CONTENT

STANDARD RECOVERY DIODES (Stud Version)

Features

- High surge current capability
- Stud cathode and stud anode version
- Wide current range
- Metric device version available

Typical Applications

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welder
- Motor controls

Ordering information Table

Device Code FR 70 HF R 120 M

① ② ③ ④ ⑤ ⑥

1 -None=Standard recovery diodes;
FR=Fast recovery diodes

2 -Current code=$I_{F(AV)}$

3 -Standard device F=DO-4 case 6A~25A; HF=DO-5 case 30A~85A
U=DO-8,DO-9 case 100A~300A

4 -None=Stud Normal Polarity (cathode to stud)
R=Stud Reverse Polarity (anode to stud)

5 -Voltage code=code×10=V_{RRM}

6 -None=Standard inch Device; M=Metric Device

Note:For metric Device,pls contact factory


B-8


DO-9(glass)


DO-9(ceramic)


DO-8

DO-5

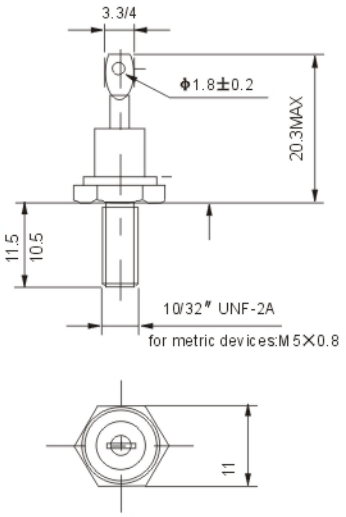

DO-4

Type	$I_{F(AV)}$	V_{FM}/I_{FM}		$I_{F(RMS)}$	V_{RRM}	I_{RRM}	R_{jc}	Tj	Mounting power N/m	Outline
	T_{HS}55℃	25℃								
	A	V	A	A	V	mA	℃/W	℃		
6F(R)	6	1.1	18	9.0	200~1000	≤6	≤2.0	-40℃ ~ +125℃	≤1.0	DO-4
12F(R)	12	1.25	36	19.0	200~1000	≤6	≤1.2		≤1.0	DO-4
16F(R)	16	1.25	48	25.0	200~1000	≤12	≤1.2		≤1.0	DO-4
25F(R)	25	1.1	75	40.0	200~1000	≤12	≤1.2		≤1.0	DO-4
30HF(R)	30	1.3	90	48.0	200~1200	≤10	≤0.8		≤2.0	DO-5
40HF(R)	40	1.3	120	64.0	200~1200	≤10	≤0.8		≤2.0	DO-5
50HF(R)	50	1.4	150	80.0	200~1200	≤10	≤0.8		≤2.0	DO-5
60HF(R)	60	1.4	180	96.0	200~1200	≤12	≤0.6		≤2.0	DO-5
70HF(R)	70	1.45	210	112.0	200~1600	≤12	≤0.5		≤2.0	DO-5
85HF(R)	85	1.45	255	136.0	200~1600	≤12	≤0.4		≤2.0	DO-5
100U(R)	100	1.8	300	160.0	200~1600	≤15	≤0.3		≤12	DO-8/DO-30
150U(R)	150	1.5	450	240.0	200~1600	≤15	≤0.3		≤12	DO-8/DO-30
200U(R)	200	1.3	600	320.0	200~1800	≤20	≤0.2		≤12	DO-9
250U(R)	250	1.35	750	400.0	200~1800	≤20	≤0.15		≤25	DO-9
300U(R)	300	1.35	900	480.0	200~1800	≤20	≤0.15		≤25	DO-9
SD400N(R)	400	1.6	1200	640.0	200~2400	≤40	≤0.07		≤25	B-8
SD500N(R)	500	1.6	1500	800.0	200~2400	≤40	≤0.065		≤25	B-8
SD600N(R)	600	1.5	1800	960.0	200~2400	≤40	≤0.065		≤30	B-8

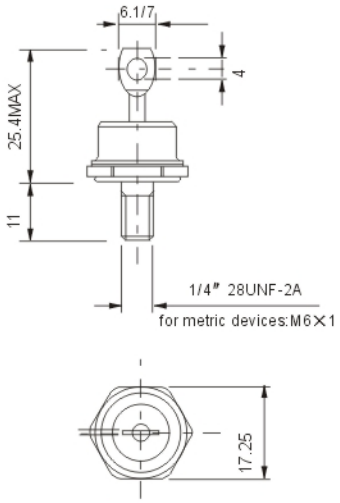
FAST RECOVERY DIODES (Stud Version)

Type	$I_{F(AV)}$	V_{FM}/I_{FM}		$I_{F(RMS)}$	V_{RRM}	I_{RRM}	R_{jc}	T_{rr}	T_j	Mounting power N/m	Outline
	T_{HS}55℃	25℃									
	A	V	A	A	V	mA	℃/W	mS	℃		
FR10F(R)	10	1.5	30	16.0	200~800	≤6	≤2.0	≤50	-40℃ ~ +125℃	≤1.0	DO-4
FR15F(R)	15	1.55	45	24.0	200~800	≤12	≤1.2	≤50		≤1.0	DO-4
FR20F(R)	20	1.70	60	32.0	200~800	≤12	≤1.2	≤50		≤1.0	DO-4
FR40HF(R)	40	1.95	120	64.0	200~1200	≤10	≤1.2	≤70		≤2.0	DO-5
FR50HF(R)	50	1.90	150	80.0	200~1200	≤10	≤1.2	≤70		≤2.0	DO-5
FR70HF(R)	70	1.85	210	112.0	200~1200	≤12	≤0.8	≤100		≤2.0	DO-5
FR80HF(R)	85	1.85	255	136.0	200~1200	≤12	≤0.8	≤100		≤2.0	DO-5
FR100U(R)	100	2.05	300	160.0	200~1200	≤15	≤0.3	≤150		≤12	DO-8/DO-30
FR150U(R)	150	2.00	450	240.0	200~1200	≤20	≤0.2	≤200		≤25	DO-9
FR200U(R)	200	2.05	600	320.0	200~1200	≤20	≤0.2	≤250		≤25	DO-9

Diodes stud version outline



DO-4



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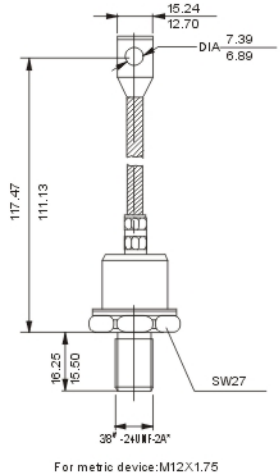
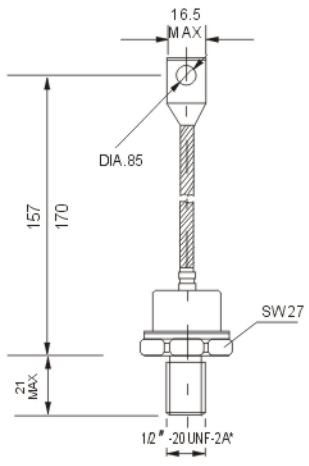
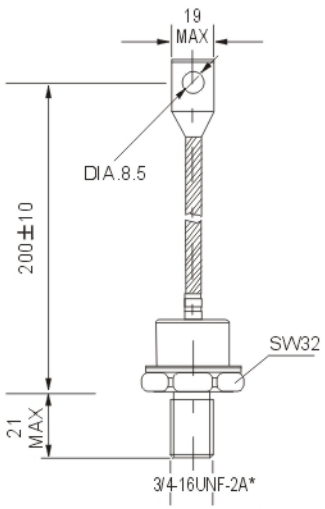


DO-8



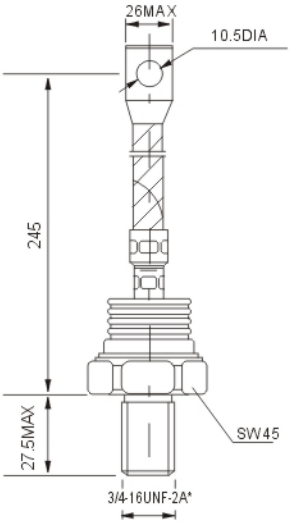
*FOR METRIC DEVICE:M12X1.75

DO-30



*FOR METRIC DEVICE:M16X1.5/M20X1.5

DO-9



*FOR METRIC DEVICE:M20X1.5/M24X1.5

B-8

PHASE CONTROL THYRISTORS (Stud Version)

Features

- High current rating
- Excellent dynamic characteristics
- Superior surge capabilities
- Standard package
- Metric Device version available

Typical Applications

- Phase control applications in converters
- Lighting circuits
- Battery charges
- Regulated power supplies and temperature and speed controlcircuit
- Can be supplied to meet stringent military, aerospace and otherhigh-reliability requirements
- Power supplier &motor controls

TO-48

TO-65

TO-94

TO-93(glass)

TO-93(ceramic)

TO-118

Ordering information Table

Device Code S 50 RIA 120 M

① ② ③ ④ ⑤

1 -None=Standard thyristor
S=Triac thyristor
K=Fast thyristor

2 -Current code=$IT_{(AV)}$

3 -Essential part number

4 -Voltage code=code×10=V_{RRM}

5 -None=standard inch pevice
M=metric pevice

Ordering information Table

Device Code ST 300 S 16 M V

① ② ③ ④ ⑤ ⑥

1 -ST=Standard thyristor
SST=Triac thyristor
KST=Fast thyristor

2 -Current code=$IT_{(AV)}$

3 -S：Stud version device
C：Hockey puk version device

4 -Voltage code：code×100=V_{RRM}

5 -None=standard inch device
M=metric device

6 -None=ceramtic seal
V=glass-metal seal

Note:For metric Device orceramic seal,pls contact Factory

Type	$IT_{(AV)}$	V_{TM}/I_{TM}		$IT_{(RMS)}$	V_{RRM}	I_{RRM}	I_{GT}	V_{GT}	I_H	I_L	dv/dt	di/dt	Tj	Rjc	Mounting power (Nm)	Outline
	T_{HS}55℃	25℃														
	A	V	A	A	V	mA	mA	V	mA	mA	v/us	A/us	℃	℃/W		
10RIA	10	1.75	30	16	200~1200	≤10	10~100	≤2.5	≤150	≤200	≥500	≥100	-40℃ ~ +125℃	≤1.8	≤2.0	TO-48
16RIA	16	1.75	48	25	200~1200	≤10	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.5	≤2.0	TO-48
25RIA	25	1.70	75	40	200~1200	≤10	10~100	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	TO-48
40RIA	40	1.95	120	64	200~1200	≤12	50~200	≤2.5	≤150	≤200	≥500	≥100		≤1.0	≤2.0	TO-65
50RIA	50	1.90	150	80	200~1200	≤12	50~200	≤2.5	≤150	≤200	≥500	≥100		≤0.8	≤2.0	TO-65
ST80S	80	1.6	240	128	200~1600	≤15	50~200	≤2.5	≤200	≤400	≥800	≥100		≤0.6	≤12	TO-94
ST100S	100	1.6	300	160	200~1600	≤15	50~200	≤2.5	≤200	≤400	≥800	≥100		≤0.6	≤12	TO-94
ST130S	130	1.55	390	208	200~1600	≤15	50~200	≤2.5	≤200	≤400	≥800	≥100		≤0.55	≤12	TO-94
ST150S	150	1.6	450	240	200~1600	≤20	50~200	≤2.5	≤200	≤400	≥800	≥100		≤0.5	≤12	TO-94
ST180S	200	1.75	600	320	200~1800	≤20	50~200	≤2.5	≤400	≤600	≥800	≥100		≤0.4	≤25	TO-93
ST230S	250	1.75	750	400	200~1800	≤20	50~200	≤2.5	≤400	≤600	≥800	≥100		≤0.2	≤25	TO-93
ST280S	280	1.70	840	450	200~1800	≤25	50~200	≤2.5	≤400	≤600	≥800	≥100		≤0.15	≤25	TO-93
ST300S	300	1.5	900	480	200~2400	≤40	50~200	≤2.5	≤600	≤1000	≥800	≥100		≤0.10	≤30	TO-118
ST330S	330	1.55	990	530	200~2400	≤40	50~200	≤2.5	≤600	≤1000	≥800	≥100		≤0.07	≤30	TO-118
ST350S	350	1.6	1050	560	200~2400	≤40	50~200	≤2.5	≤600	≤1000	≥800	≥100		≤0.06	≤30	TO-118

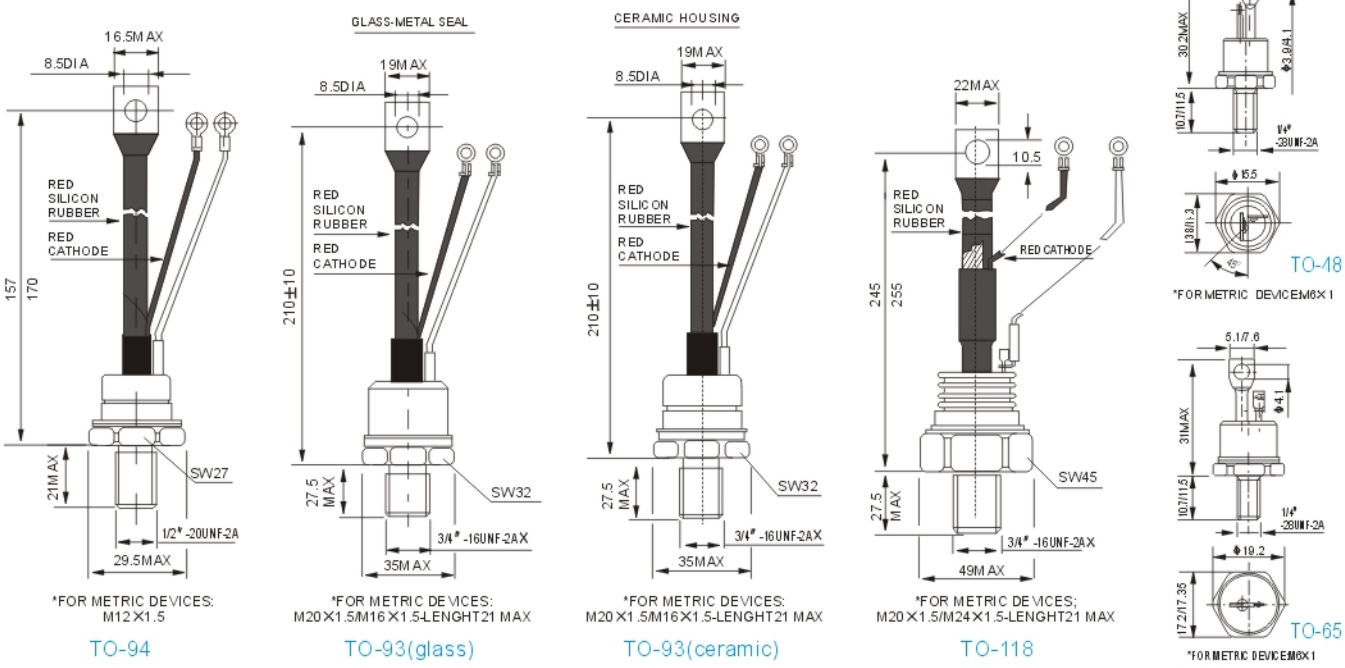
TRIAC THYRISTOR (Stud Version)

Type	$I_{T(AV)}$	V_{TM}/I_{TM}		V_{RRM}	I_{RRM}	I_{GT}	V_{GT}	I_H	I_L	dv/dt	di/dt	Tj	Rjc	Mounting power (Nm)	Outline
	T_{HS}55℃	25℃													
	A	V	A	V	mA	mA	V	mA	mA	v/us	A/us	℃	℃/W		
S10RIA	10	2.10	30	200~1200	⩽15	⩽350	⩽3.5	⩽200	⩽250	⩾500	⩾10	-40℃ ~ +125℃	⩽0.12	⩽2.0	TO-48
S16RIA	16	2.15	48	200~1200	⩽15	⩽350	⩽3.5	⩽200	⩽250	⩾500	⩾10		⩽0.12	⩽2.0	TO-48
S25RIA	25	2.35	75	200~1200	⩽25	⩽350	⩽3.5	⩽250	⩽300	⩾500	⩾10		⩽0.11	⩽2.0	TO-65
S40RIA	40	2.30	120	200~1200	⩽25	⩽350	⩽3.5	⩽250	⩽300	⩾500	⩾10		⩽0.11	⩽2.0	TO-65
S50RIA	50	2.25	150	200~1200	⩽25	⩽350	⩽3.5	⩽250	⩽300	⩾500	⩾10		⩽0.11	⩽2.0	TO-65
SST80S	80	2.05	240	200~1600	⩽30	⩽350	⩽3.5	⩽250	⩽300	⩾500	⩾10		⩽0.10	⩽12	TO-94
SST100S	100	2.10	300	200~1600	⩽30	⩽350	⩽3.5	⩽250	⩽300	⩾500	⩾10		⩽0.10	⩽12	TO-94
SST150S	150	2.25	450	200~1600	⩽30	⩽350	⩽3.5	⩽250	⩽300	⩾500	⩾10		⩽0.09	⩽25	TO-93
SST180S	200	2.40	540	200~1600	⩽30	⩽350	⩽3.5	⩽250	⩽300	⩾500	⩾10		⩽0.09	⩽25	TO-93

FAST THYRISTOR (Stud Version)

Type	$I_{T(AV)}$	V_{TM}/I_{TM}		$I_{T(RMS)}$	V_{RRM}	I_{RRM}	T_q	I_{GT}	V_{GT}	I_H	I_L	Dv/dt	Di/dt	Tj	Rjc	Mounting power (Nm)	Outline
	T_{HS}55℃	25℃															
	A	V	A	A	V	mA	us	mA	V	mA	mA	v/us	A/us	℃	℃/W		
K10RIA	10	2.35	30	16	200~1200	⩽10	10~20	10~100	⩽2.5	⩽150	⩽200	⩾500	⩾100	-40℃ ~ +125℃	⩽1.8	⩽2.0	TO-48
K16RIA	16	2.35	48	25	200~1200	⩽10	10~20	10~100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.5	⩽2.0	TO-48
K25RIA	25	2.50	75	40	200~1200	⩽12	10~20	50~100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.0	⩽2.0	TO-65
K40RIA	40	2.55	120	64	200~1200	⩽12	10~20	50~100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽1.0	⩽2.0	TO-65
K50RIA	50	2.50	150	80	200~1200	⩽12	10~20	50~100	⩽2.5	⩽150	⩽200	⩾500	⩾100		⩽0.8	⩽2.0	TO-65
KST80S	80	2.30	240	128	200~1600	⩽15	15~25	50~100	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.6	⩽12	TO-94
KST100S	100	2.25	300	160	200~1600	⩽15	15~25	50~100	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.6	⩽12	TO-94
KST150S	150	2.35	450	240	200~1800	⩽20	15~30	50~100	⩽2.5	⩽200	⩽400	⩾800	⩾100		⩽0.5	⩽25	TO-93
KST180S	200	2.40	600	320	200~1800	⩽20	15~30	50~100	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.45	⩽25	TO-93
KST230S	250	2.45	700	400	200~1800	⩽25	15~30	50~100	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.3	⩽30	TO-118
KST300S	300	2.50	900	480	200~1800	⩽40	15~30	50~100	⩽2.5	⩽400	⩽600	⩾800	⩾100		⩽0.25	⩽30	TO-118

Thyristor stud version outline



STANDARD RECOVERY DIODES (Hockey puk version)

Features

- all diffuse techinics
- ceramic disc type seal
- bifacial cooled

Typical Applications

- big power transformer
- welder
- charger
- motor control

A-PUK(E1)

B-PUK(E5)

K-PUK(E8)

Ordering information Table

1 -SD=Standard recovery diode
ZK=Fast recovery diode
ZE=Welder diode
2 -Current code=$I_{F(AV)}$
3 -C=ceramic puk
N=stud normal polarity (lothode to stud)
R=stud reverse polarity (anode to stud)
4 -Voltage code=code×100=V_{RRM}
5 -C=puk case (A-puk) & (E-puk) L=pukcase (B-puk)
K=puk case (K-puk); R=puk case (R-puk)

Device Code

SD	300	C	16	C
①	②	③	④	⑤

Note:For different Device pls contact Factory

Type	V_{RRM}	$I_{F(AV)}$	I_{RRM}	V_{FM}/I_{FM}	$R_{TH(j-hs)}$	T_{jm}	Install power	Outline (Fig)
		T_{HS} 55℃		25℃				
	V	A	mA	V/A	℃/w	℃	KN	
SD200C	200~3000	200	16	1.8/600	0.090	150	3.3-5.5	E1/E2
SD300C	200~3000	300	30	1.8/900	0.065	150	5.3-10	E1/E2
SD400C	200~3000	400	40	1.8/1200	0.040	150	10-20	E1/E2
SD500C	200~5000	500	40	1.8/1500	0.040	150	10-20	E2/E5
SD600C	200~5000	600	40	1.8/1800	0.033	150	10-20	E2/E5
SD800C	200~5000	800	80	2.2/2400	0.022	150	19-26	E5
SD1000C	200~5000	1000	80	2.0/3000	0.022	150	19-26	E5/E8
SD1200C	200~5000	1200	120	2.2/3000	0.020	150	21-30	E8
SD1500C	200~5000	1500	120	2.0/3000	0.020	150	21-30	E8
SD2000C	200~5000	2000	160	2.2/4000	0.016	150	30-40	E13
SD2500C	200~5000	2500	200	2.2/5000	0.011	150	35-47	E13
SD3000C	200~5000	3000	160	2.0/5000	0.016	150	30-40	E13
SD3500C	200~5000	3500	200	2.0/5000	0.011	150	35-47	E15
SD4000C	200~5000	4000	200	2.0/5000	0.009	150	70-85	E15
SD5000C	200~5000	5000	50	1.25/5000	0.0135	170	70-85	E15

FAST RECOVERY DIODES (Hockey Puk Version)

Features

- all diffuse techinics
- short recovery time
- very small anti recovery charge
- fast soft recovery features
- ceramic disc type seal
- bifacial cooled

Typical Applications

- motor control
- induction warm-up
- UPS power
- charger
- welder

Explanation

- I_{GT},V_{GT},I_H are all TA=25℃ test data,others are all TA=Tjm test data.
- $I^2t \leq I_{FSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz, $ft=0.005I^2_{FSM}(A^2S)$
- when at 60Hz,I_{FSM}(8.3ms)=I_{FSM}(10ms)×1.066,Tj=T_{jm} I^2t(8.3ms)=I^2t(10ms)×0.943,Tj=T_{jm}

型号 Type	V_{RRM}	$I_{F(AV)}$	t_{rr}	Q_{rr}	I_{FSM}	I_{RRM}	V_{FM}/I_{FM}	$R_{TH(j-hs)}$	T_{jm}	Install power	Outline (Fig)
		T_{HS} 55℃	100℃		10ms		25℃				
	V	A	μs	μc	KA	mA	V/A	℃/w	℃	KN	
ZK200C	200-3000	200	2	70	2.7	16	2.2/600	0.090	150	3.3-5.5	E1/E2
ZK300C	200-3000	300	3	100	4.1	30	2.4/900	0.065	150	5.3-10	E2
ZK400C	200-3000	400	3	100	5.4	40	2.4/1200	0.040	150	10-20	E2/E5
ZK500C	200-3000	500	3	120	8	40	2.4/1800	0.033	150	10-20	E2/E5
ZK800C	200-3000	800	3	130	10	40	2.6/2400	0.033	150	10-20	E5/E8
ZK1000C	200-3000	1000	4	150	13	50	2.6/3000	0.030	150	15-20	E8

PHASE CONTROL THYRISTOR (Hockey puk version)

Features

- all diffuse techinics
- ceramic disc type seal
- middle trigger
- bifacial cooled
- big current

Typical Applications

- big power transformer
- AC & DC motor control
- AC & DC switch
- phase control rectification
- inverter

Explanation

- I_{GT},V_{GT},I_H are all TA=25℃ test data,others are all TA=Tjm test data.
- $I^2t \doteq I_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz, $\int t=0.005 I^2_{TSM}(A^2S)$
- when at 60Hz, I_{TSM}(8.3ms)=I_{TSM}(10ms)×1.066,Tj=T_{jm} $\int^2 t$(8.3ms)=I^2t(10ms)×0.943,Tj=T_{jm}

Ordering information Table

Device Code ST 800 C 16 L

① ② ③ ④ ⑤

1 -ST=Normal thyristor
SST=Triac thyristor
KST=Fast thyristor
GTO=High frequency thyristor
KE=Welder thyristor

2 -Current code=$IT_{(AV)}$

3 -C=ceramic puk S=studversion

4 -Voltage code=code×100=V_{RRM}

5 -C=puk case (A-puk) &(E-puk) L=puk case(B-puk)
K=puk case (K-puk) R=puk case (R-puk)

A-PUK(E1)

E-PUK(E2)

B-PUK(E5)

K-PUK(E8)

R-PUK(E13)

Type	V_{DRM} V_{RRM}	$I_{T(AV)}$	I_{TSM}	dv/dt	di/dt	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(j-hs)}$	T_{jm}	Install power	Outline
		T_{HS} 55℃	10ms				25℃							
	V	A	KA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/w	℃	KN	(Fig)
ST200C	200~3000	200	2.5	300	100	30	35-250	0.8-2.0	20-150	2.4/600	0.065	125	5.3-10	E1/E2
ST300C	200~3000	300	3.8	300	100	30	35-250	0.8-2.5	20-200	2.2/900	0.055	125	5.3-10	E1/E2
ST400C	200~3000	400	5	300	100	40	35-250	0.8-2.5	20-200	2.4/1200	0.040	125	10-20	E1/E2
ST500C	200~5000	500	6.4	300	100	50	35-250	0.8-2.5	20-250	2.4/1500	0.035	125	15-20	E2/E5
ST600C	200~5000	600	6.4	300	100	40	35-300	0.8-2.5	20-250	1.8/1800	0.035	125	10-20	E2/E5
ST800C	200~5000	800	10	300	100	50	40-300	0.8-3.0	20-250	2.2/2400	0.032	125	15-20	E5
ST1000C	200~5000	1000	13	500	150	80	40-300	0.8-3.0	20-300	2.4/3000	0.022	125	21-30	E5/E8
ST1200C	200~5000	1200	15	500	200	120	40-300	0.8-3.0	20-300	2.4/3000	0.020	125	21-30	E8
ST1500C	200~5000	1500	20	500	200	120	40-300	0.8-3.0	20-300	2.4/3000	0.017	125	27-34	E8
ST1800C	200~5000	1800	22.5	500	200	160	40-300	0.8-3.0	20-300	2.4/4000	0.016	125	30-40	E13
ST2000C	200~5000	2000	25	500	250	200	40-300	0.8-3.0	20-300	2.4/4000	0.011	125	35-47	E13
ST2500C	200~5000	2500	31	500	250	200	40-300	0.8-3.0	20-300	2.4/5000	0.011	125	35-47	E13
ST3000C	200~5000	3000	38	500	250	200	40-300	0.8-3.0	20-300	2.2/5000	0.011	125	35-47	E15
ST3500C	200~5000	3500	44	500	250	250	40-300	0.8-3.0	20-300	2.4/5000	0.01	125	70-85	E15
ST4000C	200~5000	4000	48	500	250	250	40-300	0.8-3.0	20-300	2.4/5000	0.01	125	70-85	E15

TRIAC THYRISTOR (Hockey puk version)

Features

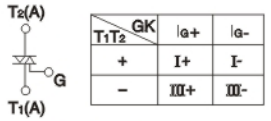
- all diffuse techinics
- ceramic disc type seal
- middle trigger
- bifacial cooled
- same as two thyristor anti-abreast
- use proper trigger current,anti & forward all coulducting

Typical Applications

- AC switch
- fast motor control

Explanation

- I_{GT},V_{GT},I_H are all TA=25℃ test data,others are all TA=Tjm test data.
- $I^2t \triangleq I_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz,$I^2t=0.005I^2_{FSM}(A^2S)$
- when at 60Hz,I_{TSM}(8.3ms)=I_{TSM}(10ms)×1.066,Tj=T_{jm}
  I^2t(8.3ms)=I^2t(10ms)×0.943,Tj=T_{jm}
- Gate trigger made (base point nt T_1)



T1T2 \ GK	IG+	IG-
+	I+	I-
-	III+	III-

IGT,VGT just for I+,I-,III-3mode gate trigger,
IH data for two side all cowld use.

Type	VDRM VRRM	IT(RMS)	ITSM	dv/dt	di/dt	IDRM IRRM	IGT	VGT	IH	VTM/ITM	RTH(j-hs)	Tjm	Install power	Outline (Fig)
		THS 55℃	10ms				25℃							
	V	A	kA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/w	℃	KN	
SST200C	200-2000	200	1.7	50	50	20	20-200	0.8-2.5	20-200	2.4/300	0.120	125	3.3-5.5	E1/E2
SST300C	200-2000	300	2.5	50	50	30	20-200	0.8-2.5	20-200	2.4/500	0.065	125	5.3-10	E2
SST500C	200-2000	500	4	50	50	40	20-300	0.8-3.0	20-300	2.4/700	0.040	125	10-20	E5
SST600C	200-2000	600	4.2	50	50	40	20-300	0.8-3.0	20-300	2.4/900	0.035	125	10-20	E5
SST800C	200-2000	800	6.8	50	50	50	20-350	0.8-3.5	20-400	2.4/1200	0.035	125	15-20	E5/E8
SST1000C	200-2000	800	6.8	50	50	50	20-350	0.8-3.5	20-400	2.4/1200	0.035	125	20-30	E8

FAST THYRISTOR (Hockey puk version)

Features

- all diffuse techinics
- ceramic disc type seal
- middle trigger
- good dynamic feature
- low switch loss
- bifacial cooled
- fast switch feature

Typical Applications

- inverter
- chopper
- induction warm-up
- current converter

Explanation

- I_{GT},V_{GT},I_H are all TA=25℃ test data,others are all TA=Tjm test data.
- $I^2t \triangleq I_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz,$I^2t=0.005I^2_{TSM}(A^2S)$
- when at 60Hz,I_{TSM}(8.3ms)=I_{TSM}(10ms)×1.066,Tj=T_{jm}
  I^2t(8.3ms)=I^2t(10ms)×0.943,Tj=T_{jm}

Type	VDRM VRRM	IT(AV)	tq	dv/dt	di/dt	IDRM IRRM	IGT	VGT	IH	VTM/ITM	RTH(j-hs)	Tjm	Install power	Outline (Fig)
		THS 55℃	100℃				25℃							
	V	A	μs	V/μs	A/μs	mA	mA	V	mA	V/A	℃/w	℃	KN	
KST200C	600-2500	200	16-35	500	200	30	40-250	0.9-2.5	20-400	2.9/600	0.065	115	5.3-10	E1/E2
KST300C	600-2500	300	16-35	500	200	30	40-250	0.9-2.5	20-400	2.8/900	0.055	115	5.3-10	E1/E2
KST400C	600-2500	400	16-35	500	300	40	40-250	0.9-2.5	20-400	2.8/1200	0.040	115	10-20	E2/E5
KST500C	600-2500	500	16-35	500	300	50	40-250	0.9-2.5	20-400	3.15/1500	0.035	115	15-20	E2/E5
KST600C	600-2500	600	16-35	500	300	50	40-300	0.9-3.0	20-400	3.15/1800	0.032	115	15-20	E5
KST800C	600-2500	800	16-35	500	300	60	40-300	0.9-3.0	20-500	3.15/2400	0.030	115	18-25	E5/E8
KST1000C	600-2500	1000	16-35	500	500	80	40-300	0.9-3.0	20-500	3.15/3000	0.024	115	19-26	E8
KST1200C	600-2500	1200	16-35	500	500	100	40-300	0.9-3.0	20-500	3.15/3000	0.022	115	21-30	E8
KST1500C	600-2500	1500	16-35	500	500	120	40-300	0.9-3.5	20-500	3.15/3000	0.020	115	21-30	E8
KST1800C	600-2500	1800	16-35	500	500	120	40-400	0.9-4.0	20-800	3.15/4000	0.017	115	27-34	E13
KST2000C	600-2500	2000	40-80	500	600	160	40-450	0.9-4.5	20-1000	3.15/4000	0.016	115	30-40	E13
KST2500C	600-2500	2500	40-80	500	600	200	40-450	0.9-4.5	20-1000	3.15/5000	0.011	115	35-47	E15
KST3000C	600-2500	3000	40-80	500	600	250	40-450	0.9-4.5	20-1000	3.15/5000	0.009	115	70-85	E15

HIGH FREQUENCY THYRISTOR (Hockey puk version)

Features

- all diffuse techinics
- diffuse bigger trigger
- low switch loss
- good dynamic feature
- applicable frequence 2.5KHz-10KHz
- ceramic disc type seal
- bifacial cooled

Typical Applications

- inverter
- welder
- chopper
- inductor
- current converter

Explanation

- I_{GT}, V_{GT}, IH are all TA=25℃ test data, others are all TA=Tjm test data.
- $I^2t = I_{TSM} \times t_w/2$: t_w=Half sine wave current, when at 50Hz, $I^2t = 0.005 I^2_{TSM}$ (A^2S)
- when at 60Hz, I_{TSM}(8.3ms)=I_{TSM}(10ms)×1.066, Tj=T_{jm}
  I^2t(8.3ms)=I^2t(10ms)×0.943, Tj=T_{jm}

Type	V_{DRM} V_{RRM}	$I_{T(AV)}$	Im/f	tq	I_{TSM}	dv/dt	di/dt	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(j-hs)}$	T_{jm}	Install power	Outline (Fig)
		T_{HS} 55℃		100℃	10ms				25℃							
	V	A	A/KHz	μs	KA	V/μs	A/μs	mA	mA	V	mA	V/A	℃/w	℃	KN	
GTO200C	800-1600	200	200/6	10-16	2.4	200	200	30	30-200	0.8-2.5	20-250	3.2/600	0.055	115	5.3-10	E1/E2
GTO300C	800-1600	300	300/6	10-16	3.6	200	200	40	30-250	0.8-3.0	20-400	3.2/900	0.035	115	10-20	E2
GTO400C	800-1600	400	300/10	8-10	4.8	200		40	30-250	0.8-3.0	20-400	3.2/1200	0.035	115	10-20	E2/E5
GTO500C	800-1600	500	500/6	10-16	6	200	200	50	30-250	0.8-3.0	20-400	3.2/1500	0.032	115	15-20	E5
GTO600C	800-1600	600	600/6	12-18	7.2	200	250	60	30-250	0.8-3.0	20-400	3.2/1800	0.030	115	18-25	E5
GTO800C	800-1600	800	800/6	12-18	9.6	200	250	80	30-250	0.8-3.0	20-400	3.2/2400	0.024	115	19-25	E5/E8
GTO1000C	800-1600	1000	1000/6	12-18	12	200	250	100	30-300	0.8-3.0	20-400	3.2/3000	0.022	115	21-30	E8
GTO1200C	800-1600	1200	800/8	8-15	14	200	250	100	30-300	0.8-3.0	20-400	3.2/3000	0.022	115	21-30	E8/E13

WELDER THYRISTOR (Hockey puk version)

Type	V_{DRM}/V_{RRM}	$I_{T(AV)}$@T_{hs}		t_q	I_{TSM}	dv/dt	di/dt	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	V_{TO}	r_T	$R_{th(j-hs)}$	T_{jm}	Install power	Outline (Fig)
				100℃	10ms				25℃				115℃					
	V	A	℃	μs	KA	V/μs	A/μs	mA	mA	V	mA	V/A	V	mΩ	℃/W	℃	KN	
KE200	800-1300	200	94	10-28	3.8	200	200	30	40-250	0.9-2.5	20-400	2.4/600	1.38	1.39	0.055	115	5.3-10	E1/E2
KE300	800-1300	300	96	10-28	5	200	200	40	40-250	0.9-2.5	20-400	2.4/900	1.32	1.36	0.035	115	10-20	E1/E2
KE500	800-1500	500	96	10-28	5	200	200	50	40-250	0.9-2.5	20-400	2.4/900	1.32	1.35	0.035	115	15-20	E5

KE series feature

- special for invert welder design
- diffuse bigger trigger
- low VTM
- low switch loss
- good dynamic feature
- could work athigh switch frequency

ZE series feature

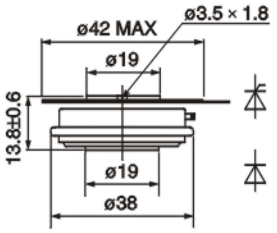
- special for invert welder design
- low VTM
- short recovery time
- fast soft recovery features
- ceramic disc type seal bifacial coolde

WELDER DIODE (Hockey puk version)

Type	V_{RRM}	$I_{F(AV)}$ @T_{hs}		t_{rr}	Q_{rr}	I_{FSM}	I^2t	I_{RRM}	V_{FM}/I_{FM}	V_{FO}	r_F	$R_{th(j-hs)}$	T_{jm}	Install power	Outline (Fig)
				100℃		10ms		25℃		150℃					
	V	A	℃	μs	μc	KA	KA^2s	mA	V/A	V	mΩ	℃/W	℃	KN	
ZE200	600-1300	200	126	3	300	5.4	100	30	2.0/900	1.38	0.40	0.055	150	5.3-10	E1/E2
ZE300	600-1300	300	122	3	500	6.7	220	40	2.0/1500	1.35	0.36	0.035	150	10-20	E1/E2
ZE500	600-1300	500	122	3	500	6.7	220	40	2.0/1500	1.35	0.35	0.035	150	15-20	E5

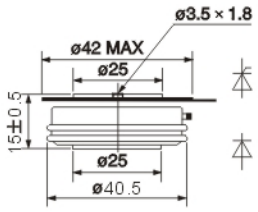
ALL HOCKEY PUK VERSION OUTLINE

E1 A-PUK



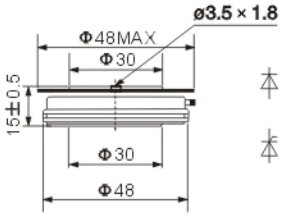
Φ26	power	install force
	100~ 200A	3.3~ 5.5KN

E2 E-PUK



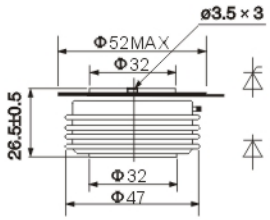
Φ30	power	install force
	200~ 300A	5.5~ 10KN

E3



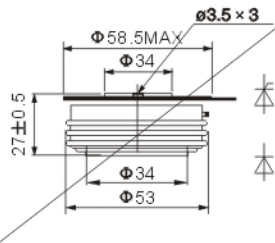
Φ36	power	install force
	300~ 500A	10~ 20KN

E4



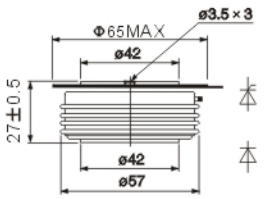
Φ36	power	install force
	200~ 500A	10~ 20KN

E5 B-PUK



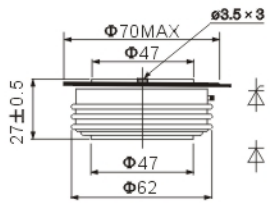
Φ40	power	install force
	300~8 00A	15~ 20KN

E6



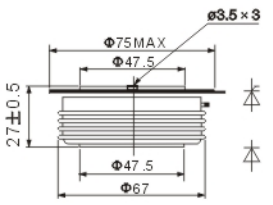
Φ45	power	install force
	500~ 800A	15~ 20KN

E7



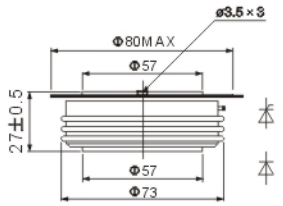
Φ50	power	install force
	800~ 1000A	18~ 25KN

E8 K-PUK



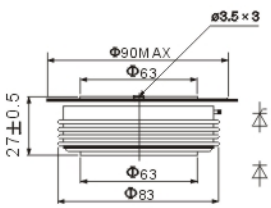
Φ55	power	install force
	1000~15 00A	19~ 26KN

E9



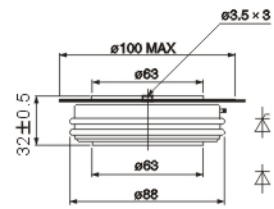
Φ60	power	install force
	1500~2500 A	21~ 30KN

E10



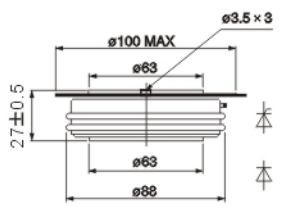
Φ65	power	install force
	1500~2500A	27~ 34KN

E11



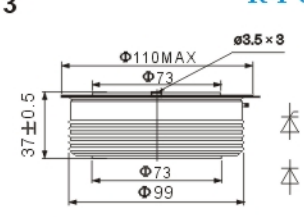
Φ70	power	install force
	2000~3000A	30~ 40KN

E12



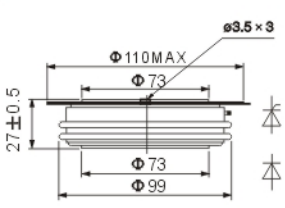
Φ70	power	install force
	2000~3000A	30~ 40KN

E13 R-PUK



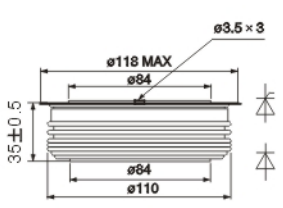
Φ80	power	install force
	2500~500 0A	35~ 45KN

E14



Φ80	power	install force
	2500~5000A	35~ 45KN

E15



Φ90	power	install force
	4000~5000A	70~ 85KN

STANDARD POWER MODULE SERIES

Features

- base & chip insulation AC voltage 2500V
- international standard packing
- excellent temperature feature
- lower than 350A use air-cool,higher than 500A,could use air-cool or water-cool
- easy install
- volume small,weight light

Applications

- AC DC motor control
- motor soft start
- industry heat-up control
- rectificate power supply
- welder
- frequency transformer
- UPS power supply
- battery change &dischange

Ordering information Table

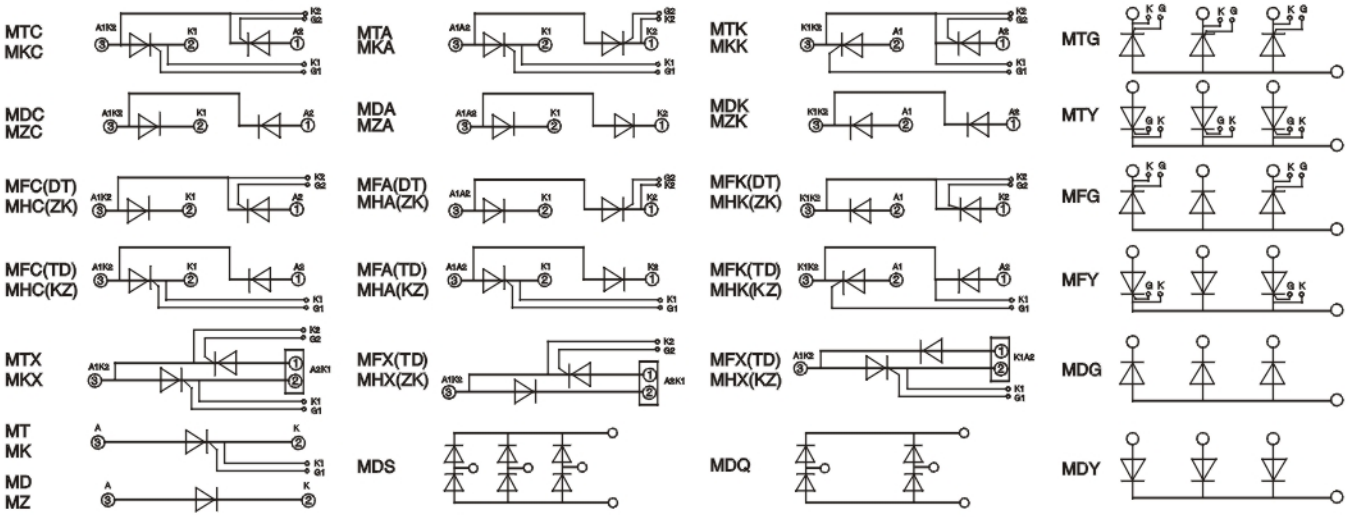
Device Code M T C 90 -12 (① ② ③ ④ ⑤)

1 -Power Module
2 -T=thy-thy;D=dio-dio;F=dio-thy;
K=fast thy;Z=fast dio;H=fast thy-fast dio
3 -Circuit form:A=common positive pole;
C=series connection;
K=common negative pole;
X=reverse parallelconnection;
G=3-phase common positive pote;
Y=3-phase commomnegative pole
4 -Current Code=$IF_{(AV)}$/$IT_{(AV)}$
5 -Voltage code=CodeX100=V_{RRM}

Explanation

- I_{GT},V_{GT},I_H are all TA=25℃ test data,others are all TA=Tjm test data.
- $I^2t \doteq I_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz, $I^2t=0.005I^2_{TSM}(A^2S)$
- when at 60Hz,I_{TSM}(8.3ms)=I_{TSM}(10ms)×1.066,Tj=T_{jm}
  I^2t(8.3ms)=I^2t(10ms)×0.943,Tj=T_{jm}

Part number type & circuit



STANDARD THYRISTOR MODULE(MTC,MTK,MTA,MTX,MT)
THYRISTOR-DIODE MODULE(MFC,MFK,MFA,MFX)

$I_{T(AV)}$	V_{DRM} V_{RRM}	V_{TM}@I_{TM}		I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	dv/dt	di/dt	I_{TSM}	R_{jc}	T_{jm}	V_{iso}	Outline
A	V	V	A	mA	mA	V	mA	V/μs	A/μs	A×10^3	℃/W	℃	V(AC)	(Fig)
25	400-2600	1.69	80	8	100	2.5	100	800	50	0.55	0.950	125	2500	M1/M2
40	400-2600	1.60	120	8	100	2.5	100	800	50	1.00	0.650	125	2500	M1/M2
55	400-2600	1.50	170	8	100	2.5	100	800	50	1.25	0.530	125	2500	M1/M2
70	400-2600	1.48	210	10	100	2.5	100	800	50	1.60	0.410	125	2500	M1/M2
90	400-2600	1.94	270	15	100	2.5	100	800	100	2.00	0.280	125	2500	M1/M2
110	400-2600	1.90	330	20	100	2.5	100	800	100	2.40	0.250	125	2500	M1/M2
130	400-2600	1.96	410	25	150	2.5	100	800	100	3.80	0.200	125	2500	M3
160	400-2600	1.90	480	25	150	2.5	100	800	100	5.40	0.170	125	2500	M3
200	400-2600	1.90	600	30	180	2.5	100	800	100	7.20	0.140	125	2500	M4
250	400-2600	1.73	750	30	180	2.5	100	800	100	8.50	0.120	125	2500	M4
300	400-2600	1.58	900	40	180	2.5	100	800	100	9.30	0.100	125	2500	M4
350	400-2600	1.45	1050	40	180	2.5	100	800	100	11.0	0.090	125	2500	M5
400	400-2600	1.44	1200	40	200	3.0	100	800	100	14.0	0.080	125	2500	M5
500	400-2600	1.44	1500	40	200	3.0	100	800	100	16.0	0.065	125	2500	M5
500*	400-2600	1.90	1500	40	200	3.0	100	800	100	11.0	0.087	125	2500	M7
600*	400-2600	1.90	1800	40	200	3.0	100	800	100	13.0	0.073	125	2500	M8
800*	400-2600	1.95	2400	40	200	3.0	100	800	100	16.0	0.054	125	2500	M8

ATT: *means water-cooling

STANDARD DIODE MODULE(MDC,MDK,MDA,MDX,MD)

型号 Type	$I_{F(AV)}$	V_{RRM}	V_{FM} @I_{FM}		I_{RRM}	$I_{F(RMS)}$	I_{FSM}	R_{jc}	T_{jm}	V_{iso}	Outline (Fig)
	A	V	V	A	mA	A	A×10³	℃/W	℃	V(AC)	
MDX25A	25	400-2600	1.65	80	8	41	0.65	1.300	150	2500	M1/M2
MDX40A	40	400-2600	1.55	120	8	63	1.00	0.900	150	2500	M1/M2
MDX55A	55	400-2600	1.45	170	8	86	1.30	0.700	150	2500	M1/M2
MDX70A	70	400-2600	1.40	210	8	110	1.80	0.570	150	2500	M1/M2
MDX90A	90	400-2600	1.33	270	8	141	2.30	0.470	150	2500	M1/M2
MDX110A	110	400-2600	1.45	330	8	173	2.60	0.350	150	2500	M1/M2
MDX130A	130	400-2600	1.38	410	12	212	3.90	0.310	150	2500	M3
MDX160A	160	400-2600	1.56	480	12	251	6.00	0.230	150	2500	M3
MDX200A	200	400-2600	1.38	600	12	314	8.00	0.210	150	2500	M4
MDX250A	250	400-2600	1.43	750	20	393	11.0	0.140	150	2500	M4
MDX300A	300	400-2600	1.35	900	20	471	12.5	0.130	150	2500	M4
MDX350A	350	400-2600	1.50	1050	30	550	15.0	0. 110	150	2500	M5
MDX400A	400	400-2000	1.35	1200	40	640	18.0	0.100	150	2500	M5
MDX500A	500	400-2600	1.35	1500	40	785	21.0	0.090	150	2500	M5
MDX500A*	500	400-2600	1.65	1500	40	785	12.0	0.130	150	2500	M7
MDX600A*	600	400-2600	1.65	1800	40	942	15.0	0. 110	150	2500	M8
MDX800A*	800	400-2600	1.70	2400	40	1256	18.0	0.080	150	2500	M8

* means water-cooling MDX means oneof MDC,MDK,MDA,MDX,MD

FAST THYRISTOR MODULE(MKC,MKA,MKK,MKX,MK)
FAST THYRISTOR-DIODE MODULE(MHC,MHA,MHK,MHX)

$I_{T(AV)}$@T_C		V_{DRM} V_{RRM}	V_{TM}@I_{TM}		I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	dv/dt	di/dt	t_q	$I_{T(RMS)}$	I_{TSM}	R_{jc}	T_{jm}	V_{iso}	Outline (Fig)
A	℃	V	V	A	mA	mA	V	mA	V/μs	A/μs	μs	A	A×10³	℃/W	℃	VAC	
150	85	600-1600	1.78	450	40	180	2.5	100	800	200	15-35	236	4.00	0.140	115	2500	M3
200	85	600-1600	1.77	600	50	180	2.5	100	800	200	15-35	314	5.60	0.100	115	2500	M4
300	85	600-1600	1.75	900	80	200	3.0	100	800	200	15-35	471	7.80	0.070	115	2500	M4
300*	55	600-1600	2.20	900	50	200	3.0	100	800	200	15-35	471	5.60	0. 110	115	2500	M6
400*	55	600-1600	2.10	1200	80	200	3.0	100	800	200	15-35	628	7.80	0.087	115	2500	M7

FAST DIODE MODULE(MZC,MZA,MZK,MZX,MZ)

$I_{F(AV)}$@T_C		V_{RRM}	V_{FM}@I_{FM}		I_{RRM}	$I_{F(RMS)}$	I_{FSM}	R_{jc}	T_{jm}	V_{iso}	Outline (Fig)
A	℃	V	V	A	mA	A	A×10³	℃/W	℃	VAC	
150	100	600-1600	1.60	450	30	236	4.30	0.210	140	2500	M3
200	100	600-1600	1.58	600	40	314	6.00	0.150	140	2500	M4
300	100	600-1600	1.55	900	70	471	8.30	0.100	140	2500	M4
300*	60	600-1600	2.05	900	40	471	6.00	0.160	140	2500	M6
400*	60	600-1600	1.90	1200	70	628	8.30	0.130	140	2500	M7

* water-cooling

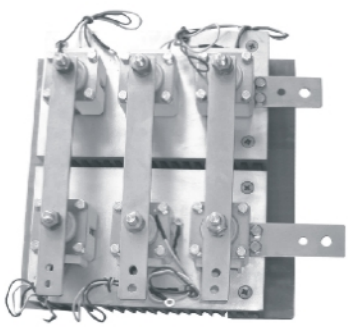
INSULATION HOCKEY PUK VERSION POWER MODULE

Insulation DISC typepower module could instal DISC type thyristor or diode on baseplate orheatsink,use one side cooled, air-cooled & water-colled all could use.

This module use disctype,have big power,instal easy,volume small,outline good-looking those feature.this could use at anti-abreast,rectification,inversion and so on control region.

Type	Device QTY	Device outline	$R_{th(c-p)}$ ℃/W	$R_{th(p-hs)}$ ℃/W	Outline (Fig)
MP25A-XXX	1	E1/E2	0.095	0.012	M15
MP33A-XXX	1	E5	0.090	0.010	M16

ATT：MP25A-XXX,XXX means device part numbet.Like MP25A-ST300C16.



NON-INSULATION POWER MODULE SERISE

Features

- Non-insulation
- Baseplate communal electrode
- International standard packing
- Excellent temperature feature
- highest operating temp 140℃
- high I_{FSM}
- low V_{FM}

Applications

- Welding Power
- DC Power
- Frequency transformer

Explanation

- I_{GT},V_{GT},I_H are all TA=25℃ test data,others are allTA=Tjm test data.
- $I^2t \triangleq I_{TSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz,$I^2t=0.005I^2_{TSM}(A^2S)$
- when at 60Hz,I_{TSM}(8.3ms)=I_{TSM}(10ms)×1.066, Tj=T_{jm} I^2t(8.3ms)=I^2t(10ms)×0.943,Tj=T_{jm}

NON-INSULATION DIODE MODULE(MDG,MDY)

Type	$I_{F(AV)}$	V_{RRM}	V_{FM} @I_{FM}		I_{RRM}	$I_{F(RMS)}$	I_{FSM}	R_{jc}	T_{jm}	Outline
	A	V	V	A	mA	A	A × 10^3	℃/W	℃	(Fig)
MDX100A	100	400-2600	1.57	300	12	157	3.90	0.380	150	M9/M11
MDX150A	150	400-2600	1.57	450	12	236	5.80	0.240	150	M10/M12
MDX200A	200	400-2600	1.50	600	20	314	8.00	0.200	150	M10/M12
MDX250A	250	400-2600	1.53	750	20	393	9.80	0.150	150	M10
MDX300A	300	400-2600	1.50	900	25	471	11.50	0.130	150	M10

ATT：MDX means one of the MDG or MDY.

NON-INSULATION THYRISTOR MODULE(MTG,MTY)
NON-INSULATION THYRISTOR-DIODE MODULE(MFG,MFY)

$I_{T(AV)}$	V_{DRM} V_{RRM}	V_{TM}@I_{TM}		I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	dv/dt	di/dt	I_{TSM}	R_{jc}	T_{jm}	Outline
A	V	V	A	mA	mA	V	mA	V/μs	A/μs	A×10^3	℃/W	℃	(Fig)
100	400-2600	1.67	300	12	100	2.5	100	800	100	3.20	0.250	125	M9/M11
150	400-2600	1.67	450	12	100	2.5	100	800	100	5.10	0.160	125	M10/M12
200	400-2600	1.62	600	20	150	2.5	100	800	100	6.50	0.130	125	M10/M12
250	400-2600	1.65	750	20	150	2.5	100	800	100	8.50	0.100	125	M10
300	400-2600	1.58	900	25	150	2.5	100	800	100	9.60	0.080	125	M10

SINGLE-PHASE,3-PHASE BRIDGE DIODE MODULE SERIES

Features

- base & chipinsulation ACvoltage 2500V
- international standard packing
- excellent temperature feature
- easy install
- volume small,weight light
- highest operating temp 140℃
- low V_{FM}

Applications

- instrument 's DC power supply
- PWM frequency transformet
- input rectificate power supply
- DC motor field power supply
- switch power supplyinput rectificate

Explanation

- I_{GT},V_{GT},I_H are all TA=25℃ test data,others are allTA=Tjm test data.
- $I^2t \triangleq I_{FSM} \times t_w/2$:$t_w$=Half sine wave current,when at 50Hz,$I^2t=0.005I^2_{FSM}(A^2S)$
- when at 60Hz,I_{FSM}(8.3ms)=I_{FSM}(10ms)×1.066, Tj=T_{jm} I^2t(8.3ms)=I^2t(10ms)×0.943,Tj=T_{jm}

60-100A

IOR Type

FUJI Type

150-250A

SINGLE-PHASE BRIDGE DIODE MODULE(MDQ)

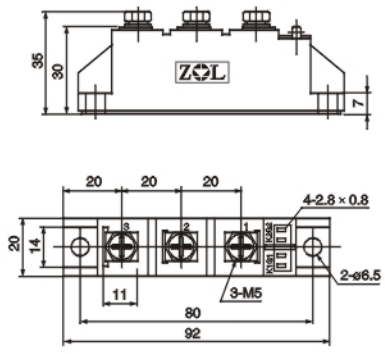
Type	I_d @Tc		V_{RRM}	V_{FM} @I_{FM}		I_{RRM}	$I_{F(AV)}$	$I_{F(RMS)}$	I_{FSM}	R_{jc}	T_{jm}	V_{iso}	Outline
	A	℃	V	V	A	mA	A	A	A×10^3	℃/W	℃	VA.C	(Fig)
MDQ60	60	100	600-2000	1.55	60	8	30	60	0.75	0.55	150	2500	M13
MDQ80	80	100	600-2000	1.47	80	8	40	70	1.00	0.32	150	2500	M13
MDQ100	100	100	600-2000	1.53	150	10	50	86	1.50	0.24	150	2500	M13
MDQ150	150	100	600-2000	1.47	230	10	75	106	2.00	0.15	150	2500	M14
MDQ200	200	100	600-2000	1.50	315	10	100	157	2.50	0.15	150	2500	M14

3-PHASE BRIDGE DIODE MODULE(MDS)

Type	I_d @Tc		V_{RRM}	V_{FM} @I_{FM}		I_{RRM}	$I_{F(AV)}$	$I_{F(RMS)}$	I_{FSM}	R_{jc}	T_{jm}	V_{iso}	Outline
	A	℃	V	V	A	mA	A	A	A×10^3	℃/W	℃	VA.C	(Fig)
MDS60	60	100	600-2000	1.55	60	8	20	39	0.75	0.55	150	2500	M13
MDS80	80	100	600-2000	1.47	80	8	25	47	1.00	0.32	150	2500	M13
MDS100	100	100	600-2000	1.53	100	10	33	51	1.50	0.24	150	2500	M13
MDS150	150	100	600-2000	1.50	150	10	50	71	2.50	0.15	150	2500	M14
MDS200	200	100	600-2000	1.47	200	10	75	105	2.50	0.15	150	2500	M14
MDS250	250	100	600-2000	1.47	250	10	100	157	2.50	0.15	150	2500	M14

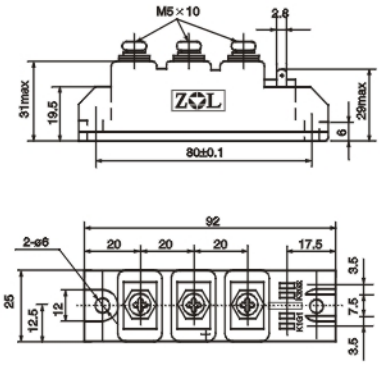
MODULES VERSION OUTLINE

M1



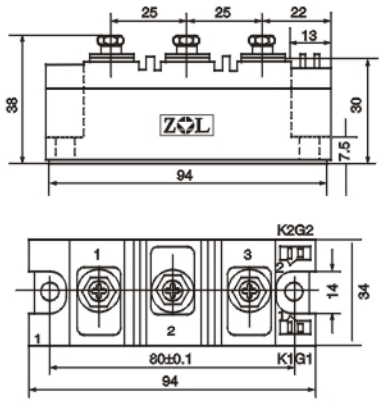
25-110 A POWER MODULE

M2



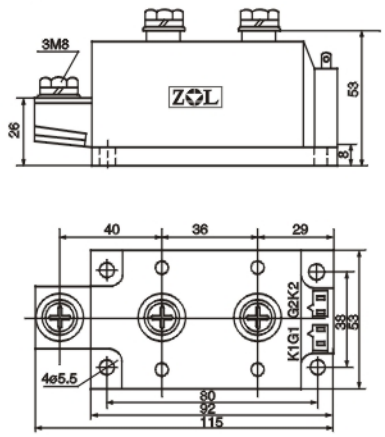
25-110 A POWER MODULE

M3



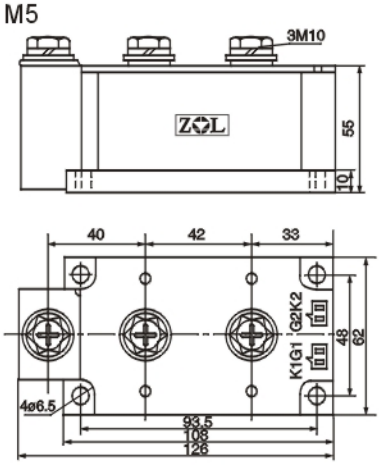
130-160A POWER MODULE

M4



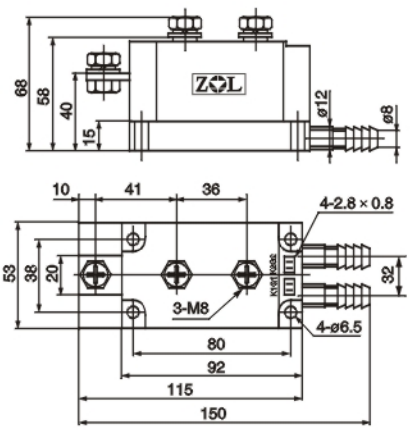
200-300A POWER MODULE

M5



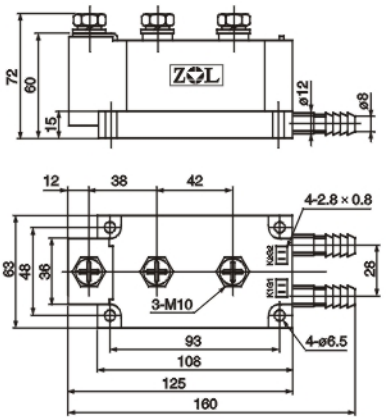
350-500A POWER MODULE

M6



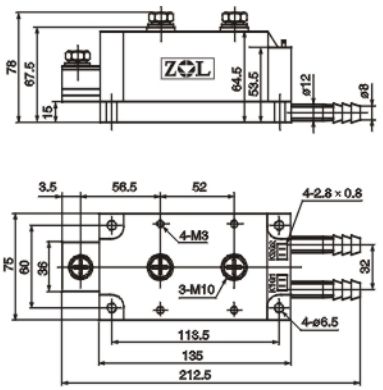
200-300A POWER MODULE
water cooled

M7



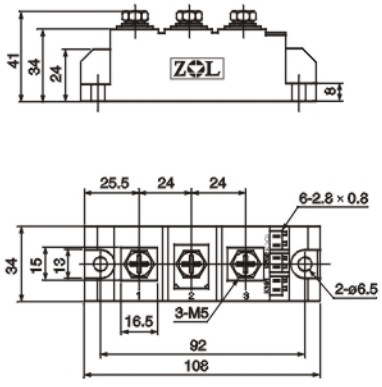
350-500A POWER MODULE
water cooled

M8



600-1000A POWER MODULE
water cooled

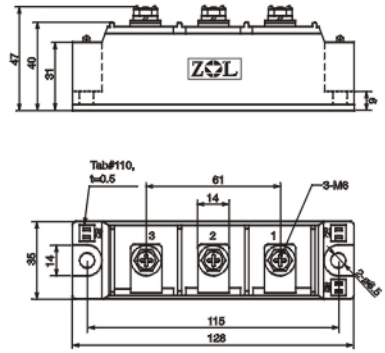
M9



40-100A POWER MODULE
welder type

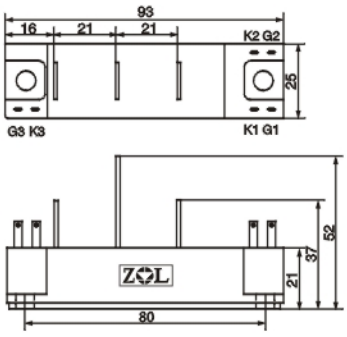
MODULES VERSION OUTLINE

M10



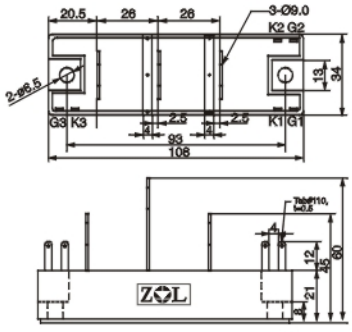
150-300A POWER MODULE
Welder type

M11



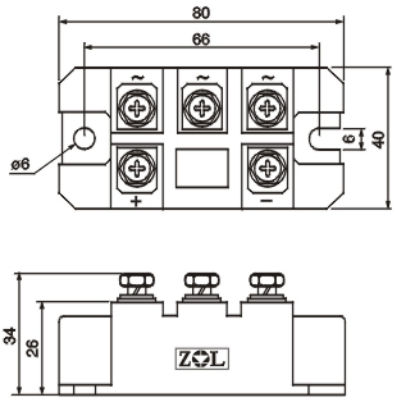
25-110 A POWER MODULE
Welder type

M12



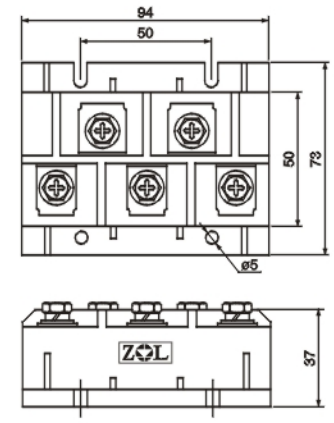
130-200A POWER MODULE
Welder type

M13



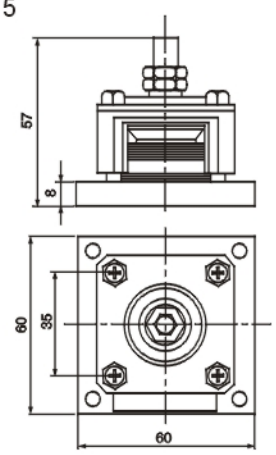
40-100A BRIDGE MODULE

M14



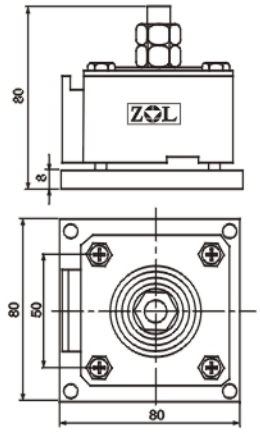
150-200A BRIDGE MODULE

M15



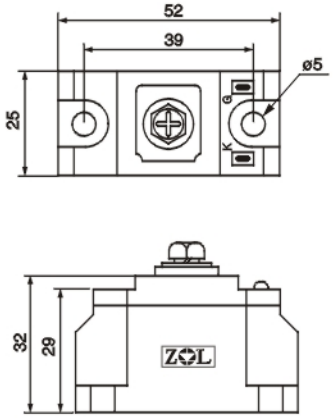
MP 25 DISC TYPE MODULE

M16



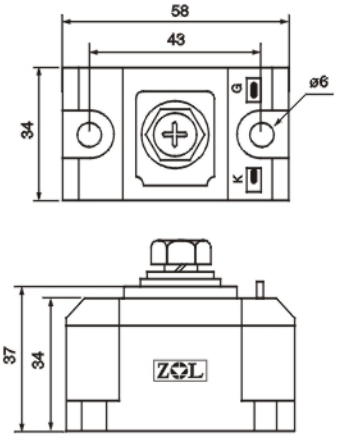
MP 33 DISC TYPE MODULE

M17



50-100A SINGLE MODULE

M18



150-200A SINGLE MODULE

SOLID STATE RELAY SERIES

Features

- Current:0.5A~400A
- Voltage:12V~680V
- Small General outline
  Vacuum Weld Techinics
- Make R/C(MOV) inside
  could absorb outI$_{TSM}$
- LED mean turn on or OFF
- Clarity protect Panel
- IEC standard
- Input & output type could chose
  DC/AC、AC/AC、DC/DC、AC/DC

Typical Applications

- AC DC switch & Temp control
- Automate Control
- Numerical Control Machinery

Ordering information Table

Device Code

SSR - D 48 40

① ② ③ ④

1 -**ZENLI** Solid State Relay

2 -D=DC/AC;A=AC/DC;
V=voltage controls (AC/AC) (DC/DC)
HD=big power DC/AC;
3P=3-phase,DC/AC

3 -Load voltage=codeX10
(48X10=480V)

4 -I_d value:DC out current


SSR-1


SSR-2


SSR-3


SSR-4

ControlParameter				OperatingParameter							Outline (Fig)
Type	Control voltage (V)	Open current (mA)	Turn-off voltage (V)	Rating current (A)	Load voltage (V)	Voltage drop (V)	Off-state leakage (mA)	Turn-on time (ms)	Turn-off time (ms)	Insulation voltage (V)	
SSR-D 10A~90A	DC 3~14 DC 3~12	5.0	⩽1.5	10~90	10~250 50~660	⩽1.5	⩽1 ⩽5	10	10	DC 500	SSR-1
SSR-HD 80A~150A	DC3~14 DC 3~32	6~25	⩽1.5	80~150	220~660	⩽3	⩽5	10	10	AC 2000 AC 2500	SSR-2
SSR-HD 200A~350A	DC3~14 DC 3~32	6~25	⩽1.5	200~350	220~660	⩽3	⩽5	10	10	AC 2000 AC 2500	SSR-3
SSR-3P 10A~90A	DC 3~14 DC 3~32	8~25	⩽1.5	10~90	30~660	⩽3	⩽5	10	10	AC 2000 AC 2500	SSR-4
SSR-A 10A~40A	AC 90~280	8.0	⩽1.5	10~40	24~280 90~480	2.0	⩽5	10	10	DC 500	SSR-1
SSR-V 10A~40A	AC 24~380	5.0	⩽1.5	10~40	10~250 30~660	2.0	⩽5	10	10	DC 500	SSR-1

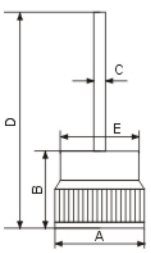
PRESS-FIT DIODE SERIES

Features

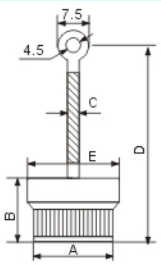
- Diffused Juntion
- Low leakage
- Low forward voltage drop
- Low lost
- High surge current capability

Mechanilal Date

- Case & terminal:red copper
- Terminal:easy for soldering
- Polarity:standard cathode to case (ZQ3504) red color
  Reverse Anode to case (ZQ3504R) black color



Bosch type



Standard type

BOSCH TYPE		DIM	STANDARD TYPE	
MIN	MAX		MIN	MAX
12.90	13.06	A	12.90	13.06
7.70	8.10	B	8.60	9.00
1.25	1.31	C	1.80	2.20
29.10	31.10	D	54.00	56.00
11.10	11.50	E	16.10	16.50

Type	$I_{F(AV)}$	V_{RRM}	V_{RMS}	I_{FSM}	V_{FM}	I_{RRM}		Rthj-c	Tj
	A	V	V	A	V	TA=175℃ mA	TA=100℃ mA	℃/w	℃
ZQ10A	10	50~1200	0.7XV_{RRM}	200	1.0	5.0	0.5	1.0	-65℃ ~ +175℃
ZQ25A	25	50~1200	0.7XV_{RRM}	400	1.0	25.0	0.5	1.0	
ZQ35A	35	50~1200	0.7XV_{RRM}	400	1.2	25.0	0.5	1.0	
ZQ50A	50	50~1200	0.7XV_{RRM}	500	1.1	5.0	1.0	0.8	

BRIDGE RECTIFIER SERIES

Features

- Current:5A~300A
- Voltage:100V~1600V
- Small General outline
  Vacuum Weld Techinics
- GPP CELL Diode Chip
- Good Power/volume
- High Temp Conduct Packing

Typical Applications

- Rectificate Power
- Automate Control
- Numerical Control Machinery

Ordering information Table

Device Code

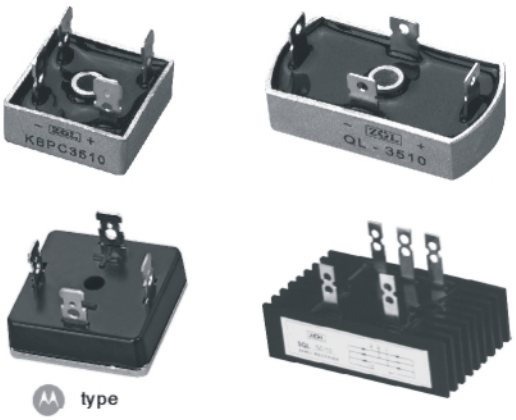
KBPC | 35 | 06

① ② ③

1 -ZENLI bridge rectifier
KBPC、QL=Single phase
SQL=3-phase bridge

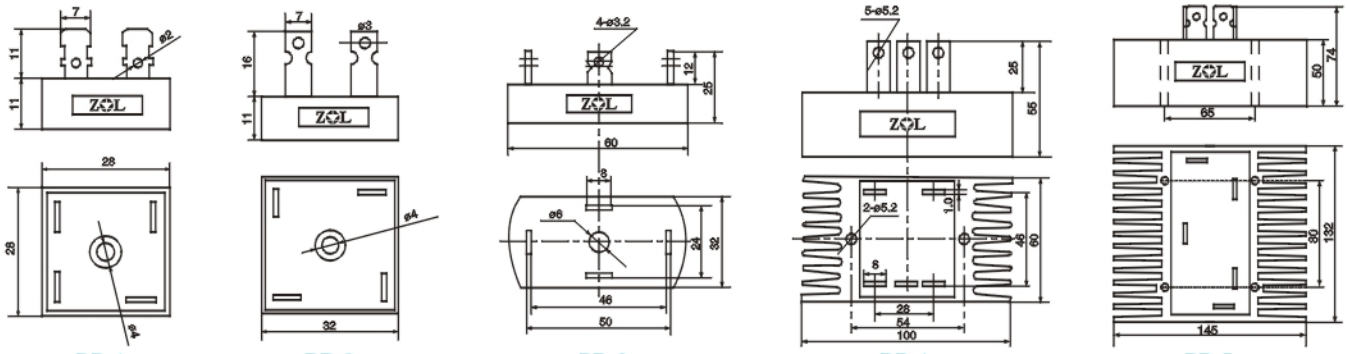
2 -I_d value:DC out current

3 -CodeX100=V_{RRM}

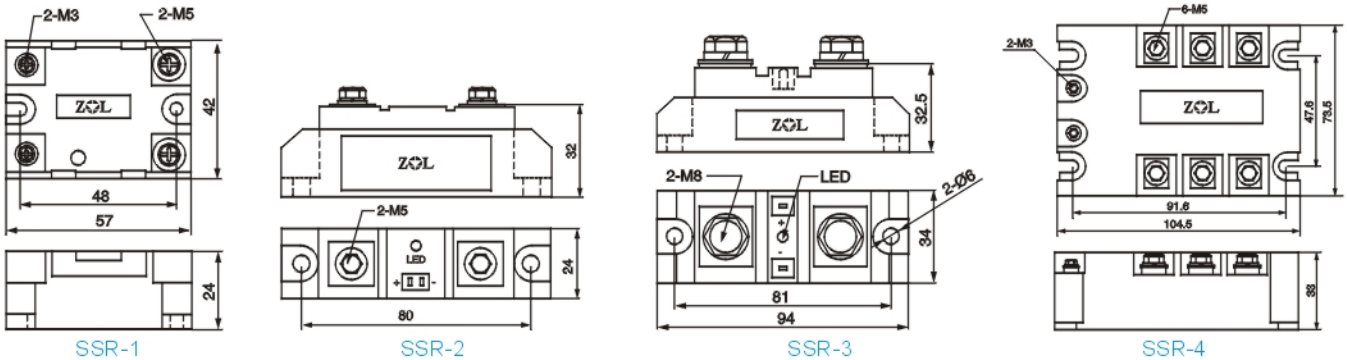


Type	Id@ TA=55℃ At Half-wave Res Losd 50Hz A	V_{RRM} @ TA=25℃ V	I_{RRM} @ TA=25℃ mA	I_{FM} @TA=25℃ A	V_{FM} @TA=25℃ V	Insulate Voltg VISOL V	Tj ℃	Weight g	Outline (Fig)
KBPC5~35A	5~35	100~1200	≤5	Id/2	≤1.3	2500	-40℃ ~ +150℃	30	BR-1
KBPC40~50A	40~50	100~1200	≤5	Id/2	≤1.3	2500		35	BR-2
QL₁5~50A(ellipse)	5~50	100~1200	≤5	Id/2	≤1.3	2500		48	BR-3
QL₂20~100A	20~100	100~1600	≤7	Id/2	≤1.4	2500		315	BR-4
QL₃150~300A	150~300	100~1600	≤10	Id/2	≤1.5	2500		1200	BR-5
SQL₁5~50A	5~50	100~1200	≤5	Id/2	≤1.3	2500		55	BR-3
SQL₂20~100A	20~100	100~1600	≤7	Id/2	≤1.4	2500		340	BR-4
SQL₃150~300	150~300	100~1600	≤10	Id/2	≤1.5	2500		1300	BR-5

Bridge Rectifier Outline



Soild State Relay Outline



WELDER BRIDGE RECTIFIER SERIES

Welder bridge rectifier seriesproducts are adhibit ITALY's technique, use in CO2 welding machine 's bridge rectifier. That also is replace stud type & module type 's 3rd bridge rectifer. We had make standing order with many welding machine factory from China, Europe, South-east Asia. We have receive many approbat because ofour good quality,price & perfect service. pprobat because ofoupprobat because ofou

Features

- Current:100A~600A;VRRM ≥400V
- Low cost
- Low forward voltage drop
- High current capability & conductive package
- Vacuum thydrogen gas filled protection solder technology
- Device with hentsink & over-voltage protection

Typical Applications

- Co_2 gas filled protection weld machine
- DC power supplies
- Rectificate circuit
- Import Italy technology
- New design,replace stud & module version

Ordering information Table

Device Code

ZL D S 400A

① ② ③ ④

1 -**ZENLI** Bridge rectifrer

2 -D=Diode bridge
T=Thyristor bridge
F=Diode-thyristor bridge

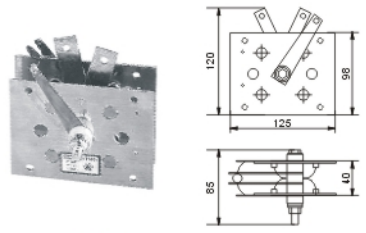
3 -S=3-phase bridge rectrifier
Q=single-phase bridge rectifier

4 -I_d value=DC out current

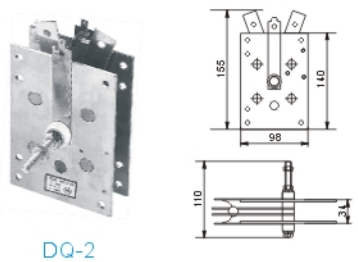
Note:for high V_{RRM} value contact factory

TYPE	I_d (A)	V_{RRM} (V)	I_{RRM} (mA)	V_{FM} (V)	I_H (V)	Temperature rise(℃)	Fix power (N.M)	Duty cycle (A)	Wind speed (M/S)	Weight (g)	Outline (Fig)
ZLDQ100A	100	≤400	≤3	≤1.2	1.50	≤55	≥12.5	60	3.0	350	DQ-1 DQ2
ZLDQ150A	150	≤400	≤4	≤1.2	1.50	≤60	≥12.5	90	3.0	390	DQ-1 Dq2
ZLDQ200A	200	≤400	≤5	≤1.3	1.50	≤60	≥12.5	120	3.0	600	DQ-3
ZLDQ250A	250	≤400	≤5	≤1.3	1.50	≤65	≥12.5	150	3.0	600	DQ-3
ZLDQ300A	300	≤400	≤6	≤1.3	1.50	≤80	≥12.5	180	3.0	1150	DQ-4
ZLDQ400A	400	≤400	≤6	≤1.4	1.50	≤85	≥12.5	240	3.0	1150	DQ-4
ZLDQ500A	500	≤400	≤7	≤1.4	1.50	≤90	≥12.5	300	3.0	2050	DQ-5
ZLDQ600A	600	≤400	≤7	≤1.4	1.50	≤90	≥12.5	360	3.0	2050	DQ-5
ZLDS100A	100	≤400	≤3.5	≤1.3	1.50	≤55	≥12.5	60	3.0	600	DS-1
ZLDS150A	150	≤400	≤4.0	≤1.3	1.50	≤60	≥12.5	90	3.0	950	DS-2
ZLDS200A	200	≤400	≤5.5	≤1.35	1.50	≤60	≥12.5	120	3.0	1000	DS-2
ZLDS250A	250	≤400	≤6.0	≤1.35	1.50	≤65	≥12.5	150	3.0	1000	DS-2
ZLDS300A	300	≤400	≤6.5	≤1.35	1.50	≤80	≥12.5	180	3.0	1650	DS-3
ZLDS400A	400	≤400	≤8.0	≤1.4	1.50	≤85	≥12.5	240	3.0	1650	DS-3
ZLDS500A	500	≤400	≤10.0	≤1.4	1.50	≤85	≥12.5	300	3.0	2400	DS-4
ZLDS600A	600	≤400	≤10.0	≤1.45	1.50	≤90	≥12.5	360	3.0	2400	DS-5
ZLTS450A	450	≤400	≤8.0	≤1.35	1.50	≤80	≥12.5	270	3.0	5550	TS
ZLTS550A	550	≤400	≤10.0	≤1.4	1.50	≤85	≥12.5	330	3.0	5600	TS
ZLTS630A	630	≤400	≤10.0	≤1.45	1.50	≤90	≥12.5	380	3.0	5600	TS
ZLFS450A	450	≤400	≤8.0	≤1.35	1.50	≤80	≥12.5	270	3.0	5550	TS
ZLFS550A	550	≤400	≤10.0	≤1.4	1.50	≤85	≥12.5	330	3.0	5600	TS
ZLFS630A	630	≤400	≤10.0	≤1.45	1.50	≤90	≥12.5	380	3.0	5600	TS

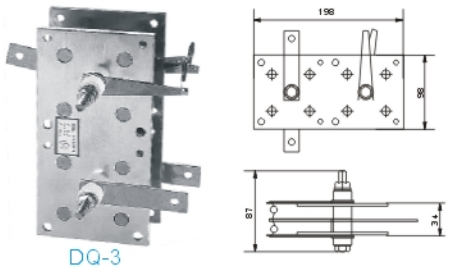
SINGLE-PHASE BRIDGE DIODE PHOTO & OUTLINE



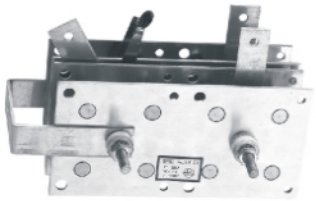
DQ-1

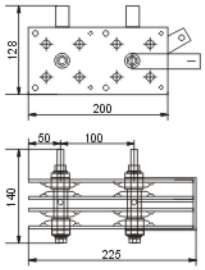


DQ-2

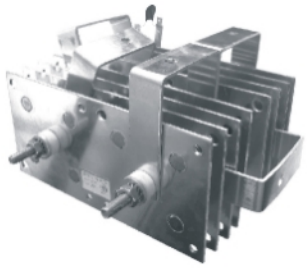


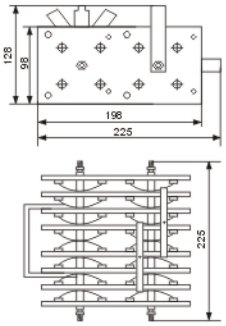
DQ-3





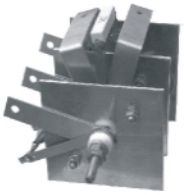
DQ-4

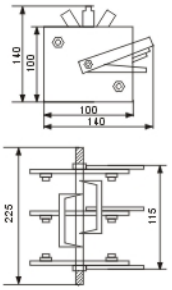




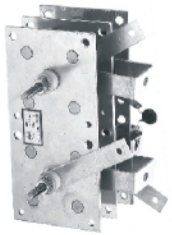
DQ-5

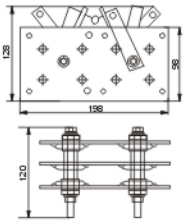
THREE-PHASE BRIDGE DIODE PHOTO & OUTLINE



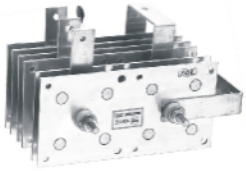


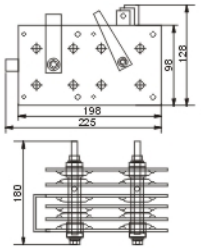
DS-1



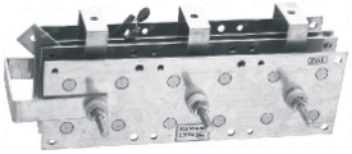


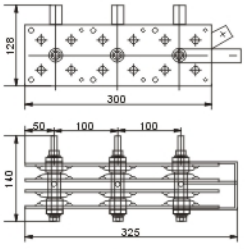
DS-2



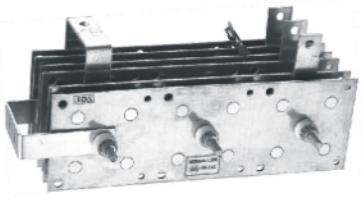


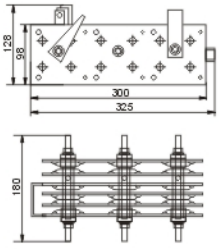
DS-3





DS-4

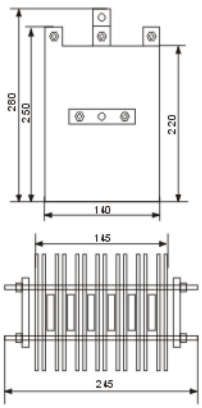




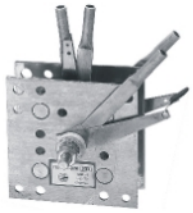
DS-5

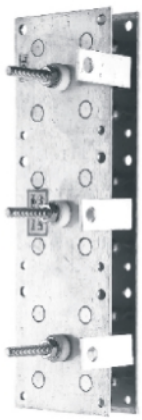
THREE-PHASE BRIDGE THYRISTOR

TS



Other off-standard type products photo.
(if could be sure the QTY, all off-standard all could custom-made)



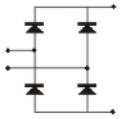


POWER SEMICONDUCTOR SUBASSEMBLY

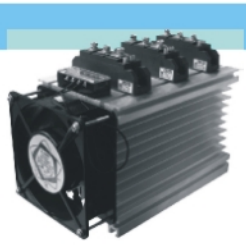
SINGLE PHASE BRIDGE

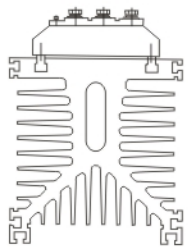
Single-phase bridge diode B2U

Air Cooling (Speed: 6m/s,TEMP：＜40℃)



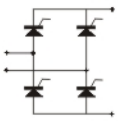
B2U



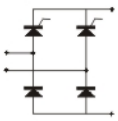
	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	without FAN	Dimension (mm×mm×mm)	Outline
	B2U-xxx-40FA	100-1800	40	30	175×125×180	Fig.1a
	B2U-xxx-80FA	100-1800	80	60		
	B2U-xxx-120FA	100-1800	120	90		
	B2U-xxx-180FB	100-1800	180	120	175×125×260	Fig.1b
	B2U-xxx-200FB	100-1800	200	140		
	B2U-xxx-250FC	100-1800	250	160	314×152×200	Fig.3
	B2U-xxx-300FC	100-1800	300	180		
	B2U-xxx-400FC	100-1800	400	240		

Single bridge SCR B2C.half bridge SCR B2HK.

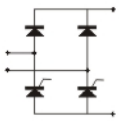
Air Cooling(Speed: 6m/s,TEMP：＜40℃)



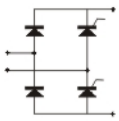
B2C



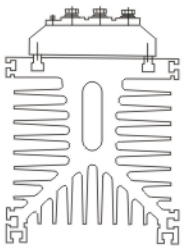
B2HK



B2HA



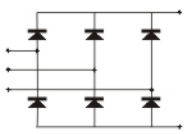
B2HZ

	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	without FAN	Dimension (mm×mm×mm)	Outline
	B2x-xxx-40FA	100-1800	40	30	175×125×180	Fig.1a
	B2x-xxx-60FA	100-1800	60	50		
	B2x-xxx-120FA	100-1800	120	80		
	B2x-xxx-160FA	100-1800	160	100		
	B2x-xxx-180FB	100-1800	180	110	175×125×260	Fig.1b
	B2x-xxx-200FB	100-1800	200	120		
	B2x-xxx-250FC	100-1800	250	150	314×152×200	Fig.3
	B2x-xxx-300FC	100-1800	300	180		
	B2x-xxx-350FC	100-1800	350	200		

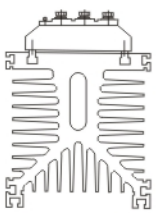
3-PHASE BRIDGE

3-phase bridge diode B6U.

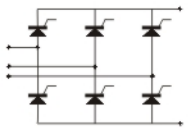
Air Cooling (Speed: 6m/s,TEMP：＜40℃)



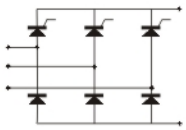
B6U

	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	without FAN	Dimension (mm×mm×mm)	Outline
	B6U-xxx-100FA	100-1800	100	800	175×125×180	Fig.1a
	B6U-xxx-200FA	100-1800	200	150		
	B6U-xxx-250FB	100-1800	250	180	175×125×260	Fig.1b
	B6U-xxx-300FB	100-1800	300	200		
	B6U-xxx-400FC	100-1800	400	250	314×152×230	Fig.3
	B6U-xxx-500FC	100-1800	500	300		

3-phase bridge SCR B6C.3-phase half bfidge SCR B6HX.

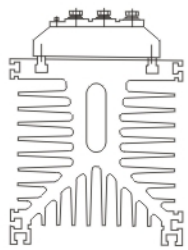


B6C



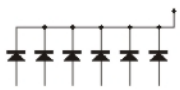
B6HK

Air Cooling(Speed: 6m/s,TEMP≤40℃)

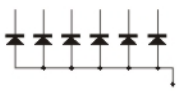
	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	I_d(A) without FAN	Dimension (mm×mm×mm)	Outline
	B6x-xxx-80FA	100-1800	80	60	175×125×180	Fig.1a
	B6x-xxx-150FA	100-1800	150	80		
	B6x-xxx-200FB	100-1800	200	100	175×125×260	Fig.1b
	B6x-xxx-260FB	100-1800	260	150		
	B6x-xxx-300FC	100-1800	300	180	314×152×230	Fig.3
	B6x-xxx-400FC	100-1800	400	220		
	B6x-xxx-500FC	100-1800	500	250		

6-PHASE BRIDGE SERIES

6-phase bridge diode B6U.

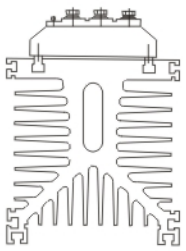


M6UK

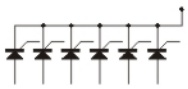


M6UA

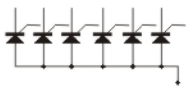
Air Cooling(Speed: 6m/s,TEMP≤40℃)

	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) Double star type with balance reactor		I_d(A) Double star type without balance reactor		Dimension (mm×mm×mm)	Outline
			Use FAN6m/s	Without FAN	Use FAN6m/s	Without FAN		
	M6U-xxx-150FA	100-1800	150	120	130	100	175×125×180	Fig.1a
	M6U-xxx-250FA	100-1800	250	180	260	150		
	M6U-xxx-350FA	100-1800	350	250	300	200		
	M6U-xxx-450FB	100-1800	450	300	350	250	175×125×260	Fig.1b
	M6U-xxx-600FB	100-1800	600	400	500	300		
	M6U-xxx-800FC	100-1800	800	500	600	400	314×152×230	Fig.3
	M6U-xxx-1200FC	100-1800	1200	600	800	500		

6-phase bridge SCR M6C.

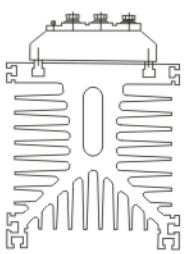


M6CK



M6CA

Air Cooling(Speed: 6m/s,TEMP≤40℃)

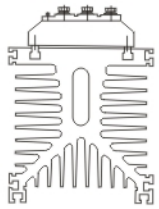
	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) Double star type with balance reactor		I_d(A) Double star type without balance reactor		Dimension (mm×mm×mm)	Outline
			Use FAN6m/s	Without FAN	Use FAN6m/s	Without FAN		
	M6C-xxx-150FA	100-1800	150	100	130	90	175×125×180	Fig.1a
	M6C-xxx-300FA	100-1800	300	180	200	150		
	M6C-xxx-400FB	100-1800	400	250	300	200	175×125×260	Fig.1b
	M6C-xxx-500FB	100-1800	500	250	400	250		
	M6C-xxx-600FC	100-1800	600	400	500	300	314×152×230	Fig.3
	M6C-xxx-800FC	100-1800	800	450	600	350		
	M6C-xxx-1000FC	100-1800	1000	500	800	400		

AC SWITCH SUBASSEMBL Y SERIES

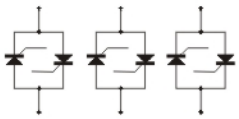
Single-phase ac switch W1C series.

W1C

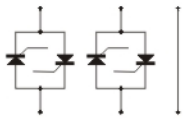
Air Cooling (Speed: 6m/s,TEMP：＜40℃)

	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	without FAN	Dimension (mm×mm×mm)	Outline
	W1C-xxx-90FA	100-1800	90	60	175×125×180	Fig.2a
	W1C-xxx-150FA	100-1800	150	800		
	W1C-xxx-200FB	100-1800	200	100	175×125×260	Fig.2b
	W1C-xxx-250FB	100-1800	250	120		
	W1C-xxx-300FC	100-1800	300	150	297×152×230	Fig.4

3-phase AC switch W3C series.

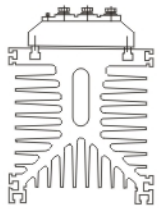


W3C

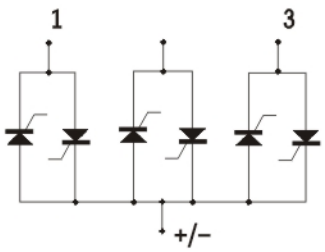


W3C2

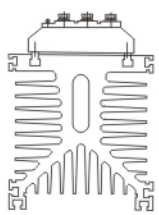
Air Cooling (Speed: 6m/s,TEMP：＜40℃)

	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	without FAN	Dimension (mm×mm×mm)	Outline
	W3C-xxx-90FA	100-1800	90	60	175×125×180	Fig.2a
	W3C-xxx-150FA	100-1800	150	80		
	W3C-xxx-200FB	100-1800	200	100	175×125×260	Fig.2b
	W3C-xxx-250FB	100-1800	250	120		
	W3C-xxx-300FC	100-1800	300	150	297×152×230	Fig.4

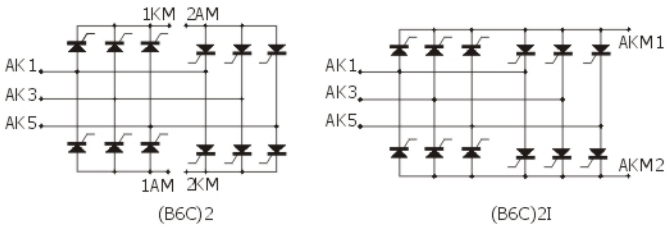
COUNTER-ABREAST(M3C)2I SERIES



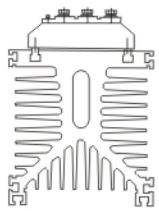
Air Cooling (Speed: 6m/s,TEMP：＜40℃)

	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	without FAN	Dimension (mm×mm×mm)	Outline
	(M3C)21-xxx-80FA	100-1800	80	60	175×125×180	Fig.2a
	(M3C)21-xxx-150FA	100-1800	150	80		
	(M3C)21-xxx-200FA	100-1800	200	100	175×125×260	Fig.2b
	(M3C)21-xxx-260FA	100-1800	260	150		

DOUBLE 3-PHASE COUNTER-ABREAST(B6C)2I SERIES.



Air Cooling (Speed: 6m/s,TEMP：≤40℃)

	TYPE $-V_{VN}-I_d$	V_{RRM} (V)	I_d(A) use FAN 6m/s	without FAN	Dimension (mm×mm×mm)	Outline
	(B6C)2x-xxx-80FA	100-1800	80	60	175×310×180	Fig.5a
	(B6C)2x-xxx-150FA	100-1800	150	80		
	(B6C)2x-xxx-200FA	100-1800	200	100	175×310×260	Fig.5b
	(B6C)2x-xxx-260FA	100-1800	260	150		

POWER SEMICONDUCTOR SUBASSEMBLY OUTLING

Fig.1a,b

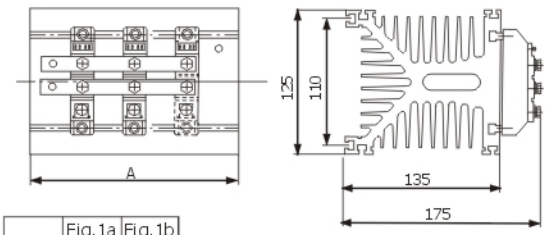


	Fig.1a	Fig.1b
A	180	260

Fig.2a,b

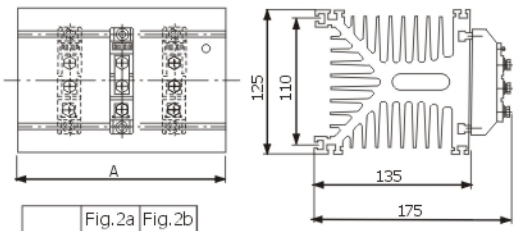


	Fig.2a	Fig.2b
A	180	260

Fig.3

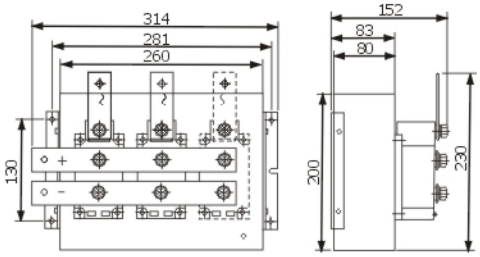


Fig.4

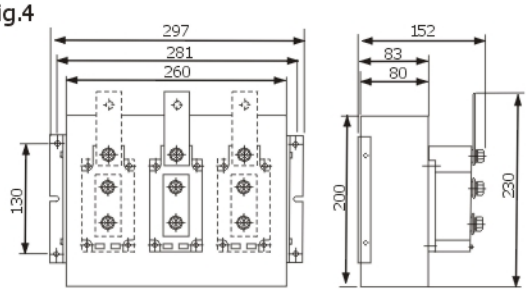


Fig.5

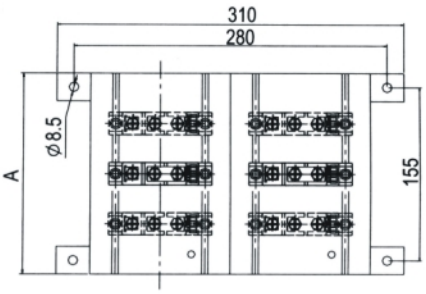


	Fig.5a	Fig.5b
A	180	260

OFF-STANDARD DEVICE PHOTO (custom-made type power semiconductor)

SEMIKRON type stud version

RUSSIA type

Rotate type stud version

A B C D E

JAPAN type Hockey puk version

SF SFX SS SSX

SL CZ/YP WELDER SUBASSEMBLY

SEMICONDUCTOR SUBASSEMBLY