
Conta	ct arrangement	1 Fo	rm A	1 Form A	1 Form A
Conta	ct resistance	≪0.5mΩ	(at 200A)	Main contact≪0.5mΩ(at 200A) auxiliary contact⊴100mΩ(at 0.5A)	≪0.2mΩ(at 250A)
Pick-u	p voltage(VDC)	≤75%	% Un	≪75% Un	≪75% Un
Conta	ct rating	20	0A	200A	250A
Load \	oltage	450V	750V	-	-
Max. b	reaking current	1200A(300VDC)1op	1200A(300VDC)1op	1500A(450VDC)1op	2000A(450VDC)1op
Max. s	witching voltage	750	VDC	750VDC	750VDC
Max. s	witching power	180kW	300kW	180kW	225kW
Electri	cal endurance	Switching:800ops (450VDC,200A) Making:1.5x10 ⁴ ops (22.5VDC, τ =1ms, Inrush 400A, Steady 200A)	Switching:100ops (750VDC,200A)	Making:1x10⁵ops(20 VDC C=1500µF,Inrush150A) Breaking:5x10⁴ops (450 VDC,15A) Breaking:500ops (450 VDC,200A)	Making:2.5×10⁴ops (22.5 VDC,C=1100µf, Inrush 400A,Steady 250A) Making:1op(300 VDC, C=1100µF,Inrush1350A)
Dielecti	Between ic coil & contacts	4000VAC 1min		4000VAC 1min	4000VAC 1min
strengt	Between open contacts	3000VA	C 1min	3000VAC 1min	3000VAC 1min
Mecha	nical endurance	2 x 1	D⁵ops	2 x 10⁵ops	2 x 10⁵ops
Coil	Rated Voltage(VDC)	12,	24	12, 24	12, 24
	Coil power	5.5	5W	6W	6W
Coil te	rminal structure	Conn	ector	Connector	Lead wire
Load t	erminal structure	Screw term	inal female	Screw terminal female	Screw terminal female
Unit w	eight	Approx	x.260g	Approx.400g	Approx.580g
Vibrati	on resistance	10Hz ~ 500)Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²
Humid	ity	5% ~ 8	5% RH	5% ~ 85% RH	5% ~ 85% RH
Ambie	nt temperature	-40°C	~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layou	t (Bottom View)	2xØ6±0	0.1 2±0.2	2xØ6±0.1 69±0.3	2xØ6.2±0.1 82±0.2
Approv	ved Standards				UL:E133481
Cross	Reference				PANASONIC:AEV170 M04
Page		5	2	57	63

1:1) Seal chamber≥IP67;Relay body≥P40;
2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice,If there are any questions, please contact Hongfa for technical service.

							-
Туре			HFE82	V-250C	HFE82	2V-300C	HFE85V-300M
Appearance			MFE2V/230C M22NG61077 M22NG2		HIFERAV.300C IN THE CASING IN THE CASING IN THE CASING INTERNAL INTERNAL INTERNAL IN	HERSTAN HARACACH MARKAN HARACACH HARACA	
Outlin	e dimensions(i	nm)	88.3x42 85.1x42	2.5x74.5 2.5x74.0	88.3x4 85.1x4	2.5x74.5 2.5x74.5	84.5 x 62.5x73.0
Conta	act arrangemen	t	1 Fo	rm A	1 Fo	orm A	1 Form A
Conta	act resistance		≪0.5mΩ	(at 250A)	≪0.5mΩ	2(at 300A)	≪0.25mΩ(at 200A)
Pick-ι	up voltage(VDC	;)	≤75	% Un	≤75	5% Un	≪75% Un
Conta	act rating		25	0A	30	AOC	300A
Load	voltage		450V	750V	450V	750V	-
Max.	breaking curre	nt	2000A (450VDC)1op	2000A (450VDC)1op	2000A (750VDC)1op	2000A (750VDC)1op	2000A(450VDC)1op
Max.	switching volta	ge	1000VDC	1000VDC	100	DVDC	1000VDC
Max.	switching powe	r	250kW	250kW	300kW	300kW	450kW
Electr	ical endurance		Making:7.5x10⁴ops (20VDC,Steady140A) Breaking:1000ops (450VDC,250A)	Making:7.5x10⁴ops (20VDC,Steady140A) Breaking:200ops (750VDC,250A)	Making:7.5×10 ⁴ ops (Steady140A,20VDC Breaking:1000ops (450VDC,300A)	Making:7.5×10⁴ops)(Steady140A,20VDC) Breaking:500ops (750VDC,300A)	Breaking:100ops (1000VDC,300A) Breaking:500ops (800VDC,300A) Breaking:1000ops (450VDC,300A)
Dielec	Between	cts	2600VA	C 1min	2600V	AC 1min	3000VAC 1min
streng	th Between open conta	cts	2600VA	C 1min	2600V	AC 1min	3000VAC 1min
Mech	anical enduran	ce	2 x 10	0⁵ops	2 x 1	0⁵ops	2 x 10⁵ops
Coil	Rated Voltage(/DC)	12,	24	12	, 24	12, 24
	Coil power		61	W	6	ŚW	Driving Power:60W Holding Power:4.3W
Coil te	erminal structu	е	Connec	ctor,QC	Connector, QC		Connector
Load	terminal struct	ire	Screw term	inal female	Screw terminal female		Screw terminal femal
Unit v	veight	6	Approx	x.360g	Appro	x.370g	Approx.430g
Vibrat	tion resistance	,	10Hz ~ 500)Hz 49m/s²	10Hz ~ 50	0Hz 49m/s²	10Hz ~ 500Hz 49m/s
Humi	dity		5% ~ 8	5% RH	5% ~ 8	35% RH	5% ~ 85% RH
Ambie	ent temperature	9	-40°C ~	~ 85°C	-40°C	~ 85°C	-40°C ~ 85°C
Layou	ut (Bottom View	')	2xØ6 ⁰	.5±0.2	2xØ6; 2xØ6; 7	0.5±0.2	2xØ7 ^{†0.1}
Appro	oved Standards		UL:E1	33481			
Approved Standards			PANASONIC:A	EVA1251 M02	PANASONIC:	AEVA1251 M03	

 Note:1) Seal chamber≥IP67;Relay body≥P40;

 2) Working altitude≥4000m;

 3) These specifications are for reference only and are subject to change without notice,If there are any questions, please contact Hongfa for technical service.

SEL	ECTION CH	ART	T .	Direct current relay
Туре		HFE82V-400M	HFE82V-600	HFE82V-1000
Appearance				
Outline (dimensions(mm)	95.8 x 49.0 x 93	146.0x66.6x132.8	165.9x104.6x132.8
Contact	arrangement	1 Form A	1 Form A	1 Form A
Contact	resistance	≪0.25 mΩ Typ .:0.15 mΩ(at 400 A)	≪0.15mΩ(at 600A)	≪0.2mΩ(at 1000A)
י ⊃ick-up	voltage(VDC)	≪75% Un	≪75% Un	≪75% Un
Contact	rating	400A	600A	1000A
Load vo	oltage	450V/750V	450V/750V	1000V/1200V
Max. br	eaking current	2000A(450VDC)1op	2500A(800VDC)1op	2000A(1000VDC)1op
Max. sv	vitching voltage	800VDC	1000VDC	1500VDC
Max. sv	vitching power	360kW	600kW	1500kW
Electrical endurance		Making:7.5×10⁴ops (22.5VDC 140A C=110µF) Breaking:7.5×10⁴ops(450VDC,5A) Breaking:2.5×10⁴ops(450VDC,10A) Breaking:100ops(800VDC,400A)	Making:5×10 ⁴ ops (750VDC 120A,0.6s on:5.4s off) Switching:1×10 ⁵ ops(800VDC,10A) Switching:1×10 ⁴ ops(800VDC,100A) Switching:100ops(1000VDC,600A)	Making:2×10⁴ops(1000VDC,60A) Breaking:1ops(1000VDC,2000A) Breaking:50ops(1000VDC,1000A)
Dielectric	Between coil & contacts	3000VAC 1min	4000VAC 1min	5000VAC 1min
strength	Between open contacts	3000VAC 1min	3000VAC 1min	5000VAC 1min
Mechar	nical endurance	2 x 10⁵ops	2 x 10⁵ops	2 x 10⁵ops
	Rated Voltage(VDC)	12, 24	12, 24	12, 24
сош С	Coil power	6W	Switch on:50W(time:0.2s)Holding:10W	Switch on:50W(time:0.2s)Holding:10W
Coil terr	minal structure	Connector	Lead wire	Connector
Load te	rminal structure	Screw terminal female	Screw terminal female and copper bus bar terminal	Screw terminal female and copper bus bar terminal
Unit we	ight	Approx.740g	Approx.1800g	Approx.3500g
Vibratio	n resistance	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s²	10Hz ~ 55Hz 49m/s²
Humidit	у	5% ~ 85% RH	5% ~ 85% RH	5% ~ 85% RH
Ambien	t temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layout	(Bottom View)	[™] [™] ₀ 3xØ7±0.1 [№] 82±0.5	73.6±0.5 4xØ5.2 ^{+0.1}	135.5±0.5 4xØ7; ^{0.1} 0 1 4xØ7; ^{0.1} 0 1 1 1 1 1 1 1 1 1 1 1 1 1
Approve	ed Standards			
Cross F	Reference		TYCO:TE600	
Page		84	90	94

2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice, If there are any questions, please contact Hongfa for technical service.

SEI		ART	, t	Direct current re
Туре		HFE80V-20B	HFE80V-20C	HFE80V-20D
Appea	arance	CF: HFEBOY20B 204 45/02 204 45/02 Emiliar States Emiliar States Em	CF: HFESOV-20C 450-12-HT02LI 204 eshore Terminan manana Anno 12-12-12-12-12-12-12-12-12-12-12-12-12-1	CF:HFESUV200 45-12410201 204 450/02: BBR Timetiking and timetiking
Outlin	e dimensions(mm)	40.0x30.0x31.6	30.1x30.0x29.2	29.0x25.0x28.9
Conta	ct arrangement	1 Form A	1 Form A	1 Form A
Conta	ct resistance	≪5mΩ(at 20A)	≪5mΩ(at 20A)	≪5mΩ(at 20A)
Pick-u	ip voltage(VDC)	≪75% Un	≪75% Un	≪75% Un
Conta	ct rating	20A	20A	20A
Load	voltage	750V	-	-
Max. I	preaking current	30A(450VDC)5ops	30A (450VDC)5ops	20A (450VDC)5ops
Max. s	switching voltage	450VDC	750VDC	750VDC
Max. s	switching power	18kW	18kW	18kW
Electri	Between	Making:7.5x10 ⁴ ops(450VDC,20A) Switching:3x10 ³ ops(450VDC,20A) 3000VAC 1min	Swithing:3000ops(450VDC,20A) 3000VAC 1min	Making:7.5×10 ⁴ ops(450VDC Switching:1000 ops(450VDC 3000VAC 1min
strengt	h Between	2500VAC 1min	2000VAC 1min	2500VAC 1min
Mecha	anical endurance	2 x 10⁵ops	2 x 10⁵ops	2 x 10⁵ops
Cail	Rated Voltage(VDC)	12, 24	12, 24,48	12
COII	Coil power	3W	3W	1.8W
Coil te	erminal structure	QC	QC,PCB	QC
Load	terminal structure	QC	QC,PCB	QC
Unit w	veight	Approx.59g	Approx.50g	Approx.45g
Vibrat	ion resistance	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²
Humic	dity	5% ~ 85% RH	5% ~ 85% RH	5% ~ 85% RH
Ambie	ent temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layou	VIII (Bottom View)	50.9 	38±0.1	<u>38±0.2</u>
Appro	ved Standards		UL:E500911	
Cross	Reference		LS:GER010	PANASONIC:AECN110*

Note:1) Seal chamber≥IP67;Relay body≥P40;
2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice,If there are any questions, please contact Hongfa for technical service.

SF		ART	to	Direct current relav
Type		HEE80\/-40	HEE80V-60	HEE80V-200
Appe	earance	E HESOVAD ADA/24/102/ ADA/24/102/ ADA/24/102/ Martine	CF HEBOVED DOJAHTP N DOJAHTP N	
Outli	ne dimensions(mm)	30.1x30.0x29.2	55.1 x 38.9 x 42.6	88.0 x 47.4 x 88.0 81.0 x 47.8 x 87.4
Cont	act arrangement	1 Form A	1 Form A	1 Form A
Cont	act resistance	≪5mΩ(at 20A)	≪1.5mΩ(at 20A)	≪1.0mΩ(at 20A)
Pick-	up voltage(VDC)	≪75% Un	≪75% Un	≪75% Un
Cont	act rating	40A	60A	200A
Load	voltage	-	-	-
Max.	breaking current	50A (450VDC)1op	100A	400A
Max.	switching voltage	750VDC	200VDC	250VDC
Max.	switching power	27kW	32kW	80kW
Elect	rical endurance	Swithing:3000ops (150VDC,40A) Swithing:6000ops (450VDC,20A) Swithing:1000ops (450VDC,40A)	Switching:1 x 10⁵ops (12VDC,60A) Switching:7.5 x 10⁴ops (150VDC,10A)	Swithing:1 x 10⁴ops(150VDC,40A) Swithing:3,000ops(150VDC,200A)
Dielec	Between	3000VAC 1min	3000VAC 1min	4000VAC 1min
streng	th Between open contacts	2000VAC 1min	2000VAC 1min	3000VAC 1min
Mech	nanical endurance	2 x 10⁵ops	2 x 10⁵ops	2 x 10⁵ops
Coil	Rated Voltage(VDC)	12, 24, 48	12, 24	12, 24
Coll	Coil power	3W	3W	6W
Coil t	erminal structure	QC,PCB	QC,PCB	Connector
Load	terminal structure	QC,PCB	PCB	Screw terminal female
Unit	weight	Approx.51g	Approx.200g	Approx.370g
Vibra	tion resistance	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²	10Hz ~ 500Hz 49m/s ²
Hum	idity	5% ~ 85% RH	5% ~ 85% RH	5% ~ 85% RH
Ambi	ent temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layo	ut (Bottom View)	45 	See "outline dimensions"	2xØ6.2±0.1 72±0.3
Appr	oved Standards	UL:E133481	TüV: B0532860033	UL:E133481
Cros	s Reference	TYCO:mini K LS:GER010		
Page	9	111	116	120
Notor	1) Soal chambor > ID67.E	Polov bodv > P10		

Note:1) Seal chamber≥IP67;Relay body≥P40;
2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice,If there are any questions, please contact Hongfa for technical service.

SEI		ART		The second secon	Direct current relay
Туре		HFE8	2P-20	HFE82P-60B	HFE82P-200B
Арреа	arance		HFE82P-20 6-12-H 02/H		CF.HFE82P-2008 T2-HS T2-
Outlin	e dimensions(mm)	78.0x 39	.8 x 46.1	64.0x33.0x52.8	81.0x39.0x70.0(HC5) 81.7x39.5x69.6(HC5Y)
Conta	ct arrangement	1 Fro	om A	1 From A	1 From A
Conta	ct resistance	≤4.5mΩ	2(at 20A)	\leqslant 1m Ω (at 60A)	≪0.5mΩ(at 200A)
Pick-u	ip voltage(VDC)	≤809	% Un	≪80% Un	≪80% Un
Conta	ct rating	20	A	60A	200A
Load	voltage	1000V	1500V	-	-
Max. I	preaking current	200A (1000VDC)1op	200A (1000VDC)1op	600A(450VDC)1op	2000A(450VDC)1op
Max. s	switching voltage	1000VDC	1500VDC	1000VDC	750VDC
Max. s	switching power	20kW	30kW	54kW	180kW
Electri	ical endurance	Swithing:1 x 10⁴ops (1500VDC,15A) Swithing:1 x 10⁴ops (1000VDC,15A) making:1.5 x 10⁴ops (1500VDC,40A)		Swithing:6000ops (600VDC,30A)	Swithing:6000ops (500VDC, 60A) Breaking:500ops (500VDC, 250A)
	Between coil & contacts	4000VA	C 1min	3600VAC 1min	4000VAC 1min
)ielectrie	Between open main contacts	4000VAC 1min		3000VAC 1min	3000VAC 1min
. engar	Between contacts & auxiliary contacts		T		C
Necha	anical endurance	2 x 10	D⁵ops	2 x 10⁵ops	2 x 10⁵ops
Coil	Rated Voltage(VDC)	12, 2	4, 48	12, 24	12, 24
501	Coil power	2.6	SW	5.2W	6W
Coil te	erminal structure	Q	с	Lead wire	Connector
_oad t	terminal structure	Q	с	Screw terminal female	Screw terminal female
Jnit w	reight	Approx	k.160g	Approx.162g	Approx.330g
√ibrat	ion resistance	10Hz ~ 55Hz	1.5mm 49m/s²	10Hz~55Hz 1.5mm DA	10Hz~55Hz 1.5mm DA
Humic	lity	5% ~ 8	5% RH	5% ~ 85% RH	5% ~ 85% RH
Ambie	ent temperature	-40°C ⁄	~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layou	t (Bottom View)		4±0.2 2xØ6.1±0.1	2 <u>xØ6±0.1</u> 52±0.3	Z Z Z Z Z Z Z Z Z Z Z Z Z Z
Appro	ved Standards	UL: E1	33481		UL: E133481 PANASONIC:AEVF140**
Cross	Keterence			PANASUNIC:AEVG160**	LS:GER200
Page		12	20	130	134

Note:1) Seal chamber≥IP67;Relay body≥P40;

2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice, If there are any questions, please contact Hongfa for technical service.

SEL	ECTION CH	ART	t	Direct current relay
Туре		HFE82P-250	HFE82P-250C	HFE85P-150
Appearance			Cr HESPOSIC TRAILAGE IN TRAILAGE IN	
Outline	dimensions(mm)	95.0x45.0x85.0(HL5) 97.0x45.5x84.7(HL5Y)	88.3x42.5x74.5 85.1x42.5x74.0	80.4x62.3x72.8
Contac	t arrangement	1 Form A	1 Form A	1 Form A
Contac	t resistance	≪0.2mΩ(at 250A)	≪0.5mΩ(at 250A)	≪0.3mΩ(at 150A)
Pick-u	o voltage(VDC)	≪80% Un	≪80% Un	≪80% Un
Contac	t rating	250A	250A	150A
Load v	oltage	-	450V	-
Max. b	reaking current	2000A(450VDC)1op	1500A(750VDC)1op	1000A(320VDC)1op
Max. switching voltage		750VDC	1000VDC	1000VDC
Max. s	witching power	225kW	250kW	300kW
Electric	cal endurance	Swithing:6000ops (750VDC, 60A)	Swithing:6000ops (1000VDC,60A) Swithing:6000ops (400VDC,150A)	Breaking:6000ops (1500VDC,60A)
	Between coil & contacts	4000VAC 1min	2600VAC 1min	3300VAC 1min
ielectric trength	Between open main contacts	3000VAC 1min	2600VAC 1min	3300VAC 1min
	auxiliary contacts	10		3300VAC 1min
∕lecha	nical endurance	2 x 10⁵ops	2 x 10⁵ops	2 x 10⁵ops
Coil	Rated Voltage(VDC)	12, 24	12, 24	12, 24
	Coil power	6W	6W	Switch on:26W,Holding:3W
Coil te	rminal structure	Lead wire	Connector,QC	Lead wire
Load te	erminal structure	Screw terminal female	Screw terminal female	Screw terminal female
Unit we	eight	Approx.580g	Approx.360g	Approx.400g
Vibrati	on resistance	10Hz~55Hz 1.5mm DA	10Hz~55Hz 1.5mm DA	10Hz~55Hz 1.5mm DA
Humid	ity	5% ~ 85% RH	5% ~ 85% RH	5% ~ 85% RH
Ambie	nt temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layout	(Bottom View)	2xØ6.2±0.1 82±0.2	2xØ6 ^{+0.1} 90 70.5±0.2	68.4±0.2
Approv	ved Standards	UL: E133481	UL: E133481	UL: E133481
Cross	Reference	PANASONIC:AEV170 M04	PANASONIC:AEVA1251 M02 LS:GER250	
Page		140	145	151

1:1) Seal chamber≥IP67;Relay body≥P40;
2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice,If there are any questions, please contact Hongfa for technical service.

SEL	ECTION CH	ART	te	Direct current relay
Туре		HFE85P-250	HFE85P-300	HFE88P-150
Appearance		CT: HEERS 20 TOO INVESTIGATION	CY MARGINA TOOLSTAND	
Outline	e dimensions(mm)	80.4x62.3x72.8	80.4x62.3x72.8	104.0x70.0x107.9
Contac	et arrangement	1 Form A	1 Form A	1 Form A
Contac	t resistance	≪0.3mΩ(at 200A)	≪0.3mΩ(at 200A)	≪0.3mΩ(at 150A)
Pick-u	o voltage(VDC)	≪80% Un	≪80% Un	≪80% Un
Contac	t rating	250A	300A	150A
Load v	oltage	-		-
Max. b	reaking current	2000A(320VDC)1op	2000A(320VDC)1op	1000A(1500VDC)1op
Max. switching voltage		1000VDC	1000VDC	1500VDC
Max. switching power		400kW	450kW	450kW
Electri	cal endurance	Breaking:6000ops (1500VDC, 60A) Breaking:500ops (1000VDC, 250A)	Breaking:1000ops(450VDC,300A) Breaking:50ops(450VDC,-300A) Breaking:100ops(1000V,300A)	Breaking:2x10³ops (1500VDC,100A) Breaking:1x10³ops (1500VDC,150A)
	Between coil & contacts	3300VAC 1min	3300VAC 1min	4000VAC 1min
ielectric rength	Between open main contacts	3300VAC 1min	3300VAC 1min	4000VAC 1min
	Between contacts & auxiliary contacts	3300VAC 1min	3300VAC 1min	4000VAC 1min
Mecha	nical endurance	2 x 10⁵ops	2 x 10⁵ops	2 x 10⁵ops
Coil	Rated Voltage(VDC)	12, 24	12, 24	12, 24
	Coil power	Switch on:26W,Holding:3W	Switch on::26W,Holding:3W	Switch on:50W,Holding:5W
Coil te	rminal structure	Lead wire	Lead wire	Connector
Load te	erminal structure	Screw terminal female	Screw terminal female	Screw terminal female
Unit we	eight	Approx.400g	Approx.400g	Approx.1150g
Vibrati	on resistance	10Hz ~ 500Hz 49m/s ²	10Hz~55Hz 1.5mm DA	10Hz ~ 55Hz
Humid	ity	5% ~ 85% RH	5% ~ 85% RH	5% ~ 85% RH
Ambie	nt temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
Layout (Bottom View)		68.4±0.2	68.4±0.2	$- \begin{array}{c} & & & & \\ & & & \\ & & 4 \times \cancel{0}6.5^{+0.1}_{& 0} \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & $
Approv	ed Standards	UL: E133481	CCC: 2021000304000020	
Cross	Reference		D.	
Page		155	159	163

(1) Seal chamber ≥IP6 (Relay body≥P40;
 2) Working altitude≥4000m;
 3) These specifications are for reference only and are subject to change without notice, If there are any questions, please contact Hongfa for technical service.

SEL	ECTION CH	ARI		Direct current relay
Туре		HFE88P-250	HFE88P-350	
Appea	rance	CHERRY 20		
Outline	e dimensions(mm)	104.0x70.0x107.9mm	104.0x70.0x107.9mm	
Conta	ct arrangement	1 Form A	1 Form A	T
Contac	ct resistance	≪0.3mΩ(at 250A)	≪0.3mΩ(at 350A)	. d
Pick-u	p voltage(VDC)	≪80% Un	≪80% Un	
Contac	ct rating	250A	350A	
Load v	voltage	-	-	
Max. b	preaking current	1500A (1000VDC)1op	2000A (1000VDC)1op	
Max. s	witching voltage	1500VDC	1500VDC	
Max. switching power		500kW	700kW	
Electrical endurance		Swithing:6000ops(1500VDC,100A) Swithing:1000ops(1000VDC,350A) Swithing:6000ops (150VDC, 320A(L/R=0.3ms)	Swithing:6000ops(1500VDC,100A) Swithing:1000ops(1000VDC,350A) Swithing:6000ops (150VDC,320A(L/R=0.3ms)	
	Between coil & contacts	4000VAC 1min	4000VAC 1min	
Dielectric strenath	Between open main contacts	4000VAC 1min	4000VAC 1min	
	Between contacts & auxiliary contacts	4000VAC 1min	4000VAC 1min	
Mecha	anical endurance	2 x 10⁵ops	2 x 10⁵ops	
Coil	Rated Voltage(VDC)	12, 24	12, 24	
	Coil power	Switch on:50W,Holding:5W	Switch on:50W,Holding:5W	· · ·
Coil te	rminal structure	Connector	Connector	×0.
Load to	erminal structure	Screw terminal female	Screw terminal female	
Unit w	eight	Approx.1150g	Approx.1150g	X.O
Vibrati	on resistance	10Hz ~ 55Hz	10Hz ~ 55Hz	
Humid	lity	5% ~ 85% RH	5% ~ 85% RH	\mathcal{O}
Ambie	nt temperature	-40°C ~ 85°C	-40°C ~ 85°C	
Layout (Bottom View)		$- \begin{array}{c} - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - $	4xØ6.5 ^{+0.1} 4xØ6.5 ⁻⁰ 4xØ6.5 ⁻⁰ 4xØ6.5 ⁻⁰	
Approv	ved Standards	UL: E133481	UL: E133481	
Cross	Reference	LS:GPR-H500-A	10	
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Note:1) Seal chamber≥IP67;Relay body≥P40;

2) Working altitude≥4000m;
3) These specifications are for reference only and are subject to change without notice, If there are any questions, please contact Hongfa for technical service.

MMM + Contal CONTENTS

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HFE82V-20

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 20A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.
- No specific polarity requirements for the connection

CONTACT DATA

Contact arrangement		1 Form A			
Contact resistance 1)		≪4.5mΩ(at 20A)			
Contact rating		20A			
Mechanical endurance		2 x 10⁵ops			
1.	Type 450V	Type 750V			
Max. switching voltage	450 VDC	750 VDC			
Max. breaking current	200A (1000 VDC) 10p	200A (1000 VDC) 1op			
Max. switching power	18kW	30kW			
Electrical endurance ²⁾	Switching: 7.5 x 10⁴ ops (450 VDC,20A)	Switching: 5 x 10 ⁴ ops (750 VDC,20A)			
		Type 1000V			
Max. switching voltage		1000 VDC			
Max. breaking current	20	0A (1000 VDC) 1op			
Max. switching power	1	• 30kW			
Electrical endurance 2)	Switching:3 x 10 ⁴ c	ps(1000 VDC,20A)			
	10	20A: Cont.			
		30A: 1h			
Current carrying 3)	40A:20min				
capacity	80A:30s				
		120A:10s			
		200A: 0.6s			

COIL 23°C Rated Pick-up Drop-out Coil power Voltage VDC Voltage VDC Voltage VDC W 12 ≪9 ≥1 26 24 ≤18 ≥2 2.6 48 ≤36 ≥4 2.6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)		
Dielectric	Between coil & contacts	4000 VAC 1min		
strength	Between open contacts	3000 VAC 1min		
Operate ti	me (at rated volt.)	≪30ms		
Release ti	me (at rated volt.)	≤10ms		
Shock	Functional	196m/s²		
resistance	Destructive	490m/s²		
Vibration r	resistance	10Hz~500Hz 49m/s ²		
Humidity		5%~85% RH		
Ambient te	emperature	-40°C~85°C		
Load termi	inal structure	QC termina		
Unit weigh	t	Approx.140g		
Outline Dir	mensions	78.0 x 39.8 x 46.1mm		
Notes:The a	above values are the initial value	s measured at room temperature.		
	and the			

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23° C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 4mm² min. See Fig. Endurance Capacity Curve for more information.



ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING INFORM	ATION									
HFE82	2 V	-20/	1000-	12 -	H-	Q	2	J	-1	(XXX)
Гуре										
pplication V: V	/ehicle									
Contact rating	20: 20A	2								
_oad voltage	Nil: 450 1000: 10	VDC 750 00 VDC	: 750 VDC	;						
Coil voltage	12: 12 VD	C 24 : 24	VDC 48:	48 VDC						c O
ontact arrangement	H: 1 Fo	orm A								
oil terminal structur	e Q: QC	terminal				-			a.	•
oad terminal structu	re 2: QC	terminal					-	4		
Base structure	J: Lay	out base	without n	nounting	j boss					
Coil characteristic	1: Sin	gle coil								
Special code ¹⁾	XXX: (Customer	special req	uiremen	Nil: Sta	andard				
Notes: 1) The customer special r	equirement e	xpress as sp	ecial code afte	er evaluatin	g by Hong	a.				

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

4x6.3±0.1

39.8±0.3

ο

ο



Outline Dimensions

18

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm



CHARACTERISTIC CURVES



Notes:

- 1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively. 2. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
- 3. The data above is measured at the environment temperature 85°C with cross section area of wire \ge 4mm².
- 4. When the current is \geq 200A,the relay is likely to weld.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

- 1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N m to 4N m, the push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.
- 2. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 4mm², otherwise the terminal parts may have abnormal heating.
- 3、 Cautions of mounting for relay body:

Unrecommended method



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE82V-40

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 40A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.
- No specific polarity requirements for the connection

CONTACT DATA

Contact arrangement		1 Form A			
Contact resistance 1)		≪3mΩ(at 40A)			
Contact rating		40A			
Mechanical endurance		2x10⁵ops			
Ø.	Type 450V	Type 750V			
Max. switching voltage	1000 VDC	1000 VDC			
Max. breaking current	400A(300 VDC)1op	400A(300 VDC)1op			
Max. switching power	36kW	60kW			
Electrical and urance 2)	Switching: 2×10⁴ops (450 VDC,40A)	Switching: 1×10³ops (750 VDC,40A)			
	Making: 7.5×10⁴ops (450 VDC,40A)	Making: 7.5×10⁴ops (750 VDC,40A)			
		40A:Cont.			
	60A:1h				
Current carrying 3)	80A:20min				
capacity	160A:30s				
	12	320A:2s			
	400A:0.6s				

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 10mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	3
24	≤18	≥2	3

CHARACTERISTICS

resistance	1000MΩ (1000 VDC)	
Between coil & contacts	4000 VAC 1min	
Between open contacts	3000 VAC 1min	
me (at rated volt.)	≪30ms	
me (at rated volt.)	≪10ms	
Functional	196m/s ²	
Destructive	490m/s²	
esistance	10Hz ~ 500Hz 49m/s ²	
	5% ~ 85% RH	
emperature	-40°C ~ 85°C	
nal structure	M4 screw terminal female	
t	Approx.160g	
nensions	67.0x32.6x47.0mm	
	resistance Between coil & contacts Between open contacts me (at rated volt.) me (at rated volt.) Functional Destructive esistance emperature nal structure t mensions	

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING INFORMATION

F	IFE82	V	-40/	750-	12-	H-	L	5	J	-1	(XXX)	
Туре												
Application	V : V	ehicle										
Contact rating	9	40: 40	A									
Load voltage	l	Nil: 450 \	/DC 750:	750 VDC								
Coil voltage		12: 12	VDC 24	: 24 VDC							c O	
Contact arran	gement	H : 1 Fe	orm A			-						
Coil terminal	structure	L: Lea	ad wire							1		
Load terminal	l structure	5: Scre	ew termina	al female				1				
Base structur	e	J: Lay	out base v	vithout mo	unting bo	oss						
Coil character	ristic	1: Sing	le coil							-		
Special code ¹	Special code ¹⁾ XXX: Customer special requirement Nil: Standard											
Notes: 1) The custom	er special requ	uirement ex	press as spe	cial code afte	er evaluatin	ig by Hongf	a.					

contav

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE82V-40/XXX-XX-H-L5J1



OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Terminal Arrangement



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
- 2. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C. 3. The data above is measured at the environment temperature 85°C with cross section area of wire ≥10mm².
- 4. When the current is \geq 400A, the relay is likely to weld.



CAUTIONS

1. In case of loosening, please use washer when install the relay with M4 screw, and the torque within 2N-m to 3N-m, The screw tightening torque at terminals shall be within 2N-m to 3N-m. The torque beyond the range may cause damage.

	N	Iounting for load terminal		Mounting	for relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M4 Screw	2N·m~3N·m	Ø4.0mm~Ø4.5mm	1mm~2mm	M4 Screw	2N·m ∼ 3N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 10mm² min, otherwise the terminal parts may have abnormal heating.

6. The recommended thickness of copper bus-bar is 1mm to 2mm, otherwise it may cause screw loose or can not guarantee a tight mounting.

7. Cautions of mounting for relay body:



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE82V-60

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 60A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪1mΩ(at 60A)
Contact rating	60A
Mechanical endurance	2.5x10⁵ops
Max. switching voltage	1000 VDC
Max. breaking current	600A(450 VDC) 1op
Max. switching power	54kW
	Switching:7.5x10⁴ops (20 VDC, 60A)
	Switching:800ops (450 VDC, 60A)
Electrical endurance 2)	Switching:50ops (450 VDC,120A)
	Breaking:100ops (450 VDC, 200A,on-off ratio:0.3s:29.7s)
	Breaking:1op (450 VDC, 600A,on-off ratio:0.3s:29.7s)
	60A: Cont.
	90A: 1h
Current carrying ³⁾	120A: 14min
capacity	240A: 20s
	360A: 2s
	600A: 0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 15mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	4.5
24	≤18	≥2	4.5

CHARACTERISTICS

resistance	1000MΩ (1000 VDC)
Between coil & contacts	4000 VAC 1min
Between open contacts	3000 VAC 1min
me (at rated volt.)	≪30ms
me (at rated volt.)	≪15ms
Functional	196m/s²
Destructive	490m/s²
esistance	10Hz ~ 500Hz 49m/s ²
	5% ~ 85% RH
emperature	-40°C ~ 85°C
nal structure	QC terminal
t	Approx.175g
nensions	55.0x39.8x37.0mm
	resistance Between coil & contacts Between open contacts me (at rated volt.) me (at rated volt.) Functional Destructive esistance emperature mal structure

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED



Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm







CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. This data is only for reference and please do not use it for fuse selection.
- 2. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
- 3. If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire.
- 4. The data above is measured at the environment temperature 85°C, with cross section area of wire≥15mm².
- 5. When the relay is operated under current \ge 3000A for 10ms, it may weld without fire or explosion.

CAUTIONS

- 1. The push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.
- 2. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 15mm², otherwise the terminal parts may have abnormal heating.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE82V-60B

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 60A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 3.6kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪1mΩ(at 60A)
Contact rating	60A
Mechanical endurance	2.0x10⁵ops
Max. switching voltage	1000 VDC
Max. breaking current	600A(450 VDC) 1op
Max. switching power	54kW
	Making:7.5x10⁴ops (450 VDC, 60A)
Electrical endurance ²⁾	Making:5x10⁴ops (750 VDC, 60A)
	Switching:1x10 ³ ops (450 VDC, 60A)
	Breaking:2x10⁴ops (750 VDC, 30A)
	60A:Cont.
	90A:1h
Current carrying 3)	120A:20min
capacity	240A:20s
	360A:2s
	600A:0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23° C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 15mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	5.2
24	≤18	≥2	5.2

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	3600 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration r	esistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	M4 Screw terminal female
Unit weigh	t	Approx.170g
Outline Dir	mensions	64.0x33.0x52.8mm

Notes: The above values are the initial values measured at room temperature.



ORDERIN	G INFORMATIC	N								
	HFE82	V	-60	B/	750-	12-	Н	L	5	(XXX)
Туре				-						,
Application	י V: י	/ehicle								
Contact rat	ing 60:	60A	D							
Series brea	akdown B:	B series	2.	-						
Load volta	ge Nil:	450VD	C 750: 7	50VDC	-					
Coil voltage	e 12:	12 VDC	24: 24	VDC						4
Contact arrangement H: 1 Form A										
Coil terminal structure L: Lead wire										
Load termi	nal structure 5: 8	Screw ter	minal fem	ale						
Special cod	de ¹⁾ XX	XXX: Customer special requirement Nil: Standard								
Notes: 1) The cu	stomer special requireme	ent express	as special	code after	evaluating b	v Honofa	\sim			

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE82V-60B/-XXX-XX-HL5







OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm



CHARACTERISTIC CURVES



Notes:

- 1. This data is only for reference and please do not use it for fuse selection.
- 2. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
- 3. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
- 4. The data above is measured at the environment temperature $85^{\circ}C$,with cross section area of wire $\geq 15 mm^2$.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when install the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 2N·m to 3N·m. The torque beyond the range may cause damage.

	Ν	Mounting	for relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M4 Screw	2N·m~3N·m	Ø4.0mm~Ø4.5mm	1mm~2mm	M5 Screw	3N⋅m ~ 4N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa. 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 15mm², otherwise
- the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:



Disclaimer

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HFE82V-100D

DIRECT CURRENT RELAY

Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 100A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement		1 Form A		
Contact resistance 1)		≪0.5mΩ(at 100A)		
Contact rating		100A		
Mechanical endurance		2x10⁵ops		
9.	Type 450V	Type 750V		
Max. switching voltage	450 VDC	750 VDC		
Max. breaking current	1000A(300 VDC) 1op	1000A(300 VDC) 1op		
Max. switching power	90kW	150kW		
Electrical endurance ²⁾	Marking:2.5x10 ⁴ ops (22.5VDC, τ =1ms, Inrush 400A, Steady 100A) Switching:1x10 ³ ops (450 VDC, 100A) Switching:3x10 ³ ops (200 VDC, 120A) Switching: 500ops (450 VDC, -100A) Switching:1op (300 VDC, 1000A)	Marking:1x10 ⁴ ops (37.5VDC, τ =1ms, Inrush 400A, Steady 100A) Switching:100ops (750 VDC,100A)		
		100A:Cont.		
	150A:2h			
	200A:10min			
Current carrying ³⁾ capacity	300A:2min			
	400A:30s			
	600A:10s			
		000A·/1s		

COIL 23°C Rated Pick-up Drop-out Coil power Voltage VDC Voltage VDC Voltage VDC W 12 ≥1 5.5 ≪9 24 ≤18 ≥2 5.5

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate t	ime (at rated volt.)	≪30ms
Release t	ime (at rated volt.)	≪10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration	resistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient t	emperature	-40°C ~ 85°C
Load term	inal structure	Screw terminal female
Unit weigh	nt	Approx.260g
Outline Di	mensions	76.0x36.0x72.0mm
Notes:The	above values are the initial valu	es measured at room temperature.

is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 35mm² min. See Fig. Endurance Capacity Curve for more information.

HONGFA RELAY



ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

Notes: 1) The above values are the initial values. 2) Unless otherwise specified, the temperature of eletrical endurance
					10					
	ATION	I								
HFE	32	V	-100	D/	750-	12-	Н	-C	5	(A10)
Туре				D,						
Application	V : \	/ehicle								
Contact rating	100	: 100A								
Series breakdown	D:	D series		-						
Load voltage	Nil:	Nil: 450 VDC 750: 750 VDC								
Coil voltage	12:	12 VDC	24: 24 V	DC		-			a.	
Contact arrangement	H: 1	H: 1 Form A								
Coil terminal structure	C : (Connecto	or							
Load terminal structure	5 : 5	Screw ter	minal fema	le		4	0			
Special code ¹⁾	XX	X: Custor	ner special	requirer	ment Nil:	Standar	d			

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Outline Dimensions





Unit: mm

Unit: mm



C:Connector

(Configured by customers:THB 0435 series, Yazaki 7283-1020) Singal wire:FLRY-B 0.5 red Singal wire: FLRY-B 0.5 black 2×300±10 2×5±1 Female housing: 0435316 white Kontactor. 22 ± 0.2 Spacer: 0435318 12 ± 0.1 Crimping terminal: 0117505

CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire.

3. The data above is measured at the environment temperature 85°C, with cross section area of wire ≥35mm².

4.When the relay is operated under current ≥2000A for a long-term, it may weld without fire or explosion.

5.The dash-dotted line refers to the short-circuit capacity curve of the relay without fire or explosion; when the short-circuit current is \geq 3000A, the contact may open.



1. In case of loosening, please use washer when install the relay with M5 screw, and the torque within 3N·m to 4N·m, The torque beyond the range may cause damage.

HFE82V-100D/XXX-XX-HC5(A10)

	Ν	Mounting fo	r relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requiremen
M4 Screw	2N·m~3N·m	Ø4.0mm~Ø4.5mm	2mm~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such asnylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 36mm², otherwise the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE82V-150D

DIRECT CURRENT RELAY

Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 150A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A				
Contact resistance 1)	≪0.5mΩ(at 150A)				
Contact rating	150A				
Mechanical endurance		2x10⁵ops			
9.	Type 450V	Type 750V			
Max. switching voltage	450 VDC	750 VDC			
Max. breaking current	1200A(300 VDC) 1op	1200A(300 VDC) 1op			
Max. switching power	135kW	225kW			
	Making:2.5x10 ⁴ ops (22.5 VDC, τ =1ms, Inrush400A, Steady150A)	Making:1x10⁴ops (37.5 VDC, ⊤ =1ms, Inrush400A, Steady150A)			
Electrical endurance ²⁾	Switching:1x10³ops (450 VDC, 150A)	Switching:100ops (750 VDC,150A)			
	Switching:3x10 ³ ops (200 VDC, 120A)				
	Switching:500ops (450 VDC, -150A)				
	Switching:1ops (300 VDC,1200A)				
		150A:Cont.			
	180A:2h				
		225A:15min			
Current carrying ³⁾		320A:2min			
		400A:60s			
		600A:20s			
	900A-8s				

HFE82V-1500

100

Notes: 1) The above values are the initial values.
2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 50mm² min. See Fig. Endurance Capacity Curve for more information.

HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

COIL		h.	23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	5.5
24	≤18	≥2	5.5

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration I	resistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient to	emperature	-40°C ~ 85°C
Load term	inal structure	Screw terminal female
Unit weigh	t	Approx.260g
Outline Dir	mensions	76.0x36.0x72.0mm

Notes: The above values are the initial values measured at room temperature.

2022 Rev. 1.00



Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Outline Dimensions



Unit: mm

HFE82V-150D/XXX-XX-HC5(A10)



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
- 2. If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire;
- 3. The data above is measured at the environment temperature 85° C, with cross section area of wire \geq 50 mm².
- 4. When the relay is operated under current ≥2000A for a long-term, it may weld without fire or explosion.
- 5.The dash-dotted line refers to the short-circuit capacity curve of the relay without fire or explosion; when the short-circuit current is \geq 3000A, the contact may open.



1. In case of loosening, please use washer when install the relay with M5 screw, and the torque within 3N·m to 4N·m, The torque beyond the range may cause damage.

HFE82V-150D/XXX-XX-HC5(A10)

	Ν	Mounting	g for relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requiremen
M4 Screw	2N·m~3N·m	Ø4.0mm~Ø4.5mm	2mm~3mm	M5 Screw	3N·m ~ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 50mm², otherwise the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:

Unrecommended method

The hole of mounting plate at customer-side is too large.

Enlarged Schematic Diagram:



Customer's mounting plate's opening and chamfer is too large (M6), which leads to failure of mounting.

Recommended method

The hole in mounting plate at customer-side is M5



When use M5 screw, the thickness and strength of the washer needs to be guaranteed or it may deform and burst the cover.

Disclaimer

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HFE82V-150F

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 150A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪0.5mΩ(at 150A)
Contact rating	150A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	1300A(400 VDC) 1op
Max. switching power	150kW
	Breaking:5x10⁴ops (475 VDC, 20A)
Electrical endurance 2)	Making:7x10⁴ops (20 VDC, 100A)
	Breaking:1x10³ops(450 VDC, 150A)
	150A:Cont.
	180A:2h
	225A:15min
Current carrying ³⁾	320A:2min
capacity	400A:1min
-	600A:20s
	900A:8s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23° C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 50mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	6
24	≤18	≥2	6

CHARACTERISTICS

Insulation	resistance	1000MΩ (1000 VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≪10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s²
Vibration r	esistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	Screw terminal female
Unit weigh	t	Approx.285g
Outline Dir	mensions	77.0x37.7x71.3mm

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING INFORMA		I									
HFE82	V	-150	F/	500-	12-	H-	Q	5	Y	-1	(XXX)
Туре				l,							
Application V: Vehi	cle										
Contact rating	150:	150A									
Series breakdown	F: F	series									
Load voltage	500: 5	00 VDC	750: 7	50 VDC							
Coil voltage	12: 1	2 VDC	24: 24	VDC	-						
Contact arrangement H: 1 Form A											
Coil terminal structure Q: QC terminal											
Load terminal structure 5: Screw terminal female											
Mounting	Y: Ho	Y: Horizontal mounting									
Coil characteristic	1: Si	I: Single coil									
Special code ¹⁾	XXX	: Custome	r speci	al require	ment N	lil: Stan	dard				_
Notes: 1) The customer special requ	uirement	express as s	pecial co	de after eva	luating by	Hongfa.					

Unit: mm

Outline Dimensions



HFE82V-150F/XXX-XX-H-Q5Y-1

Unit: mm





CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
- 2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.
- 3.The ambient temperature is 85°C, and the cross sectional area of the wire is ${\geq}50\text{mm}^2.$
- 4.When the current is \geq 1500A, the relay is likely to weld without fire or explosion.
- 5.The dash-dotted line is the short-circuit capacity curve of the relay. when the current is ≥5000A, the contact may bounce without fire or explosion.



1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m. The torque beyond the range may cause damage.

	Мо	Mounting	for relay body		
Mounting way	Torque requirement	Torque requirement Hole dia. of copper bus bar Thickness of copper b		Mounting way	Torque requirement
M5 Screw	3N·m ∼ 4N·m	Ø5.0mm~Ø5.5mm	2mm~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 50mm², otherwise

the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:

Unrecommended method

The hole of mounting plate at customer-side is too large.





Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE82V-200B

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 200A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪0.5mΩ(at 200A)
Contact rating	200A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	2000A(450 VDC) 1op
Max. switching power	180kW
	Making:2x10⁴ops (37.5VDC,C=1100µf, Inrush400A, Steady 200A)
Electrical endurance 2)	Switching:1x10 ³ ops (450 VDC, 200A)
	Switching:500ops (750 VDC, 200A)
	Breaking:1op (450 VDC, 2000A)
	200A:Cont.
	250A:15min
Current carrying ³⁾	320A:5min
oapaony	600A:30s
	900A:10s

Notes: 1) The above values are the initial values.

 Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 60mm² min. See Fig. Endurance Capacity Curve for more information.

COIL		and the second sec	23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	6
24	≤18	≥2	6

CHARACTERISTICS

Insulation	resistance	1000MΩ (1000 VDC)		
Dielectric	Between coil & contacts	4000 VAC 1min		
strength	Between open contacts	3000 VAC 1min		
Operate ti	me (at rated volt.)	≪30ms		
Release ti	me (at rated volt.)	≪10ms		
Shock	Functional	196m/s ²		
resistance	Destructive	490m/s ²		
Vibration I	esistance	10Hz ~ 500Hz 49m/s ²		
Humidity		5% ~ 85% RH		
Ambient to	emperature	-40°C~85°C		
Load term	nal structure	M6 screw terminal female		
Unit weigh	t	Approx.330g		
Outline Dir	mensions	81.0x39.0x70.0mm(HC5) 81.7x39.5x69.6mm(HC5Y)		

Notes: The above values are the initial values measured at room temperature.



		J			1					
HFE82	V	-200	B/		12-	Н	С	5	Y	(XXX)
Application V: Vehi	cle									
Contact rating	200:	200A								
Series breakdown	B: B	B: B series								
Load voltage	Nil: 4	50VDC								
Coil voltage	12: 1	12: 12VDC 24: 24VDC								
Contact arrangement	H: 1									
Coil terminal structure	C: Co	C: Connector								
Load terminal structure	5: Sc	5: Screw terminal female								
Mounting	Nil: \	Vil: Vertical mounting Y: Horizontal mounting								
Special code ¹⁾	XXX:	XX: Customer special requirement Nil: Standard								

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE82V-200B/XXX-XX-HC5





Unit: mm



HFE82V-200B/XXX-XX-HC5Y



WIRING DIAGRAM

Unit: mm

ontal



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.

3.The ambient temperature is 85°C, and the cross sectional area of the wire is ${\geq}60\text{mm}^2.$

4.When the current is \geqslant 2000A, the relay is likely to weld without fire or explosion.

Xacto

5. The dash-dotted line is the short-circuit capacity curve of the relay. when the current is \geq 3000A, the contact may bounce without fire or explosion.



1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 5N·m to 6N·m. The torque beyond the range may cause damage.

	Mour	nting for load terminal		Mounting 1	for relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	5N·m ∼ 6N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N⋅m ~ 4N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 60mm², otherwise

the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE82V-200D

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 200A continuously at 85°C.
 Insulation resistance is 1000MΩ(1000 VDC), and dielectric
- strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A				
Contact resistance 1)	≪0.5mΩ(at 200A)				
Contact rating	200A				
Mechanical endurance		2x10⁵ops			
9.	Type 450V	Type 750V			
Max. switching voltage	450 VDC	750 VDC			
Max. breaking current	1200A(300 VDC) 1op	1200A(300 VDC) 1op			
Max. switching power	180kW	300kW			
	Making:1.5x10 ⁴ ops (22.5 VDC, τ =1ms, Inrush400A, Steady200A)	Switching:100ops (750 VDC, 200A)			
Electrical endurance ²⁾	Switching:800ops (450 VDC, 200A)	10			
	Switching:100ops (450 VDC, -200A)				
	Breaking:1ops (300 VDC, 1200A)	<i>.</i>			
	200A:Cont.				
	250A:2h				
Current carrying ³⁾ capacity	300A:10min				
		600A:2min			
	900A:20s				

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23° C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 60mm² min. See Fig. Endurance Capacity Curve for more information.

COIL		and the second sec	23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	5.5
24	≤18	≥2	5.5

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)		
Dielectric	Between coil & contacts	4000 VAC 1min		
strength	Between open contacts	3000 VAC 1min		
Operate ti	me (at rated volt.)	≪30ms		
Release ti	me (at rated volt.)	≪10ms		
Shock	Functional	196m/s²		
resistance	Destructive	490m/s		
Vibration	resistance	10Hz ~ 500Hz 49m/s ²		
Humidity		5% ~ 85% RH		
Ambient t	emperature	-40°C ~ 85°C		
Load term	inal structure	M6 screw terminal female		
Unit weigh	t	Approx.260g		
Outline Di	mensions	78.7x36.0x72.0mm		

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING I	NFORMA		I							
H	FE82	V	-200	D/	750-	12-	Н	С	5	(A10)
Туре					I.					
Application	V: Vehio	cle								
Contact rating	I	200: 2	200A							
Series breakd	own	D: D :	series							
Load voltage		Nil: 4	Nil: 450 VDC 750: 750 VDC							
Coil voltage	12: 12 VDC 24: 24 VDC									
Contact arrangement H: 1 Form A										
Coil terminal structure C: Connector										
Load terminal	structure	5: Sci	ew termin	al femal	е				×	
Special code ¹⁾		XXX:	Customer	special	requireme	nt Nil:	Standard			
Notas: 1) The quetom		viromont		nonial and	ofter evelue	ting by Hong	fo			

Unit: mm

Outline Dimensions

HFE82V-200D/XXX-XX-HC5(A10)





WIRING DIAGRAM

Unit: mm

Unit: mm

C:Connector

(Configured by customers:THB 0435 series, Yazaki 7283-1020)



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire.

- 3.The ambient temperature is 85°C, and the cross sectional area of the wire is \geq 60mm².
- 4.When the current is \geq 2000A, the relay is likely to weld without fire or explosion.
- 5.The dash-dotted line is the short-circuit capacity curve of the relay. when the current is ≥3000A, the contact may bounce without fire or explosion.



1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	Ν	Mounting for load terminal		Mounting fo	r relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m ∼ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 60mm², otherwise the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:

Unrecommended method

The hole of mounting plate at customer-side is too large.



Disclaimer

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HFE82V-200W

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 200A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	Main contact≤0.5mΩ(at 200A) Auxiliary contact<100mΩ(at 0.5A)
Contact rating	200A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	1500A(450 VDC) 1op
Max. switching power	180kW
	Making:1x10⁵ops(20 VDC C=1500µF,Inrush150A)
	Breaking:5x10⁴ops(450 VDC,15A)
Electrical endurance ²)	Breaking:500ops(450 VDC,200A)
	Breaking:1op(450 VDC,1500A) Short-circuit capacity: 6kA/450 VDC, 5ms No fire, no explosion
	200A: Cont.
	250A: 15min
Current carrying ³⁾	320A: 5min
oupdoily	600A: 30s
	900A: 10s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 80mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥0.5	6
24	≤18	≥1	6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)		
	Between coil & contacts	4000 VAC 1min		
Dielectric strength	Between open contacts	3000 VAC 1min		
	Between contacts & auxiliary contacts	3000 VAC 1min		
Operate ti	me (at rated volt.)	≪30ms		
Release ti	me (at rated volt.)	≪10ms		
Shock	Functional	196m/s²		
resistance	Destructive	490m/s²		
Vibration r	esistance	10Hz ~ 500Hz 49m/s ²		
Humidity		5% ~ 85% RH		
Ambient te	emperature	-40°C ~ 85°C		
Load termi	nal structure	M6 screw terminal female		
Unit weigh	t	Approx.400g		
Outline Dir	mensions	55.0x43.0x65.8mm		

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING I	NFORM		l				+					
H	FE82	V	-200	W/		12-	Η	A-	С	5	-1	(XXX)
Туре												
Application	V: Vehicle	е										
Contact rating		200: 2	200A									
Series breakdo	own	w : w	series									
Load voltage		Nil: 4	50 VDC		J							[c O
Coil voltage		12: 12	VDC	24: 24	VDC							
ontact arrang	gement	H : 1 F	orm A								artheta .	
uxiliary conta	act form	A: 1 F	orm A								2	
Coil terminal s	tructure	C : Co	nnector						1			
Load terminal	structure	5: Scr	ew termir	nal ferr	nale							
Mounting		Nil: ∨e	ertical mo	unting	ļ				2			
Coil characteri	stic	1: Sin	gle coil									
Special code ¹⁾		XXX:	Custome	r speci	ial requ	uiremen	t N	il: Star	ndard			_

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE82V-200W/XXX-12-HA-C5-1







OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT Unit: mm Mounting Hole **Terminal Arrangement** Δ2 26.4±0.3 xØ6±0.1 C2 69±0.3 Note: No polarity on the load $\$ auxiliary contacts and coil sides WIRING DIAGRAM Unit: mm C:Connector (Configured by customers: THB:0488701) Aux. contact ends Coil end(-) Coil end(+) Singal wire:UL3266 20AWG Red 5±1 Singal wire:UL3266 20AWG black Singal wire:UL3266 20AWG white φ¢

8

22 ^{+0.4} -0.1



Singal wire:UL3266 20AWG blue

Female housing:



WIRING DIAGRAM

Unit: mm

ontal



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire;

3.The ambient temperature is 85°C, and the cross sectional area of the wire is ${\geqslant}80\text{mm}^2.$

4.When the current is \ge 2000A, the relay is likely to weld without fire or explosion.

5.The dash-dotted line is the short-circuit capacity curve of the relay. when the current is ≥5000A, the contact may bounce without fire or explosion.



1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	Mour	nting for load terminal		Mounting fo	r relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m ∼ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m ~ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

- 3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.
- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 80mm², otherwise
- the terminal parts may have abnormal heating.
- 6. Cautions of mounting for relay body:



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE82V-250

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 250A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪0.2mΩ(at 250A)
Contact rating	250A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	2000A(450 VDC) 1op
Max. switching power	225kW
	Making:2.5×10⁴ops(22.5 VDC, C=1100µf,Inrush 400A,Steady 250A)
	Making:1ops(300 VDC, C=1100µF,Inrush1350A)
	Breaking:50ops(450 VDC,400A)
Electrical endurance 2)	Switching:1×10 ³ ops(450 VDC,250A)
	Switching:10ops(750 VDC,-250A)
	Switching:500ops(750 VDC,250A)
	Breaking:1op(450 VDC,2000A)
	250A:Cont.
	375A:10min
Current carrying ³⁾	500A:120s
capacity	1000A:30s
	2500A:0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance

is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 100mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	6
24	≤18	≥2	6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)			
Dielectric	Between coil & contacts	4000 VAC 1min			
strength	Between open contacts	3000 VAC 1mir			
Operate ti	me (at rated volt.)	≪50ms			
Release ti	me (at rated volt.)	≪30ms			
Shock	Functional	Deenergized:98m/s ² Energized: 196m/s ² :196m/s ²			
resistance	Destructive	490m/s ²			
Vibration I	esistance	10Hz ~ 500Hz 49m/s ²			
Humidity		5% ~ 85% RH			
Ambient to	emperature	-40°C ~ 85°C			
Load term	inal structure	M6 screw terminal female			
Unit weigh	t	Approx.580g			
Outline Dir	mensions	95.0x45.0x85.0mm(HL5) 97.0x45.5x84.7mm(HL5Y)			

Notes: The above values are the initial values measured at room temperature.



ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

	ΙΔΤΙΟΝ	I			+	, ,				
HFE	32	V	-250/	750-	12-	Н	L	5	Y	(XXX)
Туре				D,						
Application	V : Ve	hicle								
Contact rating	250:	250A								
Load voltage	Nil:4	50 VDC	750 :750 \	/DC						0
Coil voltage	12: 1	2 VDC	24: 24 VD	C						K
Contact arrangement	H : 1	Form A							h	•
Coil terminal structure	e L: Lea	ad wire								
Load terminal structur	re 5: Sc	rew term	inal female							
Mounting	Nil:∨	ertical m	ounting	/: Horizon	tal mou	nting	0			
Special code ¹⁾	XXX:	Custom	er special r	equireme	nt Nil:	Standar	ď			

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Outline Dimensions







Unit: mm

Unit: mm



HFE82V-250/XXX-XX-12-HL5Y





Mounting Hole





Mounting Direction of Relay

Wrong mounting direction

Terminal Arrangement

Note: The load side has polarity. No polarity on the coil side.



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
- 2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.
- 3.The ambient temperature is 85°C, and the cross sectional area of the wire is ${\geq}100\text{mm}^2$.
- 4.When the current is \geq 2000A, the relay is likely to weld without fire or explosion.
- 5.The dash-dotted line is the short-circuit capacity curve of the relay. when the current is ≥3500A, the contact may bounce without fire or explosion.



1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 9N·m to 11N·m. The torque beyond the range may cause damage.

	Moun	Mounting fo	r relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	9N·m ~ 11N·m	Ø6.0mm~Ø6.5mm	2~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 100mm², otherwise

the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE82V-250C

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 250A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 2.6kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A					
Contact resistance 1)	≪0.5mΩ(at 250A)					
Contact rating	250A					
Mechanical endurance		2x10⁵ops				
Max. switching voltage		1000 VDC				
Max. breaking current	2	000A(450VDC) 1op				
Max. switching power		250kW				
	Type 450V	Type 750V				
	Making:7.5×10 ⁴ ops (steady140A, Contact Voltage 20 VDC) Breaking:1000ops (450, VDC 250A)	Making:7.5×10 ⁴ ops (steady140A, Contact Voltage 20 VDC) Breaking:200ops (350 VDC) 250A)				
Electrical endurance ²⁾	(430 VDC,250A) Breaking:1000ops (450 VDC,-250A)	Breaking:200ops (750 VDC,-250A)				
	Breaking:1op (450 VDC,2000A)	Breaking:1op (750 VDC,1500A)				
	Breaking:1op (450 VDC,-2000A)	Breaking:1op (750 VDC,-1500A)				
	250A:Cont.					
-	350A:8min					
Current carrying ³⁾ capacity		500A:2min				
	900A:25s					
	1000A·20s					

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 60mm² min. See Fig. Endurance Capacity Curve for more information.

COIL		and the second sec	23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	6
24	≤18	≥2	6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)			
Dielectric	Between coil & contacts	2600 VAC 1min			
strength	Between open contacts	2600 VAC 1mir			
Operate ti	me (at rated volt.)	≪30ms			
Release ti	me (at rated volt.)	≪10ms			
Shock	Functional	Close:588m/s ² Open:196m/s ²			
resistance	Destructive	588m/s ²			
Vibration I	resistance	10Hz ~ 500Hz 49m/s ²			
Humidity		5% ~ 85% RH			
Ambient to	emperature	-40°C ~ 85°C			
Load term	inal structure	M6 screw terminal female			
Unit weigh	t	Approx.360g			
Outline Di	mensions	88.3x42.5x74.5mm 85.1x42.5x74.5mm			

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED


Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT









Unit: mm

Outline Dimensions

HFE82V-250C/XXX-XX-H-C5-1(917)









Terminal Arrangement



Note: No polarity on the load and coil sides.

WIRING DIAGRAM

Unit: mm

C:Connector





CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.

3.The ambient temperature is 85°C, and the cross section area of the wire is ${\geq}60mm^2.$

4.When the relay is operated under current \geq 2000A for a long-term, it may weld without fire or explosion.

5.The dash-dotted line refers to the short-circuit capacity curve of the relay without fire or explosion; when the short-circuit current is \geq 6000A, the contact may open.

Pick-up Voltage / Drop-out Voltage Curve



CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	Mour	iting for load terminal		Mounting fo	r relay body
Mounting way	Mounting way Torque requirement Hole dia. of copper bus bar		Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N⋅m ~ 8N⋅m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N⋅m ~ 4N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa. 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 60mm², otherwise
- the terminal parts may have abnormal heating.
- 6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting.

7. Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

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HFE82V-300C

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 300A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 VDC)$, and dielectric strength between the coil and contacts is 2.6kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A						
Contact resistance 1)		≪0.5mΩ(at 300A)					
Contact rating		300A					
Mechanical endurance	2 x 10⁵ops						
Max. switching voltage		1000 VDC					
Max. breaking current	20	000A(750 VDC)1op					
Max. switching power		300kW					
	Type 450V	Type 750V					
Electrical endurance ²⁾	Making:7.5×10 ⁴ ops (Steady140A, Contact Voltage 20 VDC) Breaking:1000ops (450 VDC,300A) Breaking:1000ops (450 VDC,-300A) Breaking:10p (450 VDC,2000A)	Making:7.5×10 ⁴ ops (Steady140A, Contact Voltage 20 VDC) Breaking:500ops (750 VDC,300A) Breaking:500ops (750 VDC,-300A) Breaking:1op (750 VDC,2000A) Breaking:1op					
	(450 VDC,-2000A) (750 VDC,-2000A) 300A [.] Cont						
		450A 5min					
Current carrying ³⁾ capacity		600A 2min					
		900A 30s					
		1000A 25s					

COIL 23°C Rated Pick-up Drop-out Coil power Voltage Voltage Voltage W VDČ VDČ VDČ 12 ≪9 ≥1 6 24 ≤18 ≥2 6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Diala atria	Between coil & contacts	2600 VAC 1min
strength	Between open contacts	2600 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release t	ime (at rated volt.)	≪10ms
Shock	Functional	Close:588 m/s² Open:196 m/s²
TESISIANUE	Destructive	588m/s²
Vibration	resistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient t	emperature	-40°C ~ 85°C
Load term	inal structure	M6 screw terminal female
Unit weigh	ıt 🖉	Approx.370g
Outline Di	mensions	88.3x42.5x74.5mm(HC5) 85.1x42.5x74.5mm(HC5Y)

itial values. Notes: The above values are the initial values measured at room temperature.

Notes: 1) The above values are the initial values.

HONGFA RELAY

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 100mm² min. See Fig. Endurance Capacity Curve for more information.

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ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING INFORM	ATION										
HFE82	V	-300	C/	750-	12-	H-	C	5	Y	-1	(XXX)
Туре				- D							
Application V: V	ehicle										
Contact rating	300: 3	- 800A									
Series breakdown	C : C s	series									
Load voltage	Nil: 4	50 VDC	750 :7	50 VDC							0
Coil voltage	12: 12		24 : 24 \	VDC						-	
Contact arrangement	H : 1 F	orm A				-				. 6.	
Coil terminal structure	C : Co	nnector	Q : QC	terminal			-				
Load terminal structure	5: Scr	ew termir	nal fem	ale							
Mounting	Nil: V	ertical mo	ounting	Y: Ho	rizontal	mountin	g				
Coil characteristic	1: Sin	gle coil					R				
Special code ¹⁾	XXX:	Custome	r speci	al require	ement	Nil	Stand	ard			_
Notes: 1) The customer special requ	irement e	xpress as s	pecial co	de after eva	aluating by	Hongfa.					

HFE82V-300C/XXX-XX-H-C5-1

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Outline Dimensions









WIRING DIAGRAM

Unit: mm

C:Connector

(Configured by customers: THB 0435 series, Yazaki 7283-1020)



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
- 2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.
- 3.The ambient temperature is 85°C, and the cross section area of the wire is ${\geqslant}100\text{mm}^2.$
- 4.When the relay is operated under current \geq 2000A for a long-term, it may weld without fire or explosion.
- 5. The dash-dotted line refers to the short-circuit capacity curve of the relay without fire or explosion; when the short-circuit current is ≥6000A, the contact may open.

Pick-up Voltage / Drop-out Voltage Curve



CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	Moui	nting for load terminal		Mounting for relay body			
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement		
M6 Screw	6N·m ~ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N⋅m ~ 4N⋅m		

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
- 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 100mm², otherwise the terminal parts may have abnormal heating.

6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting

7. Cautions of mounting for relay body:



When use M5 screw, the thickness and strength of the washer needs to be guaranteed or it may deform and burst the cover.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE85V-300M

DIRECT CURRENT RELAY



CONTACT DATA

Contact arrange	nent 1 Form A				
Contact resistan	ce ¹⁾	≤0.25mΩ(at 200A)			
Contact rating		300A			
Mechanical endu	urance	2x10⁵ops			
Max. switching v	oltage	1000VD			
Max. breaking cu	urrent	2000A(450VDC)1op			
Max. switching p	ower	450kW			
		Breaking:100ops(1000VDC,300A)			
		Breaking:500ops(800VDC,300A)			
Electrical endurance ²⁾	Res.load	Breaking:500ops(750VDC,300A)			
		Breaking:1000ops(450VDC,300A)			
		Breaking:1op(450VDC, 2000A)			
		300A:Cont.			
		• 450A:150s			
Current carrying capacity	3)	600A:23s			
oupdoily		1000A:12s			
		2000A-10s			

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 100mm² min. See Fig. Endurance Capacity Curve for more information.

Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 300A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 VDC)$, and dielectric strength between the coil and contacts is 3kV, which meets the requirements of IEC 60664-1.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	Driving Power: 60
24	≤18	≥2	Holding Power: 4.3

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	3000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≤30ms
Release t	me (at rated volt.)	≤10ms
Shock	Functional	Main contacts:196m/s ² ; AUX contacts:147m/s ² @energized 98m/s ² @(non-energized)
	Destructive	490m/s²
Vibration	resistance	1.5mm DA 10Hz~500Hz 49m/s²
Humidity		5% ~ 85% RH
Ambient to	emperature	-40°C ~ 85°C
Load term	inal structure	M6 screw terminal female
Unit weigh	t	Approx.430g
Outline Di	mensions	See "outline dimensions"

Notes: The above values are the initial values measured at room temperature.





Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm



Outline Dimensions

81

Unit: mm



Note:With polarity on the coil and main Contact,Without polarity on the Aux.

CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire;

3. The data above is measured at the environment temperature 85° C, with cross section area of wire \geq 100 mm².

When the relay is operated under current ≥ 2000A for a long-term, it may weld without fire or explosion.
When the over current is higher than 8000A 6ms, the levitation will possibly happen. Relay may explode if fuse can't trip in time and fire may caused

if the arc continues after the explosion. 6.When the over current is higher than 10000A 1.5ms, the levitation will happened seriously. Relay may explode if fuse can't trip in time and fire may caused if the arc continues after the explosion.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	Mour	nting for load terminal		Mounting	for relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m ~ 8N·m	Ø6.8mm~Ø7.5mm	3~4mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
- 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 100mm², otherwise the terminal parts may have abnormal heating.

6. The recommended thickness of copper bus-bar is 4mm, otherwise it may cause screw loose or can not guarantee a tight mounting.

7. Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

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HFE82V-400M

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 400A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 3kV, which meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪0.25mΩ,Typ.:0.15mΩ(at 400 A)
Contact rating	400A
Mechanical endurance	2 x 10⁵ops
Max. switching voltage	800 VDC
Max. breaking current	2000A(450VDC)1op
Max. switching power	360kW
	Making:7.5×10⁴ops (22.5VDC 140A C=110μF)
	Breaking:7.5×10⁴ops(450 VDC 5A)
	Breaking:2.5×10⁴ops(450 VDC 10A)
Electrical endurance 2)	Breaking:3×10³ops(450 VDC 200A)
	Breaking:1×10³ops(450 VDC 400A)
	Breaking:100ops(800 VDC 400A)
	Breaking:100ops(1000 VDC 200A)
	Breaking:1ops(450 VDC 2000A)
	400A:Cont.
	500A:2000s
Current carrying ³⁾	1350A:15s
capacity	2000A:10s
$\langle \cdot \rangle$	3000A:5s

COIL 23°C Rated Pick-up Drop-out Coil power Voltage VDC Voltage VDC Voltage VDC W 12 ≪9 ≥1 6 24 ≤18 ≥2 6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectrie	Between coil & contacts	3000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	ime (at rated volt.)	≤50ms
Release t	ime (at rated volt.)	≤10ms
Shock	Functional	Close:98m/s² Open:196m/s²
resistance	Destructive	490m/s²
ibration re	esistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient t	emperature	-40°C ~ 85°C
Load term	inal structure	M6 screw terminal female
Unit weigh	ıt 🗸	Approx.740g
Outline Di	mensions	95.8 x 49.0 x 93mm

Notes: The above values are the initial values measured at room temperature.

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 200mm² min. See Fig. Endurance Capacity Curve for more information.



	ATION					2					
HFE	32	V	-400	M/	750-	12-	Н	-C	5	-1	(XXX)
Туре											
Application	V: Vehi	icle									
Contact rating	400: 40	A00									
Series breakdown	M: M se	eries									
Load voltage	Nil: 450	0 VDC	750: 75	0 VDC						-	t C
Coil voltage	12: 12	VDC	24: 24 V	′DC							
Contact arrangement	H: 1 Fc	orm A							4.		
Coil terminal structure	C: Con	inector							1.		
Load terminal structure	• 5: Scre	ew term	inal femal	е			~				
Coil characteristic	1: Sing	le coil					0				
Special code ¹⁾	XXX: C	Custome	er special	l requir	ement	Nil: S	Standar	d			
lotes: 1) The customer special requ	uirement ex	press as	special code	e after ev	valuating b	y Hongfa.					

Outline Dimensions



Unit: mm



HFE82-400M/XXX-XX-H-C5-1



WIRING DIAGRAM

Unit: mm



(Configured by customers:THB 0435 series, Yazaki 7283-1020)



Mating connector for HFE82-400M/XXX-XX-H-C5-1 (Applicable to 2 position MQS connector of TE. Housing for female terminals is NO.1-967644-1)



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
- 2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C; If the safe operation temperature of 180°C is exceeded, the relay may also catch fire;
- 3. The ambient temperature is 85°C, and the cross section area of the wire is \ge 200mm².
- 4. When the relay is operated under current ≥2000A for a long-term, it may weld without fire or explosion.
- 5.When the current is ≥8000A for 8ms, the contact may open. If the fuse fails to open in time, the relay may explode, and the arc burning continuously after the explosion may cause the relay on fire.
- 6.When the current is ≥10000A, the contact will open seriously, and the circuit current cannot get rise anymore. If the fuse fails to open in time, the relay will explode, and the arc may cause the relay on fire after explosion.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when mount the relay with M6 screw, and the torque within 6N-m to 8N-m, The screw tightening torque at terminals shall be within 6N m to 8N m. The torque beyond the range may cause damage.

	Mour	nting for load terminal		Mounting fo	or relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m ~ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M6 Screw	6N·m ~ 8N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

- 3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.
- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa. 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 200mm², otherwise
- the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:

Recommended method

The hole in mounting plate at customer-side is M6



The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE82V-600

ONTA OT DAT

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 600A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 VDC)$, and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.
- Coil with energy-saving devices

CUNTACT DA	A
Contact arrangement	1 Form A
Contact resistance 1)	≪0.2mΩ(at 600A)
Contact rating	600A
Mechanical endurance	2x10⁵ops
Max. switching voltage	1000 VDC
Max. breaking current	2500A(800 VDC) 1op
Max. switching power	600kW
	Making:5×10⁴ops(750VDC 120A,0.6s on:5.4s off)
	Switching:1×10⁵ ops(800 VDC,10A)
	Switching:1×10 ⁴ ops(800 VDC,100A)
	Switching:2×10 ³ ops(750 VDC,300A)
	Switching:500ops(750 VDC,600A)
	Reverse switching:5×10 ³ ops(750VDC,-100A)
	Reverse switching:1×10 ³ ops(750VDC,-300A)
	Reverse switching:300ops(750VDC,-600A)
	Breaking:1op(800 VDC,2500A)
	Switching:100ops(1000 VDC,600A)
	600A:Cont.
	800A:20min
Current carrying ³⁾	1000A:5min
	3000A:4s
	8000A-10ms

COIL 23°C Rated Pick-up Drop-out Coil power Voltage VDC Voltage VDC Voltage VDC W Switch on:50(time:0.2s) 12 ≪9 1~9 Holding:10 Switch on:50(time:0.2s) 24 ≤18 2~18 Holding:10

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪50ms
Release t	me (at rated volt.)	≪30ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration	resistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient t	emperature	-40°C ~ 85°C
Load term	inal structure	M10 screw terminal female
Unit weigh	t 🗸	Approx.1800g
Outline Di	mensions	146.0x66.6x132.8mm

Notes: The above values are the initial values measured at room temperature.

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85° C and cross section area of wire is 200mm² min. See Fig. Endurance Capacity Curve for more information.

4) 8000A 10ms is short circuit carrying test, relay contact may be welded, but will not burn or exploded.

HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED



Outline Dimensions



Unit: mm



Terminal Arrangement



Note: Polarity on the load and coil sides

CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.
The ambient temperature is 85°C, and the cross section area of the wire is ≥200mm².
When the relay is operated under current ≥4000A for a long-term, it may weld without fire or explosion.



CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 20N·m to 25N·m. The torque beyond the range may cause damage.

	Mou	nting for load terminal		Mounting fo	or relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M10 Bolt	20N·m ~ 25N·m	Ø10mm~Ø10.5mm	≥4mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing, repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.

5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 200mm², otherwise the terminal parts may have abnormal heating.

6. The product has energy-saving board inside and the coil will switch automatically after 0.2s drive, but repeated switching within 0.2s may cause failure of relay.

7. The product with PCB inside cannot be driven by ramp up voltage, please drive the coil by step type power ,otherwise the relay may fail to work. 8. Cautions of mounting for relay body:

Unrecommended method

The hole of mounting plate at customer-side is too large.





Disclaimer

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HFE82V-1000

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 1000A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 5kV, which meets the requirements of IEC 60664-1.
- Coil with energy-saving devices

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪0.2mΩ(at 1000A)
Contact rating	1000A
Mechanical endurance	2x10⁵ops
Max. switching voltage	1000 VDC
Max. breaking current	2000A(1000 VDC) 1op
Max. switching power	1500kW
	Making:2×10⁴ ops(1000VDC 60A)
	Breaking:1 op(1000VDC 2000A)
Electrical endurance 2)	Breaking:50 ops(1000VDC 1000A)
	Breaking:50 ops(1500VDC 800A)
	Switching:100 ops(1000VDC 1000A)
	1000A:Cont.
	1500A:140s
	2000A:82s
Current carrying ³⁾ capacity	3000A:30s
	4000A:18s
	10000A:8ms
	12000A:4ms

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 400mm² min. See Fig. Endurance Capacity Curve for more information.

4) 10000A 2ms is short circuit carrying test, relay contact may be welded,but will not burn or exploded.

COIL 23°C Rated Pick-up Drop-out Coil power Voltage VDC Voltage VDC Voltage VDC W Switch on:50(time:0.2s) 12 ≪9 1~9 Holding:10 Switch on:50(time:0.2s) 24 ≤18 2~18 Holding:10

CHARACTERISTICS

Notes:The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING	G INFORMATIC	N			+	ر				
	HFE82	V	-1000	/1000	-24	-H	-C	6	-6	(XXX)
Туре										
Application	V : V	ehicle								
Contact rati	ng 1000) :1000A	201							
Load voltag	e 1000) : 1000	VDC 1200:	1200 VDC						0
Coil voltage	12	12 VD	C 24: 24 \	/DC						*
Contact arra	angement H:	1 Form	A						A,	•
Coil termina	al structure C:	Connec	tor							
Load termin	al structure 6:	Screw t	erminal fema	ale and copp	er bus	bar tern	ninal			
Coil charact	teristic 6:	Double	coil with PC	BA			h			
Special cod	e ¹⁾ XX	X: Cust	omer specia	I requireme	nt Nil	: Stand	ard			

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Outline Dimensions

HFE82V-1000/XXX-24-H-C6-6







CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 6N-m to 8N-m, The screw tightening torque at terminals shall be within 20N·m to 25N·m. The torque beyond the range may cause damage.

	Mour	Mounting for relay body			
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M10 Bolt	20N·m ~ 25N·m	Ø10mm~Ø10.5mm	≥8mm	M6 Screw	6N⋅m ~ 8N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
- 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 400mm², otherwise the terminal parts may have abnormal heating.
- 6. The product has energy-saving board inside and the coil will switch automatically after 0.2s drive, but repeated switching within 0.2s may cause failure of relay.
- 7. The product with PCB inside cannot be driven by ramp up voltage, please drive the coil by step type power ,otherwise the relay may fail to work.

8. Cautions of mounting for relay body

Unrecommended method

The hole of mounting plate at customer-side is too large.





When use M6 screw, the thickness and strength of the washer needs to be guaranteed or it may deform and burst the cover.

Disclaimer

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HFE80V-20B

DIRECT CURRENT RELAY



Features

- Pre-charging relay for new energy automobile.
- Carrying current 20A continuously at 85°C.
- The electricity safety meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪5mΩ(at 20A)
Contact rating	20A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	30A(450 VDC) 5ops
Max. switching power	18kW
Electrical en demonse 2)	Making:7.5 x 10⁴ops(450 VDC, 20A)
Electrical endurance 2)	Switching:3 x 10 ³ ops(450 VDC, 20A)
	20A:Cont.
	30A:1h
Current carrying 3)	40A:20min
capacity	80A:30s
	• 120A:10s
	200A: 0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23 $^{\circ}\text{C}$ and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 4mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≤9	≥1	3
24	≤18	≥2	3

CHARACTERISTICS

Insulation	resistance	1000MΩ (500 VDC)
Dielectric	Between coil & contacts	3000 VAC 1min
strength	Between open contacts	2500 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≪10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration r	esistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	QC terminal
Unit weigh	t 🤇	Approx.59g
Outline Dir	mensions	40.0x30.0x42.7mm

Notes: Above is the initial vale in the room temperature



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

						10	\mathcal{O}					
ORDERING INFORM	ATION	I										
HFE80	V	-20	B/	450-	12-	Н	Т	Q	2	Α	J	(XXX)
Туре												
Application V: Ve	hicle											
Contact rating	20: 2	0A										
Series breakdown	B: B	series										
Load voltage	450:	450 VD	С									, c, O
Coil voltage	12: 1	2 VDC	24: 2	4 VDC								*
Contact arrangement	H : 1	Form A									D.	
Contact material	T : Ag	SnO ₂								ß		
Coil terminal structure	Q: Q	C termi	nal									
Load terminal structure	el 2: QC	c termir	nal									
Shell structure A: W	ithout m	ounting	flange	B: B type	e mountir	ng flang	e L : L	type m	ounting	g flange		
Base structure	J: La	yout ba	se with	iout mour	nting bos	ss	G				-	
Special code ¹⁾	XXX:	Custon	ner spe	ecial requ	irement	N	il: Sta	ndard				

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT Unit: mm



Outline Dimensions

Unit: mm



HFE80V-20B/450-XX-HTQ2BJ



TERMINAL ARRANGEMENT, CHARACTERISTIC CURVES



Terminal Arrangement

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.

3. The ambient temperature is 85°C, and the cross-sectional area of the wire is \geq 4mm².

4. The energized voltage of coil refers to the rated coil voltage.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1.In case of loosening, please use M4 screw for HTQ2BJ terminal mounting, and the screw tightening torque shall be within 2N.m to 3N.m, The push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.

2. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 4mm², otherwise the terminal parts may have abnormal heating.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

HFE80V-20C

DIRECT CURRENT RELAY



Features

COIL

Rated

Voltage VDC

- Pre-charging relay for new energy automobile.
- Carrying current 20A continuously at 85°C.
- The electricity safety meets the requirements of IEC 60664-1.

Pick-up

Voltage VDC

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A					
Contact resistance 1)	≪5mΩ(at 20A)					
Contact rating	20A					
Mechanical endurance	2x10⁵ops					
Max. switching voltage	750 VDC					
Max. breaking current	30A(450 VDC) 5ops					
Max. switching power	18kW					
Electrical endurance 2)	Swithing:3000ops(450VDC,20A) 3)					
	20A:Cont.					
	30A:1h					
Current carrying 4)	40A:20min					
capacity	80A:30s					
	120A:10s					
	200A: 0.6s					

12	≪9	≥1	3
24	≤18	≥2	3
48	≤36	≥4	3

Drop-out

Voltage

VDČ

CHARACTERISTICS

Insulation	resistance	1000MΩ(500 VDC)				
Dielectric	Between coil & contacts	3000 VAC 1min				
strength	Between open contacts	2000 VAC 1min				
Operate ti	me (at rated volt.)	≤30ms				
Release ti	me (at rated volt.)	≪10ms				
Shock	Functional	196m/s²				
resistance	Destructive	490m/s ²				
Vibration r	esistance	10Hz ~ 500Hz 49m/s ²				
Humidity		5% ~ 85% RH				
Ambient to	emperature	-40°C ~ 85°C				
Load terminal structure		QC or PCB termina				
Unit weight		Approx.50				
Outline Dir	mensions	30.1x30.0x29.2mm				
NI-t Al	the first the function of the first state of the state of					

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23° C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 4mm² min. See Fig. Endurance Capacity Curve for more information.

Notes: Above is the initial vale in the room temperature



23°C

Coil power

W

ORDERING INFORM	ATION	I										
HFE80	V	-20	C/	450-	12-	Н	Т	Q	2	A	J	(XXX)
Туре												
Application V: Vehi	cle											
Contact rating	20: 2	20A	\mathcal{D}									
Series breakdown	C : C	series										
Load voltage	450:	450 VD	C	_								, c O
Coil voltage	12: 12	VDC 24	1: 24 V	DC 48:	48 VDC							*
Contact arrangement	H : 1	Form A				-					4	
Contact material	T: Ag	gSnO₂										
Coil terminal structure	Q : Q	C termi	nal	P: PCB te	erminal			-				
Load terminal structure	el 2: Q	C termi	nal	Nil: PCB	termina			~	-			
Shell structure	Nil: S B: B	Standarc type mo	l moun unting	ting boss flange	A: A ty L: L typ	pe mou be mou	unting nting f	flange lange	•			
Base structure	J: La	iyout ba	se witl	nout mou	nting bo	SS	C				_	
Special code ¹⁾	XXX	: Custor	ner sp	ecial requ	uiremen	t Nil: S	Standa	ard				
							-					

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT




Unit: mm



HFE80V-20C/XXX-XX-HTQ2LJ





Mounting Hole

45

2ר4.5

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CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
 If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.
 The ambient temperature is 85°C, and the cross-sectional area of the wire is ≥4mm².

4. The energized voltage of coil refers to the rated coil voltage.

9.0 8.0 7.0 Pick-up 6.0 Voltage(V) 5.0 4.0 3.0 2.0 Drop-out 1.0 0.0 -40 -20 20 40 60 85 0 Temperature(°C)

Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

 In case of loosening, please use M4 screw for HTQ2BJ terminal mounting, and the screw tightening torque shall be within 2N.m to 3N.m.The push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 4mm², otherwise

the terminal parts may have abnormal heating.

Disclaimer

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HFE80V-20D

DIRECT CURRENT RELAY



Features

- Pre-charging relay for new energy automobile.
- Carrying current 20A continuously at 85°C.
- The electricity safety meets the requirements of IEC 60664-1.

RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪10mΩ(at 20A)
Contact rating	20A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC(at 2A)
Max. breaking current	20A(450 VDC) 5ops
Max. switching power	18kW
Electrical ²⁾	Making:7.5×10 ⁴ ops(450 VDC 20A)
endurance	Switching:1000ops(450 VDC 15A)
	15A:Cont.
	20A:1h
Current carrying ³⁾	30A:20min
capacity	60A:30s
	90A:10s
	150A: 0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 4mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	1.8

CHARACTERISTICS

Insulation	resistance	1000MΩ (500 VDC)
Dielectric	Between coil & contacts	3000 VAC 1min
strength	Between open contacts	2500 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≪10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration r	resistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load terminal structure		QC terminal
Unit weigh	t	Approx.45g
Outline Dir	mensions	29.0x25.0x28.9mm

Notes: Above is the initial vale in the room temperature



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

						10	\mathcal{F}					
ORDERING INFORMA	TION											
HFE80	V	-20	D/	450-	12-	Н	T-	Q	2	D	J-	(XXX)
Туре					5							
Application V: Ver	nicle											
Contact rating	20: 20	0A										
Series breakdown	D: D	series										
Load voltage	450:	450 VD	С	_								$\langle c \rangle$
Coil voltage	12: 1:	12: 12 VDC										
Contact arrangement	H: 1 [H: 1 Form A										
Contact material	T : Ag	T: AgSnO₂										
Coil terminal structure	Q: Q(2: QC terminal										
Load terminal structure	2: QC	C termii	nal					~				
Shell structure	A: W	ithout m	nountin	g flange	D: D	type ty	pe mo	ounting	g flang	е		
Base structure	J: La	yout ba	se with	nout mou	nting bo	ss	G				-	
Special code ¹⁾	XXX:	Custor	ner spe	ecial requ	uirement	Nil: S	Standa	ard				

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm



Notes: Outline dimension: outline dimension ≤10mm, tolerance should be±0.3mm; outline dimension >10mm and ≤50mm, tolerance should be±0.5mm; outline dimension >50mm, tolerance should be±0.8mm.

Unit: mm

Outline Dimensions

HFE80V-20D/XXX-XX-HT-Q2DJ



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
 If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.
 The ambient temperature is 85°C, and the cross-sectional area of the wire is ≥4mm².
 The energized voltage of coil refers to the rated coil voltage.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

 In case of loosening, please use M4 screw for HTQ2DJ terminal mounting, and the screw tightening torque shall be within 2N.m to 3N.m, The push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 4mm², otherwise

the terminal parts may have abnormal heating.

Disclaimer

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HFE80V-40

DIRECT CURRENT RELAY



Features

- Pre-charging and heating relay for new energy automobile.
- Carrying current 40A continuously at 85°C.
- The electricity safety meets the requirements of IEC 60664-1.

c FLI US
File No.:E133481
RoHS compliant

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪5mΩ(at 20A)
Contact rating	40A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	50A(450 VDC) ≥1op
Max. switching power	27kW
	Swithing:3000ops (150VDC,40A) 3)
Electrical endurance 2)	Swithing:6000ops(450VDC,20A) 3)
	Swithing:1000ops(450VDC,40A) ³⁾
	40A:Cont.
_	60A:1h
Current carrying ⁴⁾	80A:20min
capacity	160A:30s
	240A:10s
	400A:0.6s

Notos: 1)	The above	values are	tho ini	tial values
INDLES. II	THE ADOVE	values are		liai values

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 10mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	3
24	≤18	≥2	3
48	≪36	≥4	3

CHARACTERISTICS

Insulation	resistance	1000MΩ(@500 VDC)
Dielectric	Between coil & contacts	3000 VAC 1min
strength Between open contacts		2000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≪10ms
Shock resistance	Functional	196m/s²
	Destructive	490m/s ²
Vibration r	esistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C~ 85°C
Load termi	nal structure	QC or PCB terminal
Unit weigh	t C	Approx.51g
Outline Dir	mensions	30.1x30.0x29.2mm

Notes: Above is the initial vale in the room temperature



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING INFORMATION	
HFE80 V -40/ 450-12- H T	Г Q 2 А Ј ^{(XX}
Туре	
Application V: Vehicle	
Contact rating 40: 40A	
Load voltage 450: 450VDC	
Coil voltage 12:12VDC 24:24VDC 48:48VDC	
Contact arrangement H: 1 Form A	
Contact material T: AgSnO ₂	
Coil terminal structure Q: QC terminal	
Load terminal structure 2: QC terminal	
Shell structureNil: Standard mounting bossA: A type mounting fB:B type mounting flangeL:Ltype mounting fl	flange flange
Base structure J: Layout base without mounting boss	-0/1
Special code ¹⁾ XXX: Customer special requirement Nil: Sta	andard

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE80V-40/XXX-XX-HTQ2AJ



Unit: mm



Unit: mm



HFE80V-40/XXX-XX-HTQ2LJ



Mounting Hole





Terminal Arrangement





CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C. 3.The ambient temperature is 85° C, and the cross-sectional area of the wire is ≥ 10 mm².

4. The energized voltage of coil refers to the rated coil voltage.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

- 1. In case of loosening, please use washer for relay mounting. The screw tightening torque shall be within 0.8N.m to 1.1N.m for M3 screw, and within 2N.m to 3N.m for M4 screw. The push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.
- 2. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 10mm², otherwise the terminal parts may have abnormal heating.

Disclaimer

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HFE80V-60

DIRECT CURRENT RELAY



Features

- Preferred for micro electric vehicle(low speed vehicle) and 48V system.
- Carrying current 60A continuously at 85°C.
- No polarity on the load and coil sides.
- The electricity safety meets the requirements of IEC 60664-1.

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪1.5mΩ(at 20A)
Contact rating	60A
Mechanical endurance	2 x 10⁵ops
Max. switching voltage	250 VDC
Max. breaking current	100A
Max. switching power	32kW
	Switching: 1 x 10⁵ops(12 VDC,60A)
	Switching:7.5 x 10⁴ops(150 VDC,10A)
Electrical ²⁾	Switching: 5 x 10⁴ops(48 VDC,60A)
endurance	Switching:3 x 10⁴ops(72 VDC,60A)
	Switching:1 x 10⁴ops(150 VDC,60A)
	Switching:5 x 10 ³ ops(200 VDC,60A)
	60A:Cont.
Current carrying 3)	90A:12min
capacity	180A:15s
	600A:1s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 15mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	3
24	≤18	≥2	3

CHARACTERISTICS

and the second sec		
Insulation	resistance	1000MΩ (500 VDC)
Dielectric	Between coil & contacts	3000 VAC 1min
strength	Between open contacts	2000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration ı	resistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load term	inal structure	PCB terminal
Unit weigh	t	Approx.200g
Outline Dir	mensions	76.6 x 55.1 x 49.6mm

Notes: Above is the initial vale in the room temperature



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING INFORM	ATION				t				
HFE	30	V	-60/	150-	12-	Н	Т	Р	(XXX)
Туре									,
Application	V: Veh	nicle							
Contact rating	60: 60	A							
.oad voltage	150 : 1	50 VDC	200: 20	0 VDC					-0
oil voltage	12: 12	VDC	24: 24 VC	C					4
contact arrangement	H : 1 F	orm A				1			•
Contact material	T: AgS	SnO ₂						l'	
.oad terminal structure	el p: PCI	B termina	al						
Special code ¹⁾	XXX: (Custome	r special r	equireme	nt Nil: St	andard			
Notes: 1) The customer special rec	quirement e	express as s	special code	after evaluat	ing by Hona	ia			

Outline Dimensions

Unit: mm



Unit: mm





CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.
 If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.
 The ambient temperature is 85°C, and the cross-sectional area of the wire is ≥15mm².
 When the current is ≥600A, the relay is likely to weld without fire or explosion.

Pick-up Voltage / Drop-out Voltage Curve



CAUTIONS

1. The push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.

MMM. KContacto 2. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 15mm², otherwise the terminal parts may have abnormal heating.

contactor. The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE80V-200

DIRECT CURRENT RELAY



Features

- Preferred for micro electric vehicle(low speed vehicle)
- Carrying current 200A continuously at 85°C.
- No polarity on the coil and load sides.
- The electricity safety meets the requirements of IEC 60664-1.



CONTACT DATA

Contact arrangement	1 Form A
Contact resistance ¹⁾	≲1.0mΩ(at 20A)
Contact rating	200A
Mechanical endurance	2 x 10⁵ops
Max. switching voltage	250 VDC
Max. breaking current	400A
Max. switching power	80kW
	Swithing:1 x 10 ⁴ ops(150VDC,40A) ³⁾
Electrical endurance ²⁾	Swithing:3,000ops(150VDC,200A) 3)
	200A:Cont.
	300A:5min
Current carrying ⁴⁾	400A:30s
	800A:10s
	1600A:1s

Notes: 1) The above values are the initial values.
110100.1	

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 60mm² min. See Fig. Endurance Capacity Curve for more information.

COIL		Da.	23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1	6
24	≤18	≥2	6

CHARACTERISTICS

Insulation	resistance	1000MΩ(500 VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s²
Vibration r	resistance	10Hz ~ 500Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	M6 Screw terminal female
Unit weigh	t	Approx.370g
Outline Di	mensions	88.0 x 47.7 x 88.0mm 81.0 x 47.8 x 87.4mm

Notes: Above is the initial vale in the room temperature



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERING INFORM	ATION			, 1						
HFE80	V	-200/	150-	12-	Н	Т	С	5	Y	(XXX)
Туре										
Application	/: Vehicle									
Contact rating	200: 200	A								
Load voltage	150 : 150	VDC 200:	200 VDC							
Coil voltage	12: 12VD	OC 24: 24	VDC	-					-	t C
Contact arrangement	H: 1 Forr	n A							1	
Contact material	T: AgSnC) ₂								
Coil terminal structure	C: Conne	ector					-	10		
Load terminal structure	el 5: Screw	terminal fer	nale					-		
Mounting	Nil: Verti	cal mounting	g Y: Ho	orizontal	mountii	ng				
Special code ¹⁾	XXX: Cu	stomer spec	cial requir	ement	Nil: St	andard				

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE80V-200/XXX-XX-HTC5



Unit: mm



WIRING DIAGRAM

Unit: mm



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively. 2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C. 3.The ambient temperature is 85°C, and the cross-sectional area of the wire is ≥60mm². 4.When the current is ≥1600A, the relay is likely to weld without fire or explosion.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when mounting the relay with M5 screw, and the torque shall be within 3N-m to 4N-m. The screw tightening torque at terminals shall be within 6N-m to 8N-m. The torque beyond the range may cause damage.

	Mountin	g for load terminal		Mounting	for relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m ∼ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 60mm² min, otherwise
- the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE82P-20

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 20A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.
- No specific polarity requirements for the connection
- For 1500 VDC energy storage application

CONTACT DATA

Contact arrangement		1 Form A
Contact resistance 1)		≪4.5mΩ(at 20A)
Contact rating		20A
Mechanical endurance		2 x 10⁵ops
Ø.	Type 1000V	Type 1500V
Max. switching voltage	1000 VDC	1500 VDC
Max. breaking current	200A (1000 VDC) 1op	200A (1000 VDC) 1op
Max. switching power	30kW	30kW
	Swithing:1x10⁴op	s(1500VDC,15A) ³⁾
Electrical endurance 2)	Swithing:1x10⁴op	s(1000VDC,15A) ³⁾
	Making:1.5x10⁴op	s(1500VDC,40A) 3)
		20A:Cont.
		30A:1h
Current carrying 4)		40A:20min
capacity		80A: 30s
	12	120A:10s
		200A:0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 4mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9.6	≥1	2.6
24	≤19.2	≥2	2.6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	4000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s²
Vibration r	esistance	10Hz ~ 55Hz 1.5mm 49m/s ²
Humidity		5%~85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	QC terminal
Unit weigh	t	Approx. 160g
Outline Dir	nensions	78.0x 39.8 x 46.1mm

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

						JC					
ORDERING IN	FORMA	TION									
HF	E82	Ρ	-20/	1000-	12-	H-	Q	2	J	-1	(XXX)
Туре											
Application	P: PV a energy	and storage									
Contact rating		20: 20	A								
.oad voltage	1000: 1	000 VD	C 1500: 1	500 VDC							
Coil voltage		12: 12	VDC 24	: 24 VDC	-						, c O
ontact arrange	ement	H : 1 F	orm A								T
oil terminal str	ructure	Q : QC	terminal							A.	•
oad terminal s	tructure	2: QC	terminal								
Base structure		J: Lay	out base	e without	mountin	g boss			. / ,		
Coil characteris	stic	1: Sin	gle coil								
Special code ¹⁾		XXX: (Customer	special re	quiremer	nt Nil: S	tandard				
lotes: 1) The customer	special requ	irement ex	nress as sne	cial code afte	er evaluatin	a by Honat					

Outline Dimensions



Unit: mm



Terminal Arrangement





Note:No polarity on the load and coil sides.

CHARACTERISTIC CURVES



Notes:

1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.

2. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C. 3√ The data above is measured at the environment temperature 85°C with cross section area of wire ≥4mm².

4. When the current is \geq 200A,the relay is likely to weld.

CAUTIONS

- 1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N m to 4N m, the push and pull force for terminals is 49N for load terminals and 49N for coil terminals. The torque beyond the range may cause damage.
- 2. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 4mm², otherwise the terminal parts may have abnormal heating.
- 3. Cautions of Relay mounting:
 - Unrecommended method



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE82P-60B

DIRECT CURRENT RELAY

Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 60A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 3.6kV, which meets the requirements of IEC 60664-1.

CONTACT DATA

File No.:E133481

RoHS compliant

Contact arrangement	1 Form A
Contact resistance 1)	≪1mΩ(at 60A)
Contact rating	60A
Mechanical endurance	2.0x10⁵ops
Max. switching voltage	1000 VDC
Max. breaking current	600A(450 VDC) 1op
Max. switching power	54kW
Electrical endurance ²⁾	Switching:6x10 ³ ops(600VDC,30A) ³⁾
	60A:Cont.
	90A:1h
Current carrying ⁴⁾ capacity	120A:20min
	240A:20s
	360A:2s
	600A:0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 15mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9.6	≥1	5.2
24	≤19.2	≥2	5.2

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	3600 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s ²
Vibration r	esistance	10Hz ~ 55Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	M4 Screw terminal female
Unit weight		Approx.162g
Outline Dir	mensions	64.0x33.0x52.8mm
		•

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

ORDERIN	G INFORMATIO	NC								
	HFE82	P	-60	B/	750-	12-	Н	L	5	(XXX)
Туре										
Applicatio	n P: PV and energ	y storage								
Contact ra	ting 60	: 60A								
Series brea	akdown B:	B series	2.	-						
Load volta	ge Ni	l: 450VD	C 750: 7	50VDC	-					1.69
Coil voltag	je 12	: 12 VDC	24: 24	VDC						t
Contact ar	rangement H:	1 Form A	4						h.	•
Coil termir	al structure L:	Lead wir	e							
Load termi	inal structure 5:	Screw ter	minal fem	ale						
Special co	de ¹⁾ XX	X: Custo	omer spec	ial requ	irement N	lil: Stan	dard			_
Notes: 1) The cu	istomer special requirem	ent expres	s as special	code after	evaluating b	v Honofa	D			

Unit: mm

Outline Dimensions

HFE82P-60B/-XXX-XX-HL5







Unit: mm



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

- 1. This data is only for reference and please do not use it for fuse selection.
- 2. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
- 3. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
- 4. The data above is measured at the environment temperature $85^{\circ}C$, with cross section area of wire ≥ 15 mm².



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when install the relay with M5 screw, and the torque within 3N-m to 4N-m, The screw tightening torque at terminals shall be within 2N-m to 3N-m. The torque beyond the range may cause damage.

	Ν	Mounting	for relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M4 Screw	2N·m~3N·m	Ø4.0mm~Ø4.5mm	1mm~2mm	M5 Screw	3N⋅m ~ 4N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

- 3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.
- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 15mm², otherwise
- the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:



Disclaimer

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HFE82P-200B

DIRECT CURRENT RELAY



- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 200A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.



CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪0.5mΩ(at 200A)
Contact rating	200A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	2000A(450 VDC) 1op
Max. switching power	180kW
Floatrical and grappa 2)	Swithing:6000ops(500VDC,60A) 3)
	Breaking:500ops(500VDC,250A) 3)
	200A:Cont.
	250A:15min
Current carrying ⁴⁾ capacity	320A:5min
	600A:30s
	900A:10s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 60mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9.6	≥1	6
24	≤19.2	≥2	6
- 7	10.2		5

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s²
Vibration r	esistance	10Hz ~ 55Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C~85°C
Load termi	nal structure	M6 screw terminal female
Unit weight		Approx.330g
Outline Dimensions		81.0x39.0x70.0mm(HC5) 81.7x39.5x69.6mm(HC5Y)

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED



Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE82P-200B/XXX-XX-HC5





Unit: mm



HFE82P-200B/XXX-XX-HC5Y



WIRING DIAGRAM

Unit: mm

1 Contacto

C:Connector

ontal

(Configured by customers:THB 0435 series, Yazaki 7283-1020)

2x5±1

12.9 <u>±</u> 0.2

9 ± 0.1



x actor.



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively.

2.If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.

3.The ambient temperature is 85°C, and the cross sectional area of the wire is ${\geq}60\text{mm}^2.$

4.When the current is \geq 2000A, the relay is likely to weld without fire or explosion.

5.The dash-dotted line is the short-circuit capacity curve of the relay. when the current is ≥3000A, the contact may bounce without fire or explosion.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 5N·m to 6N·m. The torque beyond the range may cause damage.

Mounting for load terminal				Mounting	for relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	5N·m ~ 6N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 60mm², otherwise the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:

Unrecommended method

The hole of mounting plate at customer-side is too large.



Disclaimer

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HFE82P-250

DIRECT CURRENT RELAY



- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 250A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

CONTACT DATA

File No.:E133481

RoHS compliant

Contact arrangement	1 Form A
Contact resistance 1)	≪0.2mΩ(at 250A)
Contact rating	250A
Mechanical endurance	2x10⁵ops
Max. switching voltage	750 VDC
Max. breaking current	2000A(450VDC)1op
Max. switching power	225kW
Electrical endurance 2)	Swithing:6000ops(750VDC, 60A) 3)
	250A:Cont.
	375A:10min
Current carrying ⁴⁾ capacity	500A:120s
	1000A:30s
	2500A:0.6s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23° C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 100mm² min. See Fig. Endurance Capacity Curve for more information.

COIL		and the second sec	23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9.6	≥1	6
24	≤19.2	≥2	6
- ·	10.2		l v

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	4000 VAC 1min
strength	Between open contacts	3000 VAC 1min
Operate ti	me (at rated volt.)	≪50ms
Release ti	me (at rated volt.)	≪30ms
Shock	Functional	Deenergized:98m/s ² Energized: 196m/s ² :196m/s ²
resistance	Destructive	490m/s ²
Vibration I	resistance	10Hz ~ 55Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient to	emperature	-40°C ~ 85°C
Load term	inal structure	M6 screw terminal female
Unit weight		Approx.580g
Outline Dimensions		95.0x45.0x85.0mm(HL5) 97.0x45.5x84.7mm(HL5Y)

Notes: The above values are the initial values measured at room temperature.


ORDERING INFORM	ATION				+	, ,				
HFE8	2	Ρ	-250/	750-	12-	Н	L	5	Y	(XXX)
Туре				C)						
Application P: PV and	l energy	storage								
Contact rating	250: 25	50A								
Load voltage	Nil:450	VDC	750 :750 \	/DC						0
Coil voltage	12: 12	VDC	24: 24 VD0	C					-	P
Contact arrangement	H : 1 Fo	orm A							all all	
Coil terminal structure	L: Lead	d wire							27	
Load terminal structure	5: Scre	ew termi	inal female							
Mounting	Nil:Ver	tical mo	ounting Y	/: Horizon	tal mou	nting	0			
Special code ¹⁾	XXX: (Custome	er special re	equiremer	nt Nil:	Standar	d			

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Outline Dimensions







Unit: mm

Unit: mm



HFE82P-250/XXX-XX-12-HL5Y





Mounting Hole





Mounting Direction of Relay





Terminal Arrangement

Note: The load side has polarity. No polarity on the coil side.



CHARACTERISTIC CURVES

Notes



Endurance Capacity Curve

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively. 2. If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C.

3. The ambient temperature is 85°C, and the cross sectional area of the wire is \ge 100mm².

4. When the current is \geq 2000A, the relay is likely to weld without fire or explosion.

Xacto

5.The dash-dotted line is the short-circuit capacity curve of the relay, when the current is ≥3500A, the contact may bounce without fire or explosion.

Pick-up Voltage / Drop-out Voltage Curve



CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N-m to 4N-m, The screw tightening torque at terminals shall be within 9N-m to 11N-m. The torque beyond the range may cause damage.

	Moun		Mounting f	or relay body	
Mounting way	Torque requirement	Torque requirement Hole dia. of copper bus bar		Mounting way	Torque requirement
M6 Screw	9N⋅m ~ 11N⋅m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N⋅m ~ 4N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 100mm², otherwise the terminal parts may have abnormal heating.

6. Cautions of mounting for relay body:



Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE82P-250C

DIRECT CURRENT RELAY



- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt when exposed to electricity; the contact resistance is low and stable, and the parts exposed to electricity can meet IP67 protection level.
- Carrying current 250A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 2.6kV, which meets the requirements of IEC 60664-1.

CONTACT DATA

File No.:E133481

RoHS compliant

Contact arrangement	1 Form A
Contact resistance 1)	≪0.5mΩ(at 250A)
Contact rating	250A
Mechanical endurance	2x10⁵ops
Max. switching voltage	1000 VDC
Max. breaking current	1500A(750VDC) 1op
Max. switching power	250kW
Flastrical endumence 2)	Swithing:6000ops(1000VDC,60A) 3)
	Swithing:6000ops(400VDC,150A) 3)
	250A:Cont.
	350A:8min
Current carrying ⁴⁾	500A:2min
	900A:25s
	1000A:20s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 60mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9.6	≥1	6
24	≤19.2	≥2	6

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
Dielectric	Between coil & contacts	2600 VAC 1min
strength	Between open contacts	2600 VAC 1min
Operate ti	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≪10ms
Shock	Functional	Close:588m/s ² Open:98m/s ²
resistance	Destructive	588m/s ²
Vibration r	esistance	10Hz ~ 55Hz 49m/s ²
Humidity		5% ~ 85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	M6 screw terminal female
Unit weigh	t	Approx.360g
Outline Dir	nensions	88.3x42.5x74.5mm(HC5) 85.1x42.5x74.5mm(HC5Y)

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED



Unit: mm









42.5±0.3

Unit: mm

Outline Dimensions

HFE82P-250C/XXX-XX-H-C5-1(917)









Terminal Arrangement



Note: No polarity on the load and coil sides.

WIRING DIAGRAM

Unit: mm

C:Connector

(Configured by customers:THB 0435 series, Yazaki 7283-1020)



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are 180°C and 130°C respectively. 2. If the product needs to be operated for a long time, the upper temperature limit should not exceed 130°C;

If the safety temperature of 180°C is exceeded, it may cause fire.

Xact

3. The ambient temperature is 85°C, and the cross section area of the wire is \geq 60mm².



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m, The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	Mour	Mounting	for relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N⋅m ~ 8N⋅m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
 Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 60mm², otherwise

the terminal parts may have abnormal heating.

6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting.

7. Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

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HFE85P-150

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt; the contact resistance is low and stable, and contact part can meet IP67 protection level.
- Carrying current 150A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 3.3kV, which meets the requirements of IEC 60664-1.

CONTACT DATA

Contact arrangement	1 Form A
Contact resistance 1)	≪0.3mΩ (at 150A)
Contact rating	150A
Mechanical endurance	2 x 10⁵ops
Max. switching voltage	1000 VDC
Max. breaking current	1000A(320 VDC)1op
Max. switching power	300kW
Electrical endurance 2)	Breaking:6000ops(1500VDC,60A) ³⁾
	150A:Cont.
Current carrying ⁴⁾	200A:10min
capacity	300A:1min
	1200A:1s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 50mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			and and a second s
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥4.5	Switch on:26W
24	≪9	≥4.5	Holding:3W

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)
	Between coil & contacts	3300 VAC 1min
Dielectric	Between open contacts	3300 VAC 1min
Strongth	Between contacts & auxiliary contacts	3300 VAC 1min
Operate tir	me (at rated volt.)	≪30ms
Release ti	me (at rated volt.)	≪10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s²
Vibration r	esistance	10Hz~55Hz 1.5mm DA
Humidity		5%~85% RH
Ambient te	emperature	-40°C ~ 85°C
Load terminal structure		M6 screw terminal female
Unit weigh	t	Approx. 400g
Outline Dir	mensions	80.4x62.3x72.8mm

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

					G						
ORDERING INFORMAT	ION										
HFE85	P	-150	/1000-	12-	Н	A	L	5	Ρ	-5	(XXX)
Туре											
Application P: PV and end	ergy storage										
Contact rating	150: 1504										
oad voltage Nil: 450 VDC	C 750 : 750 V	DC 1000	:1000 VDC								
Coil voltage	12: 12 VD	C 24: 2	24 VDC	_							
Contact arrangement	H: 1 Form	A			-						4
ux. contact arrangemen	t A: 1 Form	A				,					
coil terminal structure	L: Lead wi	re					1		1		
_oad terminal structure	5: Screw	terminal f	emale						1		
Coil power	P: Energy	-saving t	уре								
Coil characteristic	5: Single	coil with F	PWM				2				
Special code ¹⁾	XXX: Cust	omer spe	ecial require	ement	Nil	: Stan	dard				
*				_		$\overline{\nabla}$					

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions



HFE85P-150/XXX-XX-HAL5P-5

Unit: mm



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
 To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
 The data above is measured at the environment temperature 85°C with cross section area of wire ≥50mm².
 When the current is ≥2500A, the relay is likely to be welded, but without any fire or explosion.





CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m; The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	N	lounting for load terminal		Mounting	for relay body
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m∼8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m~4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
- 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 50mm², otherwise the terminal parts may have abnormal heating.

6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting

7. Cautions of mounting for relay body:

Unrecommended method

The hole of mounting plate at customer-side is too large.



or it may deform and burst the cover.

Disclaimer

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HFE85P-250

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt; the contact resistance is low and stable, and contact part can meet IP67 protection level.
- Carrying current 250A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 3.3kV, which meets the requirements of IEC 60664-1.

CO	NT	ACT	DA.	ΤΑ

Contact arrangement	1 Form A		
Contact resistance 1)	≪0.3mΩ(at 200A)		
Contact rating	250A		
Mechanical endurance	2 x 10⁵ops		
Max. switching voltage	1000 VDC		
Max. breaking current	2000A(320 VDC)1op		
Max. switching power	400kW		
Electrical and urange 2)	Breaking:6000ops(1500VDC, 60A) 3)		
	Breaking:500ops(1000VDC, 250A) 3)		
	250A: Cont.		
Current carrying 4)	320A: 10min		
capacity	500A: 1min		
	2000A: 1s		

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 75mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥4.5	Switch on:26W
24	≪9	≥4.5	Holding:3W

CHARACTERISTICS

Insulation	resistance	1000MΩ (1000 VDC)
X	Between coil & contacts	3300 VAC 1min
Dielectric strength	Between open contacts	3300 VAC 1min
ouongui	Between contacts & auxiliary contacts	3300 VAC 1min
Operate tir	me (at rated volt.)	≤30ms
Release tir	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s²
Vibration r	esistance	10Hz~55Hz 1.5mm DA
Humidity		5%~85% RH
Ambient te	mperature	-40°C ~ 85°C
Load termi	nal structure	M6 screw terminal female
Unit weigh	t	Approx. 400g
Outline Dir	nensions	80.4x62.3x72.8mm

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

	, cont				
ORDERING INFORMAT	ION				
HFE85	P -250 /1000-12- H A L 5 P -5 (XXX)				
уре					
pplication P: PV and ene	ergy storage				
ontact rating	250: 250A				
oad voltage Nil: 450VD	C 750: 750VDC 1000:1000VDC				
oil voltage	12: 12VDC 24: 24VDC				
ontact arrangement	H: 1 Form A				
ux. contact arrangemen	t A: 1 Form A				
oil terminal structure	L: Lead wire				
oad terminal structure	5: Screw terminal female				
oil power	P: Energy-saving type				
Coil characteristic	5: Single coil with PWM				
Special code ¹⁾	XXX: Customer special requirement Nil: Standard				
otes: 1) The customer special requirer	nent express as special code after evaluating by Hongfa.				

Unit: mm



Unit: mm



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively..

2. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.

3. The data above is measured at the environment temperature 85°C with cross section area of wire ≥75mm².

4. When the current is $\geqslant\!2500\text{A},$ the relay is likely to be welded, but without any fire or explosion.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m; The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	М	Mountin	g for relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m~8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m~4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing ,repeat locking is not recommended.

- 3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.
- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
- 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 75mm², otherwise the terminal parts may have abnormal heating.
- 6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting.

7. Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

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HFE85P-300

DIRECT CURRENT RELAY



- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt; the contact resistance is low and stable, and contact part can meet IP67 protection level.
- Carrying current 300A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 3.3kV, which meets the requirements of IEC 60664-1.



CONTACT DATA

File No .:

Contact arrangement	1 Form A	
Contact resistance 1)	≪0.3mΩ(at 200A)	
Contact rating	300A	
Mechanical endurance	2 x 10⁵ops	
Max. switching voltage	1000 VDC	
Max. breaking current	2000A (320 VDC) 1op	
Max. switching power	450kW	
	Breaking:1000ops(450 VDC, 300A)	
	Breaking:50ops(450 VDC, -300A)	
Electrical and grap co 2)	Breaking:500ops(750 VDC, 300A)	
	Breaking:20ops(750 VDC, -300A)	
	Breaking:100ops(1000 VDC, 300A)	
	Breaking:1op(320 VDC, 2000A)	
	300A: Cont.	
Current carrying ³⁾	450A: 5min	
capacity	600A: 90s	
	2000A: 1s	

Notes: 1) The above values are the initial values.

2) Unless otherwise specified, the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 100mm² min. See Fig. Endurance Capacity Curve for more information.

COIL		1,	23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥4.5	Switch on:26W
24	≪9	≥4.5	Holding:3W
		•	·

CHARACTERISTICS

Inculation	raciatanaa	1000MO (1000 \/DC)
Insulation	esistance	100010122 (1000 VDC)
	Between coil & contacts	3300 VAC 1min
Dielectric	Between open contacts	3300 VAC 1min
	Between contacts & auxiliary contacts	3300 VAC 1min
Operate tir	me (at rated volt.)	≪30ms
Release tir	me (at rated volt.)	≤10ms
Shock	Functional	196m/s²
resistance	Destructive	490m/s²
Vibration r	esistance	10Hz~55Hz 1.5mm DA
Humidity		5%~85% RH
Ambient te	emperature	-40°C ~ 85°C
Load termi	nal structure	M6 screw terminal female
Unit weigh	t 🗸	Approx. 400g
Outline Dir	mensions	80.4x62.3x72.8mm

Notes: The above values are the initial values measured at room temperature.



ORDERING INF	ORMATION											
Н	IFE85	Ρ	-300	/1000-	12-	Н	A	L	5	Ρ	-5	(XXX)
Туре				- O.								,
Application P: P	V and energy s	torage										
Contact rating	300	: 300A	2									
Load voltage Nil:	: 450 VDC 750 :	750 VE	DC 1000:	1000 VDC								
Coil voltage	12:	12 VD	C 24:	24 VDC								
Contact arrangement H: 1 Form A												
Aux. contact arrangement A: 1 Form A												
Coil terminal stru	icture L: L	L: Lead wire										
Load terminal str	ucture 5: S	5: Screw terminal female										
Coil power	P: E	P: Energy-saving type										
Coil characteristi	c 5: S	ingle o	oil with F	PWM			\$	0				
Special code ¹⁾	xx	(: Cust	tomer sp	ecial require	ement	Nil:	Stan	dard				

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm



HFE85P-300/XXX-XX-HAL5P-5



Unit: mm



CHARACTERISTIC CURVES



Endurance Capacity Curve

Notes:

The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
 To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
 The data above is measured at the environment temperature 85°C with cross section area of wire ≥100mm².
 When the current is ≥2500A, the relay is likely to be welded, but without any fire or explosion.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. In case of loosening, please use washer when mount the relay with M5 screw, and the torque within 3N·m to 4N·m; The screw tightening torque at terminals shall be within 6N·m to 8N·m. The torque beyond the range may cause damage.

	Mount	Mounting f	or relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 crew	6N·m ~ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N⋅m ~ 4N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 100mm², otherwise the terminal parts may have abnormal heating.

6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting.

7. Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE88P-150

CONTACT DATA

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt; the contact resistance is low and stable, and contact part can meet IP67 protection level.
- Carrying current 150A continuously at 85°C.
- Insulation resistance is $1000M\Omega(1000 \text{ VDC})$, and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

1 Form A	Contact arrangement	
≪0.3mΩ(at 150A)	Contact resistance 1)	
150A	Contact rating	
2x10⁵ops	Mechanical endurance	
1500 VDC	Max. switching voltage	
1000A(1500 VDC) 1op	Max. breaking current	
300kW	Max. switching power	
Breaking:2x10 ³ ops(1500 VDC, 100A)	Electrical endurance ²⁾	
Breaking:1x10 ³ ops(1500 VDC, 150A)		
Breaking:1op(1500 VDC, 1000A)		
150A: Cont.		
200A:8000s		
300A:5000s		
600A:75s	Current carrying ³⁾	
1000A:20s	oupdony	
1500A:10s		
2000A:5s	-	

Notes: 1) The above values are the initial values.

2) Unless otherwise specified,the temperature of eletrical endurance is at 23° C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Ambient temperature is at 85°C and cross section area of wire is 50mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1.2	Switch on:50W
24	≤18	≥2.4	Holding:5W

CHARACTERISTICS

Insulation	resistance	1000MΩ(1000 VDC)	
$\overline{\mathbf{G}}$	Between coil & contacts	4000 VAC 1min	
Dielectric strength	Between open contacts	4000 VAC 1min	
liongar	Between contacts & auxiliary contacts	4000 VAC 1min	
Operate time (at rated volt.)		≪50ms	
Release time (at rated volt.)		≪30ms	
Shock	Functional	98m/s²	
resistance	Destructive	490m/s²	
Vibration r	esistance	10Hz ~ 55Hz	
Humidity		5% ~ 85% RH	
Ambient te	emperature	-40°C ~ 85°C	
Load terminal structure		M6 screw terminal female	
Unit weigh	t	Approx.1150g	
Outline Dir	mensions	104.0x70.0x107.9mm	

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

HEE88 P -150/1500 -24 -H A -C 5 -6 0	XXX)
Type	
Application P: PV and energy storage	
Contact rating 150: 150A	
Load voltage 1000: 1000 VDC 1500: 1500 VDC	
Coil voltage 12: 12 VDC 24: 24 VDC	0
Contact arrangement H: 1 Form A	
Aux. contact arrangement A: 1 Form A	
Coil terminal structure C: Connector	
Load terminal structure 5: Screw terminal female	
Coil characteristic 6: Double coil with PCBA	
Special code ¹⁾ XXX: Customer special requirement Nil: Standard	

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE88P-150/XXX-XX-HA-C5-6







WIRING DIAGRAM

Unit: mm



CHARACTERISTIC CURVES



Notes:

The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
 To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
 The data above is measured at the environment temperature 85°C with cross section area of wire ≥50mm².
 When the current is ≥2500A, the relay is likely to be welded, but without any fire or explosion.



1.

3.The data above is measured at the environment temperature 85°C with cross section area of wire ≥ 4.When the current is ≥2500A, the relay is likely to be welded, but without any fire or explosion. Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1. Please use washers when mounting the relay in order to prevent loosing. Please mount the relay and the load terminal in the way specified in the following table, and control the torque within the required range. In case of exceeding the range, damage may be caused.

Mounting for load terminal			Mounting	for relay body	
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 screw	6N⋅m ~ 8N⋅m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m ∼ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa. 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 50mm², otherwise the terminal parts may have abnormal heating.

6. The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting 7. Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE88P-250

File No.:E133481

RoHS compliant

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt; the contact resistance is low and stable, and contact part can meet IP67 protection level.
- Carrying current 250A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

CONTACT DAT	A
Contact arrangement	1 Form A
Contact resistance 1)	≪0.3mΩ(at 250A)
Contact rating	250A
Mechanical endurance	2x10⁵ops
Max. switching voltage	1500 VDC
Max. breaking current	1500A(1000 VDC) 1op
Max. switching power	500kW
	Swithing:6000ops(1500VDC,100A) 3)
Electrical endurance 2)	Swithing:1000ops(1000VDC,350A) 3)
	Swithing:6000ops ³⁾ (150VDC, 320A(L/R=0.3ms)
	250A:Cont
	320A:7000s
	500A:350s
capacity	1000A:37s
	1500A:15s
	2000A:9s
	2500A:7s

Notes: 1) The above values are the initial values.

2) Unless otherwise specified,the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°C and cross section area of wire is 75mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1.2	Switch on:50W
24	≤18	≥2.4	Holding:5W

CHARACTERISTICS

Insulation I	resistance	1000MΩ(1000 VDC)
	Between coil & contacts	4000VAC 1min
Dielectric	Between open contacts	4000VAC 1min
	Between contacts & auxiliary contacts	4000VAC 1min
Operate time (at rated volt.)		≪50ms
Release time (at rated volt.)		≪30ms
Shock	Functional	98m/s²
resistance	Destructive	490m/s²
Vibration re	esistance	10Hz ~ 55Hz
Humidity		5% ~ 85% RH
Ambient te	mperature	-40°C ~ 85°C
Load termi	nal structure	M6 screw terminal female
Unit weigh	t	Approx. 1150g
Outline Dir	mensions	104.0x70.0x107.9mm

Notes: The above values are the initial values measured at room temperature.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED



Notes. () The customer special requirement express as special code after evaluating by Hongia.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm



HFE88P-250/XXX-XX-HA-C5-6





Unit: mm



WIRING DIAGRAM

Unit: mm



CHARACTERISTIC CURVES

Endurance Capacity Curve



Notes:

The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
 To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
 The data above is measured at the environment temperature 85°C with cross section area of wire ≥75mm².
 When the current is ≥2500A, the relay is likely to be welded, but without any fire or explosion.



Pick-up Voltage / Drop-out Voltage Curve

CAUTIONS

1.Please use washers when mounting the relay in order to prevent loosing. Please mount the relay and the load terminal in the way specified in the following table, and control the torque within the required range. In case of exceeding the range, damage may be caused.

Mounting for load terminal			Mounting for relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 Screw	6N·m ~ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N·m ~ 4N·m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

- 4. When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
- 5. Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 75mm², otherwise the terminal parts may have abnormal heating.

6.The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting. 7.Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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HFE88P-350

File No.:E133481

RoHS compliant

CONTACT DATA

DIRECT CURRENT RELAY



Features

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion.
- Filled with gas (mostly hydrogen) to effectively prevent the oxidation burnt; the contact resistance is low and stable, and contact part can meet IP67 protection level.
- Carrying current 350A continuously at 85°C.
- Insulation resistance is 1000MΩ(1000 VDC), and dielectric strength between the coil and contacts is 4kV, which meets the requirements of IEC 60664-1.

CONTACT DAI	Ö
Contact arrangement	1 Form A
Contact resistance 1)	≪0.3mΩ(at 350A)
Contact rating	350A
Mechanical endurance	2x10⁵ops
Max. switching voltage	1500VDC
Max. breaking current	2000A(1000 VDC)1op
Max. switching power	700kW
	Swithing:6000ops(1500VDC,100A) 3)
Electrical endurance 2)	Swithing:1000ops(1000VDC,350A) 3)
	Swithing:6000ops ³⁾ (150VDC,320A(L/R=0.3ms)
	350A:Cont.
	400A:7000s
Current corruins 1)	600A:275s
capacity	1500A:23s
	2000A:14s
	3000A:8s
	40004.50

Notes: 1) The above values are the initial values.

2) Unless otherwise specified,the temperature of eletrical endurance is at 23°C and the on-off ratio is 0.6s:5.4s.

The coil was not connected to the surge suppression device during the test. Please note that the use of a well-connected diode will greatly increase the release time of the relay, resulting in a reduced lifetime.

3) Load condition for UL certified.

4) Ambient temperature is at 85°Cand cross section area of wire is 100mm² min. See Fig. Endurance Capacity Curve for more information.

COIL			23°C
Rated Voltage VDC	Pick-up Voltage VDC	Drop-out Voltage VDC	Coil power W
12	≪9	≥1.2	Switch on:50W
24	≤18	≥2.4	Holding:5W

CHARACTERISTICS

Insulation I	resistance	1000MΩ(1000VDC)	
Between coil & contacts		4000VAC 1min	
Dielectric strength	Between open contacts	4000VAC 1min	
	Between contacts & auxiliary contacts	4000VAC 1min	
Operate time (at rated volt.)		≪50ms	
Release time (at rated volt.)		≪30ms	
Shock	Functional	98m/s²	
resistance	Destructive	490m/s²	
Vibration re	esistance	10Hz ~ 55Hz	
Humidity		5% ~ 85% R⊦	
Ambient te	mperature	-40°C ~ 85°C	
Load termi	nal structure	M6 screw terminal female	
Unit weigh	t	Approx. 1150g	
Outline Dir	mensions	104.0x70.0x107.9mm	
-			

Notes: The above values are the initial values measured at room temperature.



ORDERING INFORMATION	
HFE88 P -350/1500 -24 -H A -C 5 -6	(XXX)
Туре	. ,
Application P:PV and energy storage	
Contact rating 350: 350A	
Load voltage 1000: 1000 VDC 1500: 1500 VDC	
Coil voltage 12: 12 VDC 24: 24 VDC	0
Contact arrangement H: 1 Form A	
Auxiliary contact type A: 1 Form A	*
Coil terminal structure C: Connector	
Load terminal structure 5: Screw terminal female	
Coil characteristic 6: Double coil with PCBA	
Special code ¹⁾ XXX: Customer special requirement Nil: Standard	

Notes: 1) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS, MOUNTING HOLE, TERMINAL ARRANGEMENT

Unit: mm

Outline Dimensions

HFE88P-350/XXX-XX-HA-C5-6

(+)





Unit: mm



WIRING DIAGRAM

(Configured by customers: Yazaki-7283-1044) Aux. contact ends Coil end(-) Coil end(+) Singal wire:UL3266 20AWG Red 5±1 Singal wire:UL3266 20AWG Blue Singal wire:UL3266 20AWG White Singal wire:UL3266 20AWG Black 300 Female housing: 7283-1044 Spacer: 7157-4012 22 ^{+0.4} 0.1 תתח Crimping terminal 0117505

C:Connector

Unit: mm

CHARACTERISTIC CURVES

Endurance Capacity Curve



Notes:

- 1. The upper limit of safe operation temperature and functional temperature are set for 180°C and 130°C respectively.
- 2. To maintain the maximum long-term operating performance, absolute temperature should not exceed 130°C.
- 3. The data above is measured at the environment temperature 85°C with cross section area of wire ≥100mm².
- 4. When the current is \geq 2500A, the relay is likely to be welded, but without any fire or explosion.




CAUTIONS

1.Please use washers when mounting the relay in order to prevent loosing. Please mount the relay and the load terminal in the way specified in the following table, and control the torque within the required range. In case of exceeding the range, damage may be caused.

	N	Mounting	for relay body		
Mounting way	Torque requirement	Hole dia. of copper bus bar	Thickness of copper bus bar	Mounting way	Torque requirement
M6 screw	6N·m ~ 8N·m	Ø6.0mm~Ø6.5mm	2mm~3mm	M5 Screw	3N⋅m ~ 4N⋅m

2. Relay terminal lock vertically, please pre-lock first and then lock when installing , repeat locking is not recommended.

3. When the customer uses special crews and nuts, such as nylok, need to communicate and confirm with Hongfa.

When the customer has special installation requirement, such as upside down, multi busbar connection, need to communicate and confirm with Hongfa.
Be careful that oils and foreign matter do not stick to the main terminal part and please use the wire with min. cross section area 75mm²

otherwise the terminal parts may have abnormal heating. 6.The recommended thickness of copper bus-bar is 3mm, otherwise it may cause screw loose or can not guarantee a tight mounting.

7.Cautions of mounting for relay body:



or it may deform and burst the cover.

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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Cross reference guide

Cross reference guide							
HONGFA	PANASONICS	түсо	OMRON	LS			
HFE82V-20	AEV520**★	- Charles	G9EB/G9EJ				
HFE82V-40	AEVG160**			GER040 ★			
HFE82V-60B	AEVG160** ★						
HFE82V-100D	AEVS160**M15 ★	×		GER100 *			
HFE82V-150D	AEVS160**M16 ★						
HFE82V-150F	AEVH900122 M03★			T T			
HFE82V-200B	AEVF140**			GER200			
HFE82V-250	AEV170**M04 ★						
HFE82V-250C	AEVA1251 M02 *			GER250			
HFE82V-300C	AEVA1251 M03 ★						
HFE82V-600		TE600	1				
HFE80V-20B	AEC510**★		C,				
HFE80V-20C			<u>.</u>	GER010 ★			
HFE80V-20D	AECN110**★	mini K 🔍 🤇					
HFE80V-40		mini K		GER010			
HFE88P-350		× °		GPR-H500-A			

MMM. KCOR Note: the model with \star mark is a completely replaceable type.



HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

Packing list

Relay	Internal Package Method	Carton Size L x W x H mm	QTY/CTN pcs	Approx. N.W. kg	Approx. G.W. kg	Stacking Layers Limit n	
HFE82V-20	12pcs/box Plastic tray	372 x 275 x 265	60	9.06	10.5	5	
HFE82V-40	10pcs/box Plastic tray	372 x 275 x 265	60	9.6	11	5	
HFE82V-60	12pcs/box Plastic tray	372x275x265	60	11.88	13.32	5	
HFE82V-60B	15pcs/box Plastic tray	372 x 275 x 265	90	14.67	16.2	4	
HFE82V-100D	10pcs/box EPE cushion	545 x 248 x 235	30	9.45	10.5	5	
HFE82V-150D	10pcs/box EPE cushion	545 x 248 x 235	30	9.45	10.5	5	
HFE82V-150F	10pcs/box EPE cushion	545 x 248 x 235	30	8.55	9.6	5	
HFE82V-200B	10pcs/box EPE cushion	545 x 248 x 235	30	9.95	11	5	
HFE82V-200D	10pcs/box EPE cushion	545 x 248 x 235	40	11.32	12.5	5	
HFE82V-200W	10pcs/box EPE cushion	545 x 248 x 235	30	12.9	13.9	5	
HFE82V-250	10pcs/box EPE cushion	570 x 310 x 175	20	11.4	12.4	5	
HFE82V-250C	10pcs/box EPE cushion	545 x 248 x 235	30	10.71	11.71	5	
HFE82V-300C	10pcs/box EPE cushion	545 x 248 x 235	30	10.71	11.71	5	
HFE85V-300M	24pcs/box EPE cushion	552 x 367 x 145	24	10.4	11.4	5	
HFE82V-400M	10pcs/box EPE cushion	570 x 310 x 175	20	14.8	15.8	4	
HFE82V-600	5pcs/box EPE cushion	477 x 357 x 218	10	18.3	19.3	4	
HFE82V-1000	4pcs/box EPE cushion	477 x 357 x 172	4	13.76	14.8	4	
HFE80V-20B	20pcs/box Plastic tray	382 x 285 x 300	160	15	11	5	
HFE80V-20C	20pcs/box Plastic tray	382 x 285 x 300	160	8.2	9.6	5	
HFE80V-40	20pcs/box Plastic tray	382 x 285 x 300	160	8.2	9.6	5	
HFE80V-60	15pcs/box EPE cushion	545 x 248 x 235	45	8.6	9.6	5	
HFE80V-200	10pcs/box EPE cushion	545 x 248 x235	30	10.8	11.8	5	
HFE82P-20	12pcs/box Plastic tray	372 x 275 x 265	60	9.06	10.5	5	
HFE82P-60B	15pcs/box Plastic tray	372 x 275 x 265	90	14.67	16.2	4	
HFE82P-200B	10pcs/box EPE cushion	545 x 248 x 235	30	9.95	11	5	
HFE82P-250	10pcs/box EPE cushion	570 x 310 x 175	20	11.5	12.5	5	
HFE82P-250C	10pcs/box EPE cushion	545 x 248 x 235	30	11	12	5	

(H)

HONGFA RELAY ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2022 Rev. 1.00

Packing list

Relay	Package Method	Carton Size L x W x H mm	QTY/CTN pcs	Approx. N.W. kg	Approx. G.W. kg	Layers Limit	
HFE88P-150	6pcs/box EPE cushion	477 x 357 x240	12	13.86	14.8	4	
HFE88P-250	6pcs/box EPE cushion	477 x 357 x240	12	13.86	14.8	4	
HFE88P-350	6pcs/box EPE cushion	477 x 357 x240	12	13.86	14.8	4	
HFE85P-150	10pcs/box EPE cushion	545 x 248 x 295	30	12	13.2	4	
HFE85P-250	10pcs/box EPE cushion	545 x 248 x 295	30	12	13.2	4	
HFE85P-300	10pcs/box EPE cushion	545 x 248 x 295	30	12	13.2	4	
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cx actor.

Precautions of DC relay

In order to make correct use of the relay, while selecting the relay and understanding its characteristics, it is also necessary to understand some precautions in use to ensure the reliability of the relay.

- 1. Usage, storage and transport conditions
- 1.1 Please avoid direct sun radiation and keep ambient temperature, humidity and air pressure during usage, storage and transport. The allowable range of temperature and humidity are shown in non-shaded area of Figure 1:



The recommended ambient temperature and humidity ranges for usage, storage and transport are as follows: A)Ambient temperature: $-40^{\circ}C \sim 85^{\circ}C$

B)Humidity: 5%RH-85%RH

C)Air pressure: 86kPa~106kPa

1.2 For condensation: condensation occurs when the ambient temperature drops sharply from a high temperature and humidity, or when the relay is transported from a low temperature to a high temperature and humidity. Condensation may cause the failures such as insulation deterioration, coil disconnection and rust etc., which Hongfa cannot guarantee.

1.3 For low temperature and low humidity atmosphere: If the relay is exposed to a low temperature, low humidity environment for a long time, it may cause embrittlement of plastic parts.

1.4 Because the contacts of HFE82V, HFE85V-300M, HFE88P series are enclosed in the hermetically sealed chamber, which is filled with gas, and the leakage rate of gas in the chamber is proportinal to the temperature inside the chamber (ambient temperature and temperature rise due to electricity applied on contacts), so please ensure the ambient temperature is within -40°C~ 85°C.

1.5 Please avoid using relay near strong magnetic fields(around transformers, magnets)and heating objects.

1.6 Please avoid the ultrasonic, high frequency and other vibration conditions which will affect the performance of relay.

1.7 Please make sure that the relay is evaluated under the worst conditions in actual use to improve the reliability during actual use.

2. Safety precautions

2.1 Please pay attention not to touch the relay when it is at work, due to the electric shock risk.

2.2 Please pay attention to cut off the power supply before relay (including terminal, socket and other connecting parts) mounting, maintaining and fault handling.

2.3 Please refer to the wiring diagram in the specification and connect the load terminals correctly. If any wrong connection, it may cause unexpected malfunction, abnormal heating, fire, etc.

2.4 In principle, do not use the relay again in case of unexpected drop.

2.5All Hongfa relay are RoHS compliant.



HONGFA RELAY

ISO9001, IATF16949, ISO14001, OHSAS18001, IECQ QC 080000 CERTIFIED

2022 Rev. 1.00

3. Precautions of DC relay applications

3.1 For polarized relay, please make correct use according to the specification and the identification on the product surface (as shown in Figure 2). The electrical characteristics promised in the specification will not be guaranteed due to the reverse polariy connection of load. See Table 1 for polarity description of each series.



Figure 2

	0			Table 1	
Carries	Withou	it polarity	With polarity		
Series	Coil	Load terminal	Coil	Load terminal	
HFE82V series	HFE82V-60B HFE82V-100D HFE82V-150D HFE82V-200B HFE82V-250 HFE82V-250C HFE82V-250C HFE82V-300C HFE82V-400M	HFE82V-60B HFE82V-150F HFE82V-250C HFE82V-300C HFE82V-400M HFE82V-1000	HFE82V-600 HFE82V-1000	HFE82V-100D HFE82V-150D HFE82V-200B HFE82V-250 HFE82V-600	
HFE80V series	Without-polarity for all series	HFE80V-60 HFE80V-80 HFE80V-200	<u> </u>	HFE80V-20B/C/D	
HFE85V-300M	-	_	HFE85V-300M	HFE85V-300M	
HFE88P series	_	HFE88P-150 HFE88P-250 HFE88P-350	HFE88P-150 HFE88P-250 HFE88P-350	_	

3.2 Please apply rated voltage to relay to achieve the specified performance during operation. It is not allowed to apply maximum voltage to coil continuously. The performance of relay can not be ensured in case of the applied voltage exceeds the maximum allowable voltage range.

Operation under overvoltage or undervoltage condition for a long time may affect the service life of relay. In order to better ensure the life cycle of relay, it is recommended to operate relay under the rated voltage.

It is required to ensure the stable coil voltage when starting, disconnecting and operating to avoid the failure of welding and even continuous arcing burnout due to unstable voltage, such as frequent coil power failure.

Please contact with Hongfa for confirmation in case of PWM control or power switching is required in your application.

3.3 In order to suppress the reverse electromotive force of the coil, it is recommended to use transient voltage suppressor(TVS), varistor(ZNR) or zener diode(ZN). Please take care that if the freewheeling diode is used, it may cause the release time gets longer and the deterioration of breaking performance. (For economized relay, such as 600A, 1000A type of HFE82V series, HFE85V-300M, which is equipped with built-in reverse electromotive force suppression circuit, the surge suppressor is not needed.)

3.4 The rated values in the contact parameters are the values under resistive load. When inductive load (L/R > 1ms) is applied, please connect surge current protection device in parallel with the load. If no measures are taken, it may cause the electrical endurance deterioration and on-off failure. Please consider sufficient margin in the design.

3.5 The relay is a high-voltage DC switching device, which may cause failure when exceeding the service life times and load capacity specified in the specification. The protection circuit that can cut off the load in case of emergency shall be applied. As a product with limited service life, the relay shall be replaced in time to ensure safety.

3.6 Please take care that the coil of economized relay, such as 600A,1000A type of HFE82V series,HFE85V-300M with dual coil, and HFE85P-150/200/250 with PWM, will switch automatically after making for 0.2s, and multiple on-off operation less than 0.2s will cause malfunction.



Precautions of DC relay

3.7 When measuring operation voltage of relay with dual coil economizer, such as and 600A,1000A type of HFE82V series and HFE85-300M, the slow ramp-up mode is not allowed. Please energize coil (see Figure 3) with quick start-up voltage (step power supply mode), otherwise the relay will not operate.



Figure 3

3.8 The screw tightening torque of each part of the relay shall be within the following specified range. The looseness of screw may cause fire due to abnormal heat when power on. Beyond the maximum range may result in damage of sealed chamber and screw. The mounting direction is not limited. See Table 2 for mounting way, torque range of each model.

						- N	Table 2
		Mounting fo	r load terminal			Mounting for	relay body
Model	Mounting way	Length of thread	Torque	Hole dia. of copper busbar	Thickness of copper busbar	Mounting way	Torque
HFE82V-60B	M4 screw	6.5mm	2N·m~3N·m	Ø4.0~Ø4.5mm	1~2mm	M5 screw	3N·m~4N·m
HFE82V-100D	M4 screw	6mm	2N·m~3N·m	Ø4.0~Ø4.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-150D	M4 screw	6mm	2N·m~3N·m	Ø4.0~Ø4.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-150F	M5 screw	8.6mm	3N·m~4N·m	Ø5.0~Ø5.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-200B	M6 screw	7.5mm	5N·m~6N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-200W	M6 screw	10mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-200D	M6 screw	8.5mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-250	M6 screw	8.5mm	9N·m∼11N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-250C	M6 screw	9.5mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-300C	M6 screw	9.5mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m
HFE82V-400M	M6 screw	9.5mm	6N·m∼8N·m	Ø6.0~Ø6.5mm	2~3mm	M6 screw	6N·m~8N·m
HFE82V-600	M10 bolt	22mm	20N·m~25N·m	Ø10~Ø10.5mm	≥4mm	M5 screw	3N·m~4N·m
HFE82V-1000	M10 bolt	22mm	20N·m~25N·m	Ø10~Ø10.5mm	≥8mm	M6 screw	6N·m~8N·m

HFE85V-300M						
HFE85V-300M (Female screw) M6 screw	13	6N·m∼8N·m	Ø6.8~Ø7.5mm	3~4mm	M5 screw	3N·m~4N·m

HFE80V serie	s							
HFE80V-20B	-	-	-	-	Ø	M4 screw	2N·m~3N·m	
HFE80V-20C	-	-	-	<u></u>	-	M4 screw (HTQ2B/LJ)	2N·m~3N·m	
HFE80V-20D	-	-	-	-	-	M4 screw	2N·m~3N·m	
HFE80V-40	-	-	-	-	-	M4 screw (HTQ2BJ)	2N·m~3N·m	
HFE80V-200	M6 screw	8mm	6N·m~8N·m	Ø6~Ø6.5mm	2~3mm	M5 screw	3N·m~4N∙m	

Precautions of DC relay

Tabla

HFE82P/85P/88P series							Table 2	
	Mounting for load terminal					Mounting for relay body		
Model	Mounting way	Length of thread	Torque	Hole dia. of copper busbar	Thickness of copper busbar	Mounting way	Torque	
HFE82P-20	-	-	-	-	-	M5 screw	3N·m~4N·m	
HFE82P-60B	M4 screw	6.5mm	2N·m~3N·m	Ø4.0~Ø4.5mm	1~2mm	M5 screw	3N·m~4N·m	
HFE82P-200B	M6 screw	7.5mm	5N·m~6N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE82P-250C	M6 screw	9.5mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE82P-250	M6 screw	8.5mm	9N·m~11N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE85P-150	M6 screw	8mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE85P-250	M6 screw	8mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE85P-300	M6 screw	8mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE88P-150	M6 screw	14mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE88P-250	M6 screw	14mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	
HFE88P-350	M6 screw	14mm	6N·m~8N·m	Ø6.0~Ø6.5mm	2~3mm	M5 screw	3N·m~4N·m	

3.9 The screws shall be pre-tightened before tightening. If the pre-tightening is insufficient or exceeds the value recommended in Table 2, it will cause loose mounting or thread sliding. It is not recommended to mount two copper busbars on the same side to avoid short circuit or spark due to small clearance.

Note: it is recommended to mount the load less than 2 times to avoid poor tightening of the relay due to multiple mounting.

3.10 For products with female screw of the load terminal, it is recommended that the length of thread engagement of load shall be 70% - 80% of the thread length.

3.11 The insertion strength of tab terminal for quick connection model, such as HFE82V-60, 20A, 40A, 60A, 80A type of HFE80V series, shall be within 40N ~ 70N.

Please select the specifications of tab terminals according to table 3.

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Model	Coil side	Load side
HFE82V-60	#250 t=0.8mm	#375 t=1.2mm
HFE80V-20/20B/20C/20D/40	#187 t=0.5mm	#250 t=0.8mm
HFE80V-60	#250 t=0.8mm	#375 t=1.2mm

Notes: 1. For HFE80V-20B/450-XX-HTQ2BJ relay, the tab terminal is #187 with thickness of 0.5mm for coil side, #250 tab terminal with thickness of 0.8mm for load side.

2. For HFE80V-20C/450-XX-HTQ2BJ relay, the tab terminal is #187 with thickness of 0.8mm both for coil and load side.

It is required to make sure that the main power supply line is closest to the relay terminal, and then mount and tighten it in the order of flat washer, spring washer and nut, or directly use self-locking nut when mounting. Incorrect mounting sequence may cause severe overheating and melting of the insulation layer of the connecting cable.

3.12 Please make sure that there is sufficient insulation distance between each terminal and the grounding wire when mounting.

3.13 When multiple relays are mounted adjacently to each other, please pay attention to abnormal heating caused by mutual interference of heat and magnetic field, insufficient insulation distance between external terminals and copper busbars of the relay, and magnetic field interference of energized conductor under high current, which may cause failure. Please contact with Hongfa in time.

3.14 Please take care that the bending of the terminal and connector terminal shall meet the specified requirements when terminal or connector wiring. Do not apply force on it after wiring, otherwise it will cause wire disconnection.

3.15 The service life of the relay is closely related to the environment and use conditions. We hope customer to confirm the relay status under actual conditions before use.

Continued use of relay with deteriorated performance may cause insulation degradation, abnormal heating, smoking or fire. In order to avoid the above situation, it is recommended that customers can consider protection or error prevention design for safety, including design to prevent fire spread, design to prevent failure and design for regular maintenance, so as not to cause casualties, fire and other risks due to relay with reduced performance or service life.

3.16 The on-off lifetime is specified under the standard test conditions in IEC60664-1 (at temperature 15 \odot to 35 \odot , humidity 25% RH to 85% RH) with the recommended copper busbar and tightening torque.

The on-off lifetime varies with coil drive circuit, load type, duty factor and ambient conditions. Please confirm the service life under actual conditions.

3.17 Unless otherwise specified, the load promised by Hongfa refers to the rated load. Hongfa is not responsible for any usage beyond our guarantee.

3.18 The guarantee range of overcurrent is limited to single energization only. The malfunction may be caused by overheating when multiple energization. Please confirm in actual installation. When multiple overcurrent is required, the temperature of each part shall be restored to the allowable ambient temperature before the next energizing.

3.19 Please use the product with reference to Hongfa specifications and instructions. Hongfa cannot guarantee any failure caused by the use beyond the conditions specified in the specification. When the use conditions are out of the specification, please contact with Hongfa for confirmation in time.

3.20 For Hongfa, it is impossible to evaluate all the performance requirements of the relay in each specific application field. Therefore, the customer should select the appropriate products according to the specific application conditions. If any inquiries, please contact us for more technical support. However, it is only customer's responsibility for product selection.

3.21 Hongfa reserves the right to make change for the product. The customer shall confirm the content of this specification before making an order for the first time, and request a new specification if necessary.



For more information, please access our web site:

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information

All the data sheets are subject to change without notice. For updated information please visit our website. @ XIAMEN HONGFA ELECTROACOUSTIC CO., LTD.