

Rectifier diodes

Features :

- Diffusibility
- Disc type hermetic ceramic seal
- Double side cooling

Applications

- Hi power converters
- Welding machine
- Motor control and drive
- Charging equipment



Remark:

- the parameters in the table are the tested value under T_{jm} , excepting additional explanations

Technical parameter:

Model	V_{RRM}	$I_{F(AV)}$	I_{RRM}	V_{FM}/I_{FM}	$R_{TH(j-hs)}$	T_{jm}	KN	Outline(fig.)
	V	A($T_{HS}55^{\circ}C$)	mA	V/A($25^{\circ}C$)	$^{\circ}C/w$	$^{\circ}C$		
VZP200	100-5000	200	16	1.8/600	0.09	150	3.3-5.5	VZP200
VZP300	100-5000	300	30	1.8/900	0.065	150	5.3-10	VZP300
VZP400	100-5000	400	40	1.8/1200	0.04	150	10-20	VZP400
VZP500	100-5000	500	40	1.8/1500	0.04	150	10-20	VZP500
VZP600	100-5000	600	40	1.8/1800	0.033	150	10-20	VZP600
VZP800	100-5000	800	80	2.2/2400	0.022	150	19-26	VZP800
VZP1000	100-5000	1000	80	2.0/3000	0.022	150	19-26	VZP1000
VZP1200	100-5000	1200	120	2.2/3000	0.02	150	21-30	VZP1200
VZP1500	100-5000	1500	120	2.0/3000	0.02	150	21-30	VZP1500
VZP2000	100-5000	2000	160	2.2/4000	0.016	150	30-40	VZP2000
VZP2500	100-5000	2500	200	2.2/5000	0.011	150	35-47	VZP2500
VZP3000	100-5000	3000	160	2.0/5000	0.016	150	30-40	VZP3000
VZP3500	100-5000	3500	200	2.0/5000	0.011	150	35-47	VZP3500
VZP4000	100-5000	4000	200	2.0/5000	0.009	150	70-95	VZP4000
VZP5000	100-5000	5000	50	1.25/5000	0.0135	170	19-26	VZP5000

Outline Dimension:

<p>VZP200 KA30 21-30(KN)</p>	<p>VZP200 KA30aT 5.3-10(KN)</p>	<p>VZP200 KA30cT 10-20(KN)</p>
<p>VZP300 KA36 10-20(KN)</p>	<p>VZP300 KT36aT 5.3-10(KN)</p>	<p>VZP300 KT36cT 10-20(KN)</p>
<p>VZP300 KT40cT 10-20(KN)</p>	<p>VZP400(500A) KA40 15-20(KN)</p>	<p>VZP400(500A) KT40aT 10-20(KN)</p>

<p>VZP400(500A) KT45cT 15-20(KN)</p>	<p>VZP600(800A) KA45 21-30(KN)</p>	<p>VZP600(800A)KT45aT 10-20(KN)</p>
<p>VZP600(800A) KT50cT 18-25(KN)</p>	<p>VZP1000 KA50 21-30(KN)</p>	<p>VZP1000 KT55cT 18-25(KN)</p>
<p>VZP1200(1500A) KT60cT 20-30(KN)</p>	<p>VZP1500(2000A) KT65cT 30-40(KN)</p>	<p>VZP(2000-3500A) KT75cT 35-45(KN)</p>

Phase control thyristors

Features :

- Full diffuse crafts
- Disc type hermetic ceramic seal
- Double side cooling
- High current

Applications

- Hi power convertor
- AC & DC motor control
- AC & DC switches
- Phase control and rectifying
Active invert & passive invert under T_{jm} , excepting additional remark

- I_{GT} , V_{GT} , I_H are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t = I_{TSM}^2 \times Tw/2$: Tw = full bottomed value of sine and half wave current. On the condition current is 50Hz: $I^2t = 0.005I_{TSM}^2 (A^2S)$
- On the condition current is 60Hz : $I_{TSM}(8.3ms) = I_{TSM}(10ms) \times 1.066, T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943, T_j = T_{jm}$
- Gate lead: white or achromaticity
- Cathode lead(when required): red

Technical parameter:

Model	$I_{T(AV)}$	I_{TSM}	dv/dt	di/dt	I_{dm}/I_{rm}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(i-hs)}$	KN	Outline (fig.)
	55°C	10ms				25°C	25°C	25°C	25°C	°C/w		
	A	KA	V/us	A/us	mA	mA	V	mA	V/A			
VKP200	200	2.5	300	100	30	35-250	0.8-2.0	20-150	2.4/600	0.065	5.3-10	VKP200
VKP300	300	3.8	300	100	30	35-250	0.8-2.5	20-200	2.2/900	0.055	5.3-10	VKP300
VKP400	400	5	300	100	40	35-250	0.8-2.5	20-200	2.4/1.2K	0.04	10-20	VKP400
VKP500	500	6.4	300	100	50	35-250	0.8-2.5	20-250	2.4/1.5K	0.035	15-20	VKP500
VKP600	600	6.4	300	100	40	35-300	0.8-2.5	20-250	1.8/1.8K	0.035	10-20	VKP600
VKP800	800	10	300	100	50	40-300	0.8-3.0	20-250	2.2/2.4K	0.032	15-20	VKP800
VKP100	1000	13	500	150	80	40-300	0.8-3.0	20-300	2.4/3K	0.022	21-30	VKP1000
VKP1200	1200	15	500	200	120	40-300	0.8-3.0	20-300	2.4/3K	0.02	21-30	VKP1200
VKP1500	1500	20	500	200	120	40-300	0.8-3.0	20-300	2.4/3K	0.017	27-34	VKP1500
VKP1800	1800	22.5	500	200	160	40-300	0.8-3.0	20-300	2.4/4K	0.016	30-40	VKP1800
VKP2000	2000	25	500	250	200	40-300	0.8-3.0	20-300	2.4/4K	0.011	35-47	VKP2000
VKP2500	2500	31	500	250	200	40-300	0.8-3.0	20-300	2.4/5K	0.011	35-47	VKP2500
VKP3000	3000	38	300	250	200	40-300	0.8-3.0	20-300	2.2/5K	0.011	35-47	VKP3000
VKP3500	3500	44	500	250	250	40-300	0.8-3.0	20-300	2.4/5K	0.01	70-85	VKP3500

T_{jm} : 125 °C $V_{DRM} V_{RRM}$: 100-5000 V

Outline Dimension:

<p>VKP200 KA30 21-30(KN)</p>	<p>VKP200 KA30aT 5.3-10(KN)</p>	<p>VKP200 KA30cT 10-20(KN)</p>
<p>VKP300 KA36 10-20(KN)</p>	<p>VKP300 KT36aT 5.3-10(KN)</p>	<p>VKP300 KT36cT 10-20(KN)</p>
<p>VKP300 KT40cT 10-20(KN)</p>	<p>VKP400(500A) KA40 15-20(KN)</p>	<p>VKP400(500A) KT40aT 10-20(KN)</p>

<p>VKP400(500A) KT45cT 15-20(KN)</p>	<p>VKP600(800A) KA45 21-30(KN)</p>	<p>VKP600(800A)KT45aT 10-20(KN)</p>
<p>VKP600(800A) KT50cT 18-25(KN)</p>	<p>VKP1000 KA50 21-30(KN)</p>	<p>VKP1000 KT55cT 18-25(KN)</p>
<p>VKP1200(1500A) KT60cT 20-30(KN)</p>	<p>VKP1500(2000A) KT65cT 30-40(KN)</p>	<p>VKP(2000-3500A) KT75cT 35-45(KN)</p>

Fast-turn-off thyristors

Features :

- Full diffuse crafts
- Disc type hermetic ceramic seal
- Distributed amplifying gate structure
- Good dynamic characteristics
- Low switching consumption
- Double side cooling
- Fast recovery on-off

Applications:

- Inverter
- Wave chopper
- Induction heating
- Various coercive converters

Remark

- I_{GT} , V_{GT} , I_H are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t = I_{TSM}^2 \times Tw/2$: Tw = full bottomed value of sine and half wave current. On the condition current is 50Hz: $I^2t = 0.005I_{TSM}^2 (A^2S)$
- On the condition current is 60Hz : $I_{TSM}(8.3ms) = I_{TSM}(10ms) \times 1.066, T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943, T_j = T_{jm}$
- Gate lead: white or achromaticity
- Cathode lead(when required): red

Technical parameter:

Model	$I_{T(AV)}$	tq	dv/dt	di/dt	$I_{dm(rms)}$	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(l-hs)}$	KN	Outline (fig.)
	55°C	100°C				25°C	25°C	25°C	25°C			
	A	us	V/us	A/us	mA	mA	V	mA	V/A	°C/w		
VKK200	200	16-35	500	200	30	40-250	0.9-2.5	20-400	2.9-600	0.065	5.3-10	VKK200
VKK300	300	16-35	500	200	30	40-250	0.9-2.5	20-400	2.8/900	0.055	5.3-10	VKK300
VKK400	400	16-35	500	300	40	40-250	0.9-2.5	20-400	2.8/1.2K	0.04	10-20	VKK400
VKK500	500	16-35	500	300	50	40-250	0.9-2.5	20-400	3.15/1.5K	0.035	15-20	VKK500
VKK600	600	16-35	500	300	50	40-300	0.9-3.0	20-400	3.15/1.8K	0.032	15-20	VKK600
VKK800	800	16-35	500	300	60	40-300	0.9-3.0	20-500	3.15/2.4K	0.03	18-25	VKK800
VKK1000	1000	16-35	500	500	80	40-300	0.9-3.0	20-500	3.15/3K	0.024	19-26	VKK1000
VKK1200	1200	16-35	500	500	100	40-300	0.9-3.0	20-500	3.15/3K	0.022	21-30	VKK1200
KVK1500	1500	16-35	500	500	120	40-300	0.9-3.5	20-500	3.15/3K	0.02	21-30	VKK1500
VKK1800	1800	16-35	500	500	120	40-400	0.9-4.0	20-800	3.15/4K	0.017	27-34	VKK1800
VKK2000	2000	40-80	500	600	160	40-450	0.9-4.5	20-1K	3.15/4K	0.016	30-40	VKK2000
VKK2500	2500	40-80	500	600	200	40-450	0.9-4.5	20-1K	3.15/5K	0.011	35-47	VKK2500
VKK3000	3000	40-80	500	600	250	40-450	0.9-4.5	20-1K	3.15/5K	0.009	70-85	VKK3000

T_{jm} : 115 °C $V_{DRM}V_{RRM}$: 600-2500 V

Outline Dimension:

<p>VKK200 KA30 21-30(KN)</p>	<p>VKK200 KA30aT 5.3-10(KN)</p>	<p>VKK300 KA36 10-20(KN)</p>
<p>VKK300 KT36aT 5.3-10(KN)</p>	<p>VKK400(500A) KA40 15-20(KN)</p>	<p>VKK400(500A) KT40aT 10-20(KN)</p>

VKK400(500A) KT45cT 15-20(KN)	VKK600(800A) KA45 21-30(KN)	VKK600(800A) KT50cT 18-25(KN)
VKK1000 KA50 21-30(KN)	VKK1000 KT55cT 18-25(KN)	VKK1200(1500A) KT60cT 20-30(KN)
VKK1500(1800,2000A) KT65cT 30-40(KN)	VKK(1800-3000) KT75cT 35-45(KN)	VKK(1800-3000) KT80cT 30-40(KN)

High frequency thyristors

Features :

- Full diffuse crafts
- Distributed extending and mplifying gate structure
- Good dynamic characteristics
- Excellent high frequency performance, suitable for 2.5KHz-10KHz
- Low switching consumption
- Disc type ceramic seal
- Double side cooling

Applications:

- Inverter
- Welding machine
- Wave chopper
- Inductor
- Various coercive converters

Remark

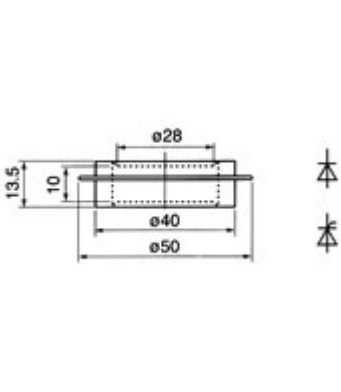
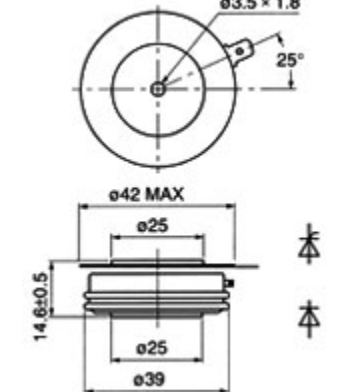
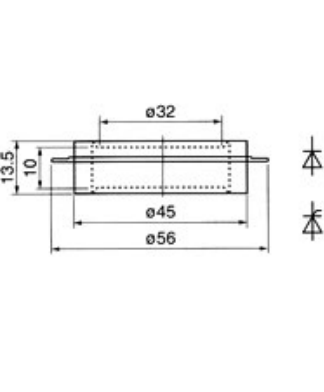
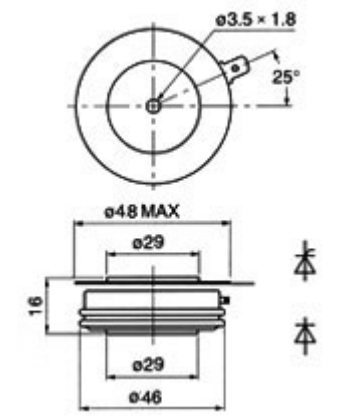
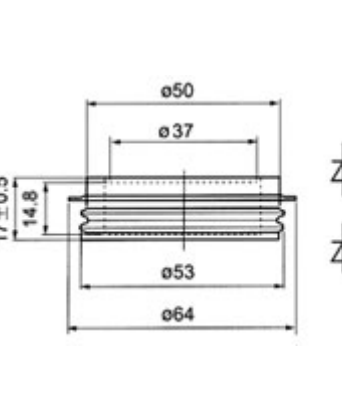
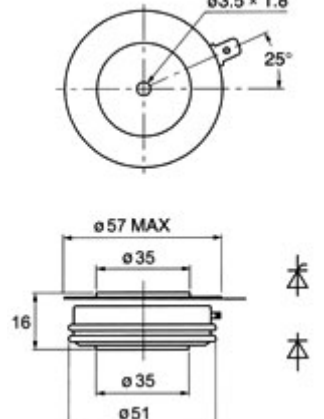
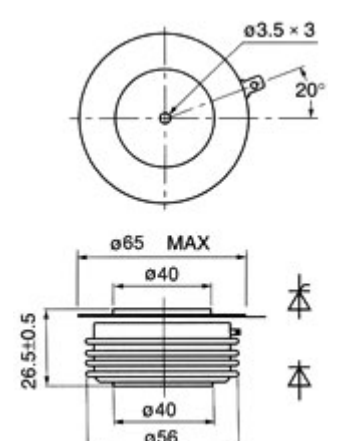
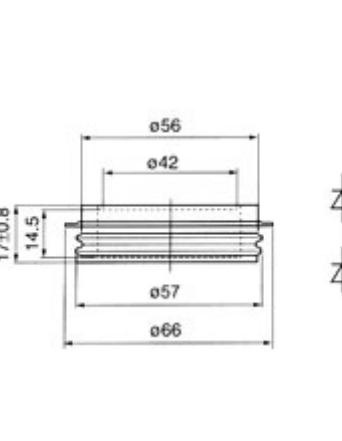
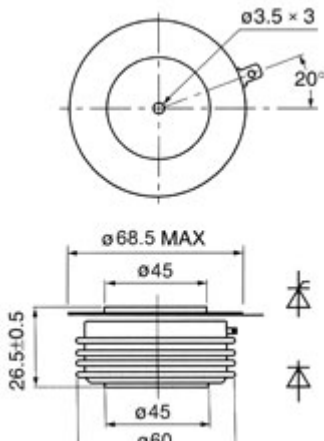
- I_{GT} , V_{GT} , I_H are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t = I_{TSM}^2 \times Tw/2$: Tw = full bottomed value of sine and half wave current. On the condition current is 50Hz: $I^2t = 0.005I_{TSM}^2 (A^2S)$
- On the condition current is 60Hz : $I_{TSM}(8.3ms) = I_{TSM}(10ms) \times 1.066$, $T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943$, $T_j = T_{jm}$
- Gate lead: white or achromaticity
- Cathode lead(when required): red

Technical parameter:

Model	$I_{T(AV)}$	I_T/f	tq	I_{TSM}	di/dt	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(j-hs)}$	KN	Outline (fig.)
	$T_{HS} 55^\circ C$		$100^\circ C$	10ms	25°C								
	A	A/KHZ	us	KA	A/us	mA	mA	V	mA	V/A	°C/w		
VKG200	200	200/6	10-16	2.4	200	30	30-200	0.8-2.5	20-250	3.2/600	0.055	5.3-10	VKG200
VKG300	300	300/6	10-16	3.6	200	40	30-250	0.8-3.0	20-400	3.2/900	0.035	10-20	VKG300
VKG400	400	300/10	8-10	4.8	-	40	30-250	0.8-3.0	20-400	3.2/1.2K	0.035	10-20	VKG400
VKG500	500	500/6	10-16	6	200	50	30-250	0.8-3.0	20-400	3.2/15K	0.032	15-20	VKG500
VKG600	600	600/6	12-18	7.2	250	60	30-250	0.8-3.0	20-400	3.2/1.8K	0.03	18-25	VKG600
VKG800	800	800/6	12-18	9.6	250	80	30-250	0.8-3.0	20-400	3.2/2.4K	0.024	19-25	VKG800
VKG1000	1000	1000/6	12-18	12	250	100	30-300	0.8-3.0	20-400	3.2/3K	0.022	21-30	VKG1000
VKG1200	1200	800/8	8-15	14	250	100	30-300	0.8-3.0	20-400	3.2/3K	0.022	21-30	VKG1200

T_{jm} : 115 °C $V_{DRM} V_{RRM}$: 800-1600 V

Outline Dimension:

		
<p>VKG200 KA30 21-30(KN)</p>	<p>VKG200 KA30aT 5.3-10(KN)</p>	<p>VKG300 KA36 10-20(KN)</p>
		
<p>VKG300 KT36aT 5.3-10(KN)</p>	<p>VKG400(500A) KA40 15-20(KN)</p>	<p>VKG400(500A) KT40aT 10-20(KN)</p>
		
<p>VKG400(500A) KT45cT 15-20(KN)</p>	<p>VKG600(800A) KA45 21-30(KN)</p>	<p>VKG600(800A) KT50cT 18-25(KN)</p>

<p>VKG1000 KA50 21-30(KN)</p>	<p>VKG1000 KT55cT 18-25(KN)</p>	<p>VKG1200(1500A) KT60cT 20-30(KN)</p>

Bi-directional thyristors

Features :

- Full diffuse crafts
- Disc type ceramic seal
- Central gate
- Double side cooling
- Equal to two anti-parallel phase control thyristor
- Suitable gate current can get through the normal type and the reverse type.

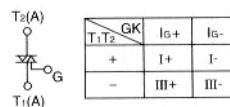
Applications:

- AC switch without contact
- The adjustment and control of AC power

Remark

- I_{GT} , V_{GT} , I_H are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- I_{TRMS} is virtual value of current
- $I^2t = I_{TSM}^2 \times Tw/2$: Tw = full bottomed value of sine and half wave current. On the condition current is 50Hz: $I^2t = 0.005I_{TSM}^2 (A^2S)$.
- On the condition current is 60Hz : $I_{TSM}(8.3ms) = I_{TSM}(10ms) \times 1.066, T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943, T_j = T_{jm}$

- Gate's trigger mode (datum mark is T_1):



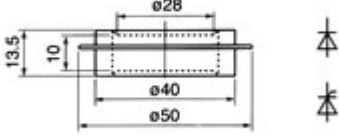
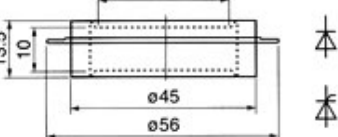
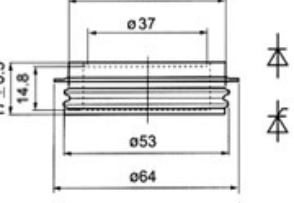
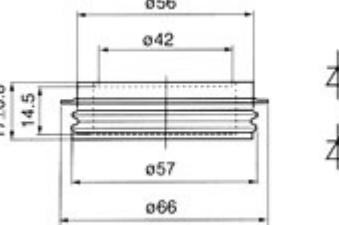
- I_{GT} , V_{GT} in the table are only suitable for I +, I -, III- three trigger modes. I_H is applicable for two directions.
- Gate lead: white or achromaticity

Technical parameter:

Model	$I_{T(AV)}$	I_{TSM}	dv/dt	di/dt	I_{dim}, I_{rm}	I_{GT}	V_{GT}	I_H	V_{TM}/I_{TM}	$R_{TH(f-hs)}$	KN	Outline (fig.)
	55°C	10ms				25°C	25°C	25°C	25°C	°C/w		
	A	KA	V/us	A/us	mA	mA	V	mA	V/A			
VKS200	200	1.7	50	50	20	20-200	0.8-2.5	20-200	2.4/300	0.12	3.3-5.5	VKS200
VKS300	300	2.5	50	50	30	20-200	0.8-2.5	20-200	2.4/500	0.065	5.3-10	VKS300
VKS500	500	4	50	50	40	20-300	0.8-3.0	20-300	2.4/700	0.040	10-20	VKS500
VKS600	600	4.2	50	50	40	20-300	0.8-3.0	20-300	2.4/900	0.035	10-20	VKS600
VKS800	800	6.8	50	50	50	20-350	0.8-3.5	20-400	2.4/1200	0.035	15-20	VKS800

T_{jm} : 125 °C $V_{DRM}V_{RRM}$: 100-2000 V

Outline Dimension:

		
<p>VKS200 KA30 21-30(KN)</p>	<p>VKS300 KA36 10-20(KN)</p>	<p>VKS500 KA40 15-20(KN)</p>
		

Fast recovery diodes

Features :

- Diffusibility
- Short recovery time I
- Small reverse recovery charge
- Fast and soft recovery
- Disc type ceramic seal
- Double side cooling

Applications :

- Motor control and drive
- Induction heating
- UPS
- Wave chopper
- Welding equipment

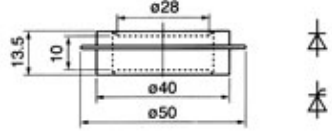
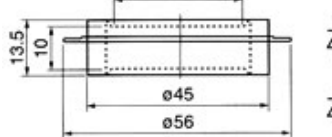
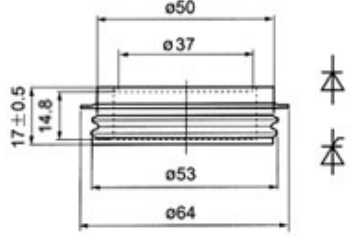
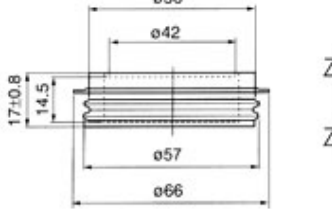
Remark

- The parameters in the table are under T_{jm} , excepting additional explanations.
 $I^2t = I_{TSM}^2 \times Tw/2$: Tw = full bottomed value of sine and half wave current. On the condition
 current is 50Hz: $I^2t = 0.005I_{TSM}^2 (A^2S)$
- On the condition current is 60Hz : $I_{TSM}(8.3ms) = I_{TSM}(10ms) \times 1.066, T_j = T_{jm}$
 $I^2t(8.3ms) = I^2t(10ms) \times 0.943, T_j = T_{jm}$

Technical parameter:

Model	V_{RRM}	$I_{T(AV)}$	trr	Qrr	I_{FSM}	I_{RRM}	V_{FM}/I_{FM}	$R_{TH(l-hs)}$	T_{jm}	KN	Outline (fig.)
	V	A	us	uc	KA	mA	V/A	°C/w	°C		
VZK200	100-5000	200	2	70	2.7	16	2.2/600	0.09	150	3.3-5.5	VZK200
VZK300	100-5000	300	3	100	4.1	30	2.4/900	0.065	150	5.3-10	VZK300
VZK400	100-5000	400	3	100	5.4	40	2.4/1200	0.04	150	10-20	VZK400
VZK500	100-5000	500	3	120	8	40	2.4/1800	0.033	150	10-20	VZK500
VZK800	100-5000	800	3	130	10	40	2.6/2400	0.033	150	10-20	VZK800
VZK1000	100-5000	1000	4	150	13	50	2.6/3000	0.03	150	15-20	VZK1000

Outline Dimension:

		
<p>VZK200 KA30 21-30(KN)</p>	<p>VZK300 KA36 10-20(KN)</p>	<p>VZK400(500A KA)40 15-20(KN)</p>
		
<p>VZK800(1000A) KA45 21-30(KN)</p>		



Comparison:

- $I_{F(AV)}=5-500A$
- $V_{RRM}=100-5000V$
- Hermetic metal case with ceramic insulator
- Hermetic glass-metal seal
- Conform to partial standard JB/T8949.2-1999
- Capacity of supporting high surge current
- Stud cathode and stud anode version

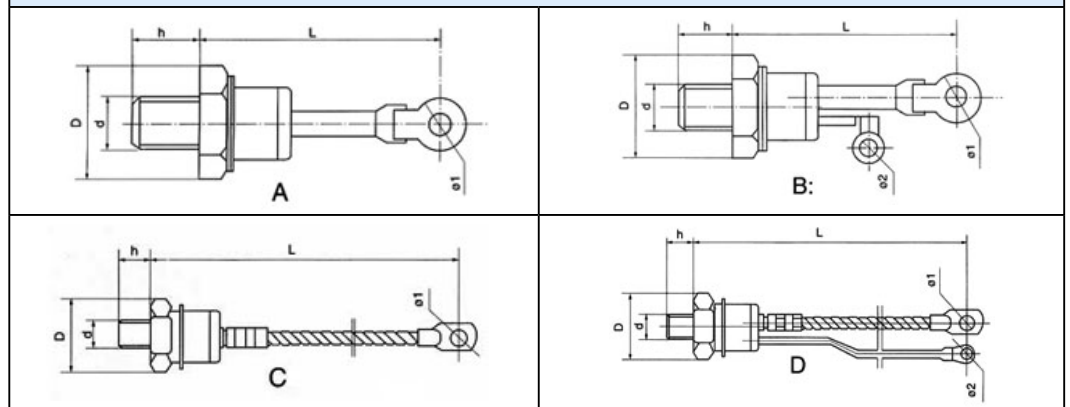
Typical applications

- AC/DC converters
- DC power supplies
- Machine tool controls

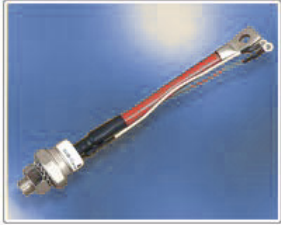
Technical parameter:

Model	$I_{F(AV)}$	I_{FRSM}	V_{FM}	V_{RRM}	I_{RRM}	R_{JC}	T_J	Weight	Outline (fig.)
	A	A	V	V	mA	$^{\circ}C/w$	$^{\circ}C/w$		
VZP(N/R)5	5	7.9	≤ 1.6	100-5000	≤ 2	≤ 4	-40~150	10	A1
VZP(N/R)10	10	16	≤ 1.6	100-5000	≤ 2	≤ 2.5	-40~150	25	A2
VZP(N/R)26	26	31	≤ 1.6	100-5000	≤ 6	≤ 1.4	-40~150	27	A3/C1
VZP(N/R)30	30	47	≤ 1.6	100-5000	≤ 6	≤ 1	-40~150	110	C2
VZP(N/R)50	50	79	≤ 1.6	100-5000	≤ 12	≤ 0.6	-40~150	140	C3
VZP(N/R)100	100	160	≤ 1.8	100-5000	≤ 12	≤ 0.3	-40~150	205	C4
VZP(N/R)200	200	310	≤ 1.8	100-5000	≤ 12	≤ 0.2	-40~150	325	C5
VZP(N/R)300	300	470	≤ 1.8	100-5000	≤ 15	≤ 0.11	-40~150	470	C6
VZP(N/R)500	500	630	≤ 1.8	100-5000	≤ 15	≤ 0.068	-40~150	925	C7

Outline Dimension:



Outline	Dimension(mm)					
	d	D	L	h	1	2
A1	6	16	31	9	3	2
A2	8	22	41	12	4	2
A3	10	22	41	12	4	2
C1	10	27	190	13	5	4
C2	12	32	177	13	6.5	4
C3	12	34	179	13	6.5	4
C4	16	34	180	16	8	4
C5	20	45	220	20	10	4
C6	20	45	240	20	12	4
C7	30	57	350	30	15	4



Comparison:

- $I_F(AV)=5-500A$
- $V_{DRM}/V_{RRM}=100-5000V$
- Hermetic metal case with ceramic insulator
- Hermetic glass-metal seal
- Conform to partial standard JB/T8949.2-1999
- In accordance with IEC international electrical committee standard

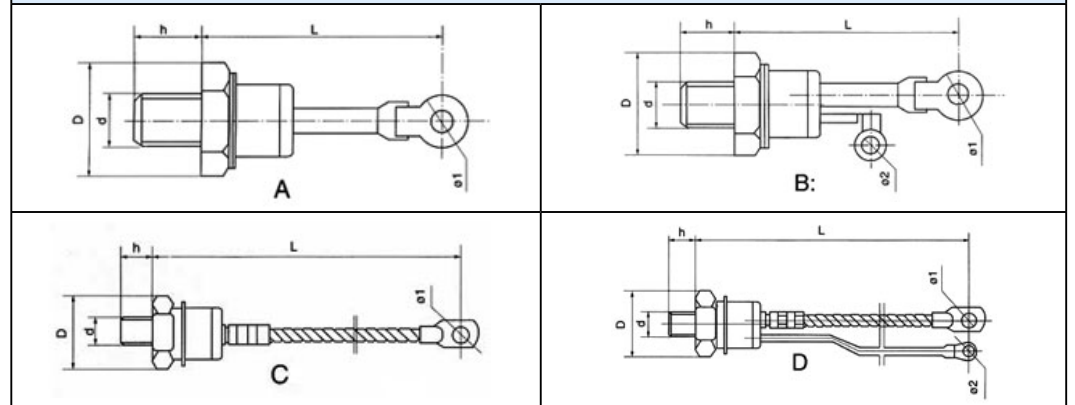
Typical applications

- DC motor controls
- Controlled DC power supplies
- AC switch and thermal control
- Synchronous motor excitation

Technical parameter:

Model	I_T	I_{FRSM}	V_{TM}	I_{DRM}	I_{GT}	V_{GT}	I_H	dv/dt	di/dt	R_{JC}	Weight G	Outline (fig.)
	A	A	V	mA	mA	V	mA	V/us	A/us	°C/w		
VKP5	5	8	≤ 2.2	≤ 8	5-45	≤ 2.5	5-45	≥ 500	-	≤ 3	12	B1
VKP10	10	16	≤ 2.2	≤ 8	5-45	≤ 2.5	5-45	≥ 500	-	≤ 2.5	27	B2
VKP20	20	32	≤ 2.2	≤ 8	5-45	≤ 2.5	5-45	≥ 500	-	≤ 1	29	B3/D1
VKP30	30	48	≤ 2.2	≤ 10	5-50	≤ 2.5	5-50	≥ 800	≥ 100	≤ 0.5	112	D2
VKP50	50	80	≤ 2.4	≤ 10	5-150	≤ 2.5	5-150	≥ 800	≥ 100	≤ 0.14	142	D3
VKP100	100	160	≤ 2.4	≤ 10	5-200	≤ 2.5	5-200	≥ 800	≥ 100	≤ 0.11	207	D4
VKP200	200	320	≤ 2.6	≤ 10	5-200	≤ 2.5	5-200	≥ 800	≥ 100	≤ 0.11	327	D5
VKP300	300	480	≤ 2.6	≤ 30	5-200	≤ 2.5	5-200	≥ 800	≥ 100	≤ 0.08	472	D6
VKP500	500	800	≤ 2.6	≤ 30	5-200	≤ 2.5	5-200	≥ 800	≥ 100	≤ 0.04	927	D7

Outline Dimension:



Outline	Dimension(mm)					
	d	D	L	h	1	2
B1	6	16	31	9	3	2
B2	8	22	41	12	4	2
B3	10	22	41	12	4	2
D1	10	27	190	13	5	4
D2	12	32	177	13	6.5	4
D3	12	34	179	13	6.5	4
D4	16	34	180	16	8	4
D5	20	45	220	20	10	4
D6	20	45	240	20	12	4
D7	30	57	350	30	15	4



Comparison:

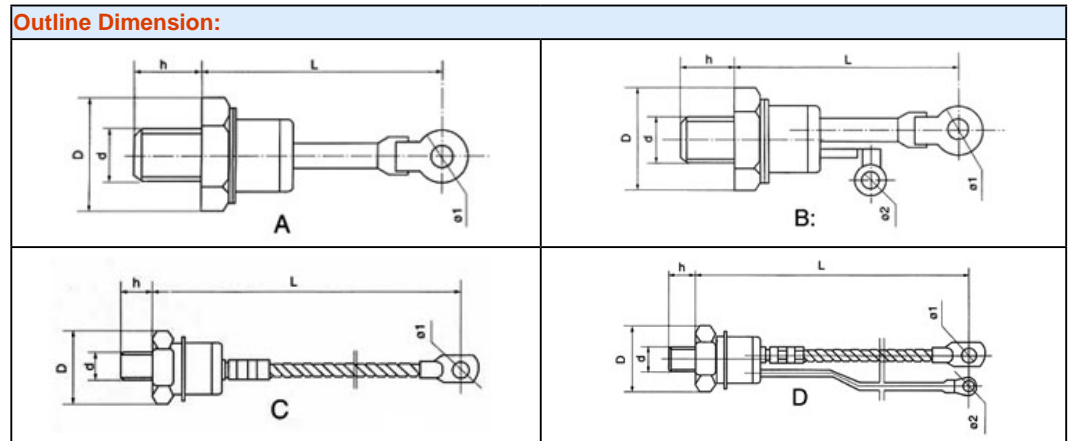
- $I_T(AV)=5-500A$
- $V_{DRM}/V_{RRM}=100-2000V$
- Hermetic metal case with ceramic insulator
- Hermetic glass-metal seal
- Conform to partial standard GB4193-1986
- In accordance with IEC international electrical committee standard

Typical applications

- Quickspeed motor control
- IThermal control
- IAC switch

Technical parameter:

Model	$I_{T(RMS)}$	V_{TM}	V_{RRM}	I_{RRM}	I_{GT}	I_H	V_{GT}	dv/dt	di/dt	R_{JC}	Weight	Outline (fig.)
	A	V	V	mA	mA	mA	V	V/us	A/us	°c/w		
VKS5	5	2.6	100-2000	≤ 30	≤ 350	≤ 250	≤ 3.5	≥ 500	≥ 10	≤ 0.11	10	B1
VKS10	10										25	B2
VKS20	20										27	B3
VKS30	30										110	D2
VKS50	50										130	D3
VKS100	100										165	D4
VKS200	200										335	D5



Outline	Dimension(mm)					
	d	D	L	h	1	2
B1	6	16	31	9	3	2
B2	8	22	41	12	4	2
B3	10	22	41	12	4	2
D1	10	27	190	13	5	4
D2	12	32	177	13	6.5	4
D3	12	34	179	13	6.5	4
D4	16	34	180	16	8	4
D5	20	45	220	20	10	4



Comparison:

- It can be worked under greater centrifugal force

Typical applications

- Special used for rotational excitation machines (synchronous motors/generators)

Technical parameter:

Model	$I_{T(RMS)}$	V_{FM}	V_{RRM}	I_{RRM}	I_{FSM}	T_{jm}	R_{JC}	bear acentric acceleation	
								Normal	super speed
								A	V
VZX40	40	≤1.35	100-1600	≤3	0.40	150	0.80	1250	2500
VZX100	100	≤1.6	100-2800	≤7	≤1.5	150	0.80	1250	2500
VZX200	200	≤1.6	100-2800	≤14	≤3.0	150	0.80	1250	2500
VZX300	300	≤1.6	100-2800	≤21	≤4.5	150	0.80	1250	2500
VZX500	500	≤1.6	100-2800	≤35	≤7.5	150	0.80	5000	5500

Outline Dimension:	
ASK FACTORY	ASK FACTORY
ASK FACTORY	
ASK FACTORY	ASK FACTORY



Comparison:

- It can be worked under greater centrifugal force

Typical applications

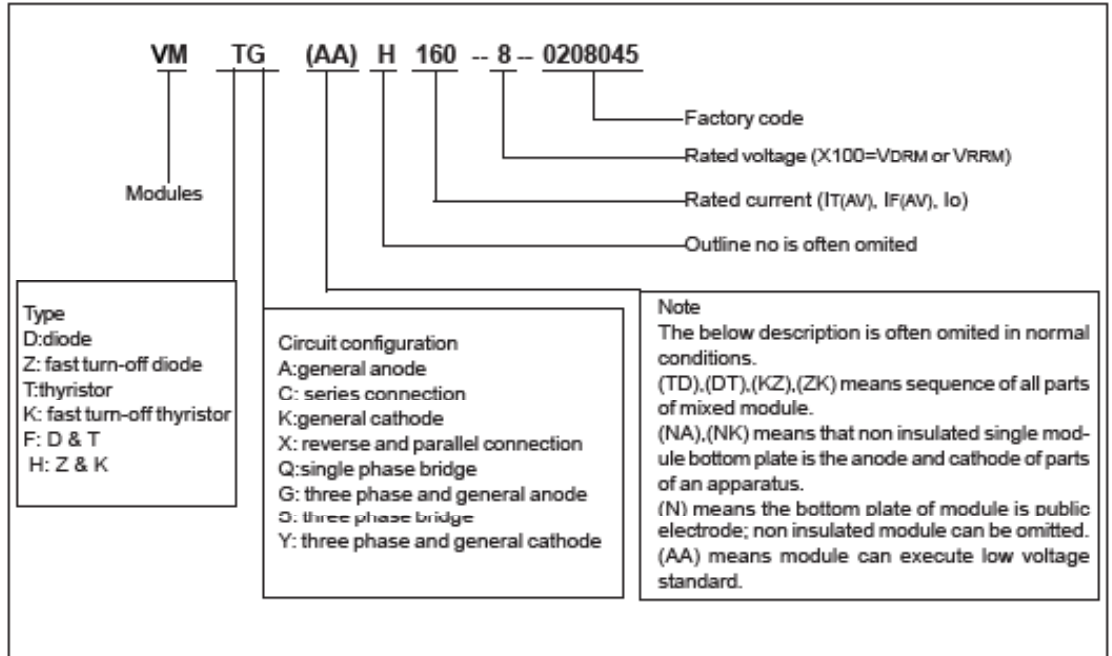
- Special used for rotational excitation machines (synchronous motors/generators)

Technical parameter:

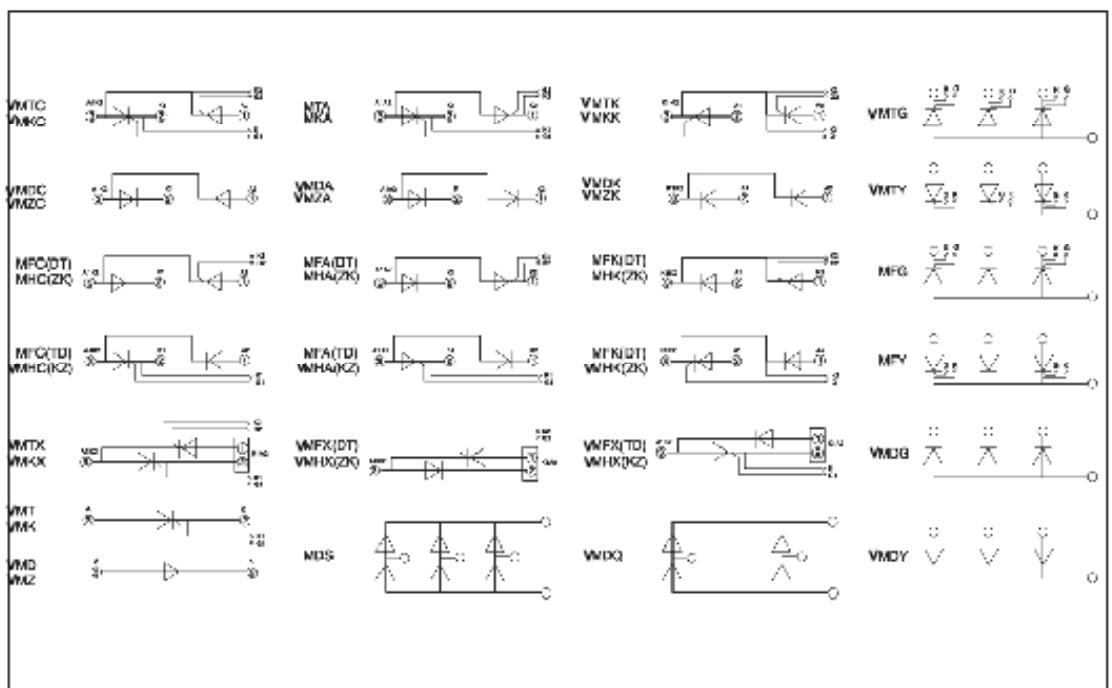
Model	$I_{F(AV)}$	V_{TM}	V_{RRM}/V_{DRM}	I_{RRM}/I_{RRM}	I_{TSM}	T_{jm}	I_{GT}/I_{GT}	I_H	d_v/d_t	R_{JC}	bear acentric acceleration	
											Normal	super speed
	A	V	V	mA	kA	°c	mA/V	mA	V/ μ s	°c/w	g	g
VKX40	40	≤ 1.6	50-1600	≤ 10	1	125	150/2.5	≤ 50	≥ 100	0.46	1250	2500 (4 ours)
VKX100	100	≤ 1.6	50-2000	≤ 20	2.2	125	150/3.0	≤ 100	≥ 100	0.25	1250	2500 (4 ours)
VKX200	200	≤ 2.0	50-2000	≤ 30	2.5	125	250/3.0	≤ 200	≥ 100	0.11	1250	2500 (4 ours)
VKX300	300	≤ 1.85	75-3000	≤ 30	3.8	125	250/3.5	≤ 200	≥ 100	0.073	1250	2500 (4 ours)
VKX500	500	≤ 2.7	75-3000	≤ 50	6.3	125	300/3.5	≤ 200	≥ 100	0.073	5000	5500 4hours)

Outline Dimension:	
ASK FACTORY	ASK FACTORY
ASK FACTORY	
ASK FACTORY	ASK FACTORY

Modules type naming



Circuit configurations





25-110A

Comparison:

- Chips isolated from soleplate electrically, 2500V AC voltage
- Seal complies with international standard
- Pressure type, excellent temperature control and power cycling capability
- Modules less than 200A is forced air cooling, while for modules higher than 300A, both air cooling and water cooling are selectable.
- Simple installation and convenient maintenance
- Compact size and light weight



130-160A

Typical applications:

- Inverter
- Induction heating
- Wave chopper

Remark:

- $V_{DSM}/V_{RSM}=V_{DRM}/V_{RRM}+200V$
- $I_{GT}, V_{GT}, I_H, V_{TM}, V_{ISO}$ are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t=I^2_{TSM} T_w/2$; T_w : full bottomed value of sine and half wave current
On the condition current is 50Hz, $I^2t(10ms)=0.005I^2_{TSM}(A^2S)$
- On the condition current is 60Hz
 $I_{TSM}(8.3ms)=1.066I_{TSM}(10ms)$,
- $I^2t(8.3ms)=0.943I^2(10ms)$



200-300A

Technical parameters:(VMKC / VMHC)



350-500A

$I_{T(AV)}@T_c$		$V_{TM}@I_{TM}$		$I_{DRM}^*I_{RRM}$	I_{GT}	V_{GT}	I_H	t_q	$I_{T(RMS)}$	I_{TSM}	R_{jc}	T_{jm}	V_{iso}	Outline (fig.)
A	°C	V	A	mA	mA	V	mA	us	A	$A \times 10^3$	°C/w	°C	VAC	
150	85	1.78	450	40	180	2.5	100	15-35	236	4	0.14	115	2500	D
200	85	1.77	600	50	180	2.5	100	15-35	314	5.6	0.1	115	2500	F
300	85	1.75	900	80	200	3.0	100	15-35	471	7.8	0.07	115	2500	F
300*	55	2.20	900	50	200	3.0	100	15-35	471	5.6	0.11	115	2500	T
400*	55	2.10	1200	80	200	3.0	100	15-35	628	7.8	0.087	115	2500	

Remark: $V_{DRM}/V_{RRM}=600-1600V$; $dv/dt=800V/us$; $di/dt=200A/us$; *=water cooling

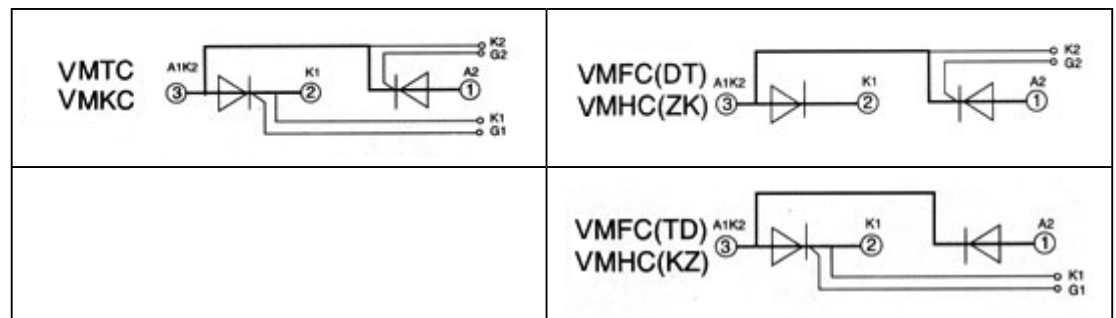
VMZC

Model	V_{PRM}	$I_{F(AV)}@T_c, T_c$ =85°C	$I_{F(RMS)}$ $T_j=150$ °C	I_{FRM} $f=20KHZ$ $T_{Cl}=85°C$	I_{FSM} 10ms 45°C	$V_{FM}@$ $T_{F(AV)}$ $T_c=25°C$		t_{rr} Typ 45°C	R_{thjc}	$P_{D,max}$	Encapsu_ lation
	V	A	A	A	A	V	A	µs	K/W	W	
VMZC(K)75TA60	600	2X75	2X110	2X56	2X1000	1.5	75	107	0.60	2000	TA
VMZC(K)100TA60	600	2X100	2X145	2X77	2X1500	1.5	100	107	0.50	250	TA
VMZC(K)150TS60	600	2X150	2X215	2X112	2X2300	1.4	150	140	0.35	350	TS
VMZC(K)200TS60	600	2X200	2X300	2X168	2X3100	1.6	200	137	0.20	416	TS
VMZC(K)300TS60	600	2X300	2X450	2X224	2X4700	1.6	300	170	0.18	690	TS
VMZC(K)400TS60	600	2X400	2X600	2X336	2X6200	1.6	400	200	0.18	690	TS
VMZC(K)75TS120	1200	2X75	2X105	2X55	2X1000	2.3	75	150	0.35	350	TS
VMZC(K)100TS120	1200	2X100	2X145	2X86	2X1300	2.1	100	149	0.30	416	TS
VMZC(K)150TS120	1200	2X150	2X215	2X140	2X2000	2.3	150	188	0.20	625	TS
VMZC(K)200TS120	1200	2X200	2X300	2X172	2X2700	2.2	200	181	0.18	625	TS
VMZC(K)300TS120	1200	2X300	2X425	2X226	2X4000	2.4	300	231	0.10	1250	TS
VMZC(K)400TS120	1200	2X400	2X600	2X312	2X5400	2.3	400	240	0.10	1250	TS

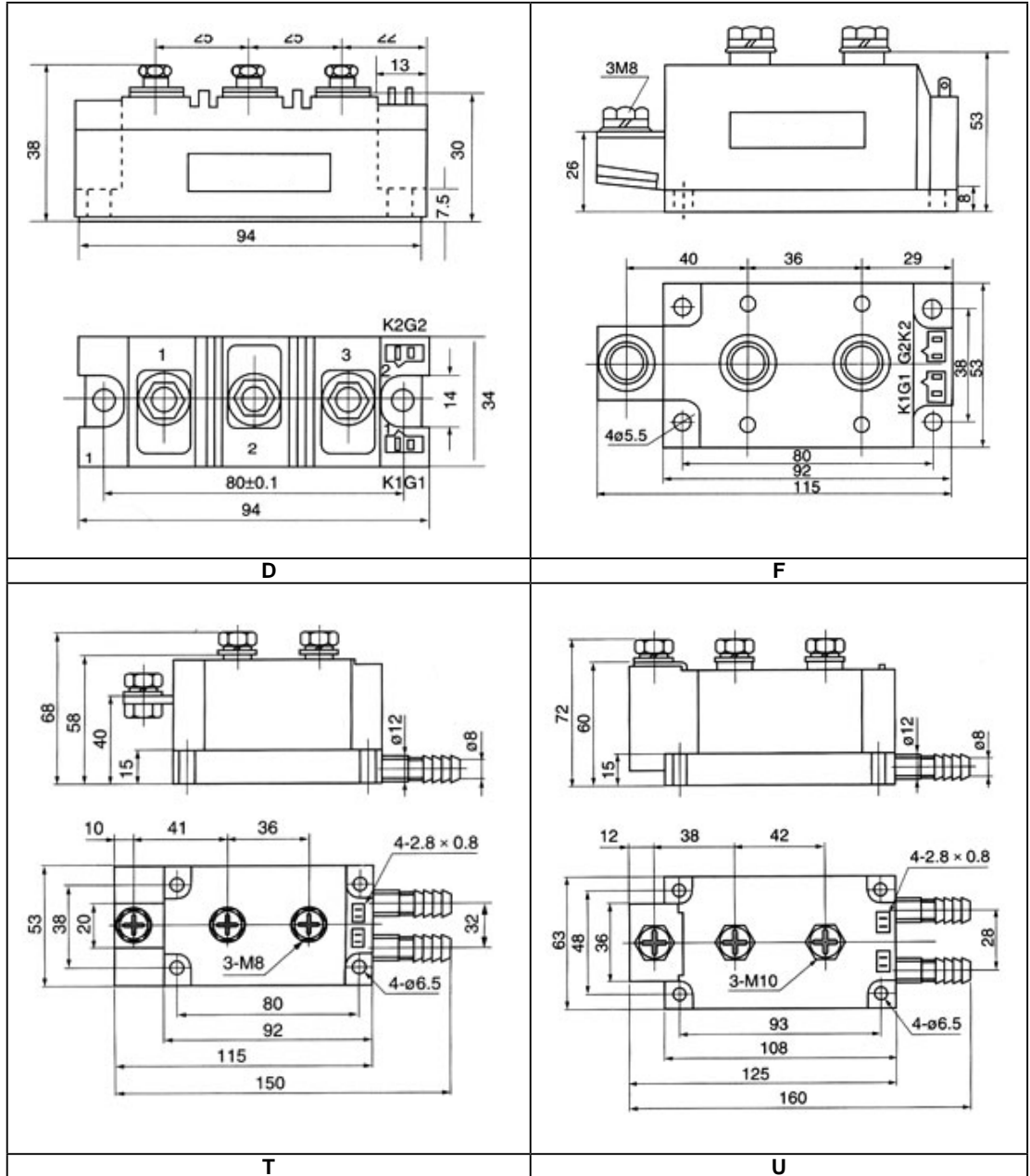
$I_{T(AV)}@T_c$		V_{RRM}	$V_{FM}@I_{FM}$		I_{RRM}	$I_{F(RMS)}$	I_{FSM}	R_{jc}	T_{jm}	V_{iso}	Outline (fig.)
A	°C		V	A							
150	100	600-1600	1.6	450	30	236	4.3	0.21	140	2500	D
200	100	600-1600	1.58	600	40	314	6	0.15	140	2500	F
300	100	600-1600	1.55	900	70	471	8.3	0.1	140	2500	F
300*	60	600-1600	2.05	900	40	471	6	0.16	140	2500	T
400*	60	600-1600	1.90	1200	70	628	8.3	0.13	140	2500	U

Remark: *=water cooling

Circuit configurations



Outline Dimension:





25-110A



130-160A



200-300A



350-500A

Comparison:

- Chips isolated from soleplate electrically, 2500V AC voltage
- Seal complies with international standard
- Pressure type, excellent temperature control and power cycling capability.
- Modules less than 200A is forced air cooling, while for modules higher than 300A, both air cooling and water cooling are selectable.
- Simple installation and convenient maintenance
- Compact size and light weight

Typical applications:

- AC & DC motor control
- All kinds of rectifying power
- Industrial heating and controlling
- Light adjustment
- Switches without contact
- Motor's softstart
- Static and inactive power compensation
- Welding machine
- Transducer
- UPS
- Battery charging and discharging

Remark:

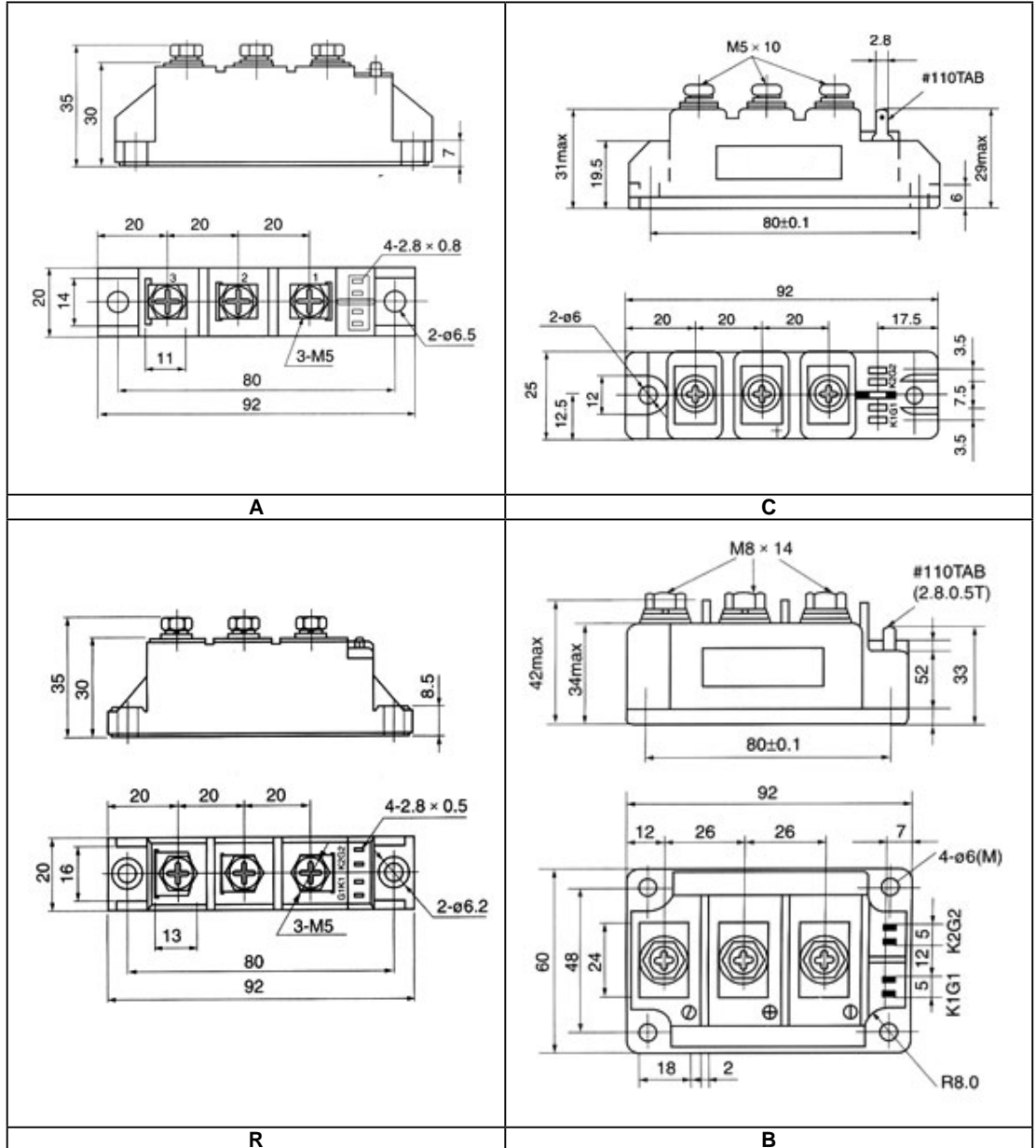
- $V_{DSM}/V_{RSM}=V_{DRM}/V_{RRM}+200V$
- $I_{GT}, V_{GT}, I_H, V_{TM}, V_{ISO}$ are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t=I^2_{TSM}T_w/2$; T_w : full bottomed value of sine and half wave current
On the condition current is 50Hz, $I^2t(10ms)=0.005I^2_{TSM}(A^2S)$
- On the condition current is 60Hz
 $I_{TSM}(8.3ms)=1.066I_{TSM}(10ms)$,
- $I^2t(8.3ms)=0.943I^2(10ms)$

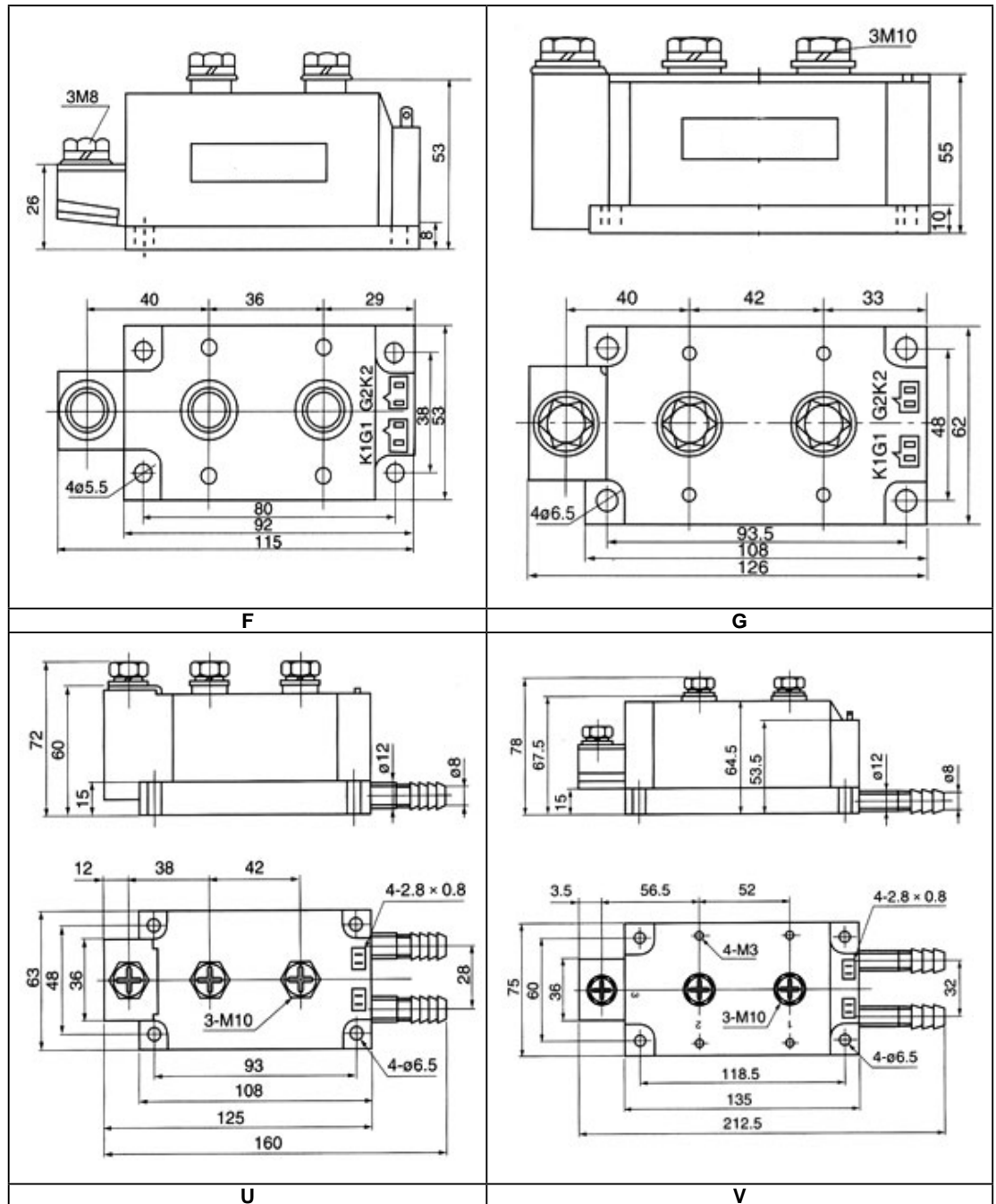
Technical parameters:

Model	$I_{T(AV)}$	$V_{DRM} V_{RRM}$	$V_{TM@I_{TM}}$	$I_{DRM} I_{RRM}$	I_{GT}	V_{GT}	I_H	dv/dt	di/dt	I_{TSM}	R_{jc}	T_{jm}	V_{iso}	Out-line (fig.)
	A	V	V	A	mA	V	mA	V/us	Aus	Ax10 ³	°C/w	°C	VAC	
VMTx25	25	500-2500	1.69	80	8	100	2.5	100	800	50	0.55	125	2500	A/C/R
VMTx42	42	500-2500	1.5	170	8	100	2.5	100	800	50	1.25	125	2500	A/C/R
VMTx92	92	500-2500	1.94	270	15	100	2.5	100	800	100	2	125	2500	A/C/R
VMTx110	110	500-2500	1.9	330	20	100	2.5	100	800	100	2.4	125	2500	A/C/R
VMTx130	130	500-2500	1.96	410	25	150	2.5	100	800	100	3.8	125	2500	B/D
VMTx160	160	500-2500	1.9	480	25	150	2.5	100	800	100	5.4	125	2500	B/D
VMTx200	200	500-2500	1.9	600	30	180	2.5	100	800	100	7.2	125	2500	B/F
VMTx250	250	500-2500	1.73	750	30	180	2.5	100	800	100	8.5	125	2500	B/F
VMTx300	300	500-2500	1.58	900	40	180	2.5	100	800	100	9.3	125	2500	F
VMTx330	330	500-2500	1.45	1050	40	180	2.5	100	800	100	11	125	2500	G
VMTx500	500	500-2500	1.44	1500	40	200	3.0	100	800	100	16	125	2500	G
VMTx500*	500	500-2500	1.90	1500	40	200	3.0	100	800	100	11	125	2500	U
VMTx600*	600	500-2500	1.90	1800	40	200	3.0	100	800	100	13	125	2500	V
VMTx800*	800	500-2500	1.95	2400	40	200	3.0	100	800	100	16	125	2500	V

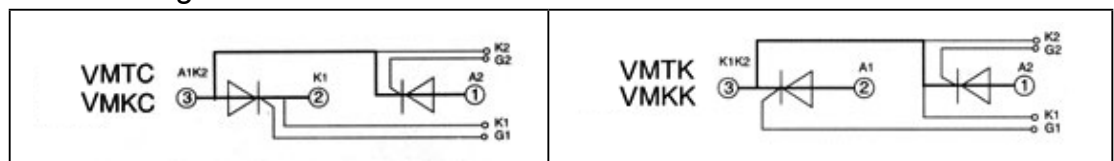
Remark: *=water cooling

Outline Dimension:





Circuit configurations





25-110A

Comparison:

- Chips isolated from soleplate electrically, 2500V AC voltage
- Seal complies with international standard
- Pressure type, excellent temperature control and power cycling capability
- Modules less than 200A is forced air cooling, while for modules higher than 300A, both air cooling and water cooling are selectable.
- Simple installation and convenient maintenance
- Compact size and light weight



130-160A

Typical applications:

- AC & DC motor control
- All kinds of rectifying power
- Industrial heating and controlling
- Light adjustment
- Switches without contact
- Motor's softstart
- Static and inactive power compensation
- Welding machine
- Transducer
- UPS
- Battery charging and discharging



200-300A

Remark:

- $V_{DSM}/V_{RSM}=V_{DRM}/V_{RRM}+200V$
- $I_{GT}, V_{GT}, I_H, V_{TM}, V_{ISO}$ are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t=I^2_{TSM}T_w/2$; T_w : full bottomed value of sine and half wave current
On the condition current is 50Hz, $I^2t(10ms)=0.005I^2_{TSM}(A^2S)$
- On the condition current is 60Hz
 $I_{TSM}(8.3ms)=1.066I_{TSM}(10ms)$,
- $I^2t(8.3ms)=0.943I^2(10ms)$



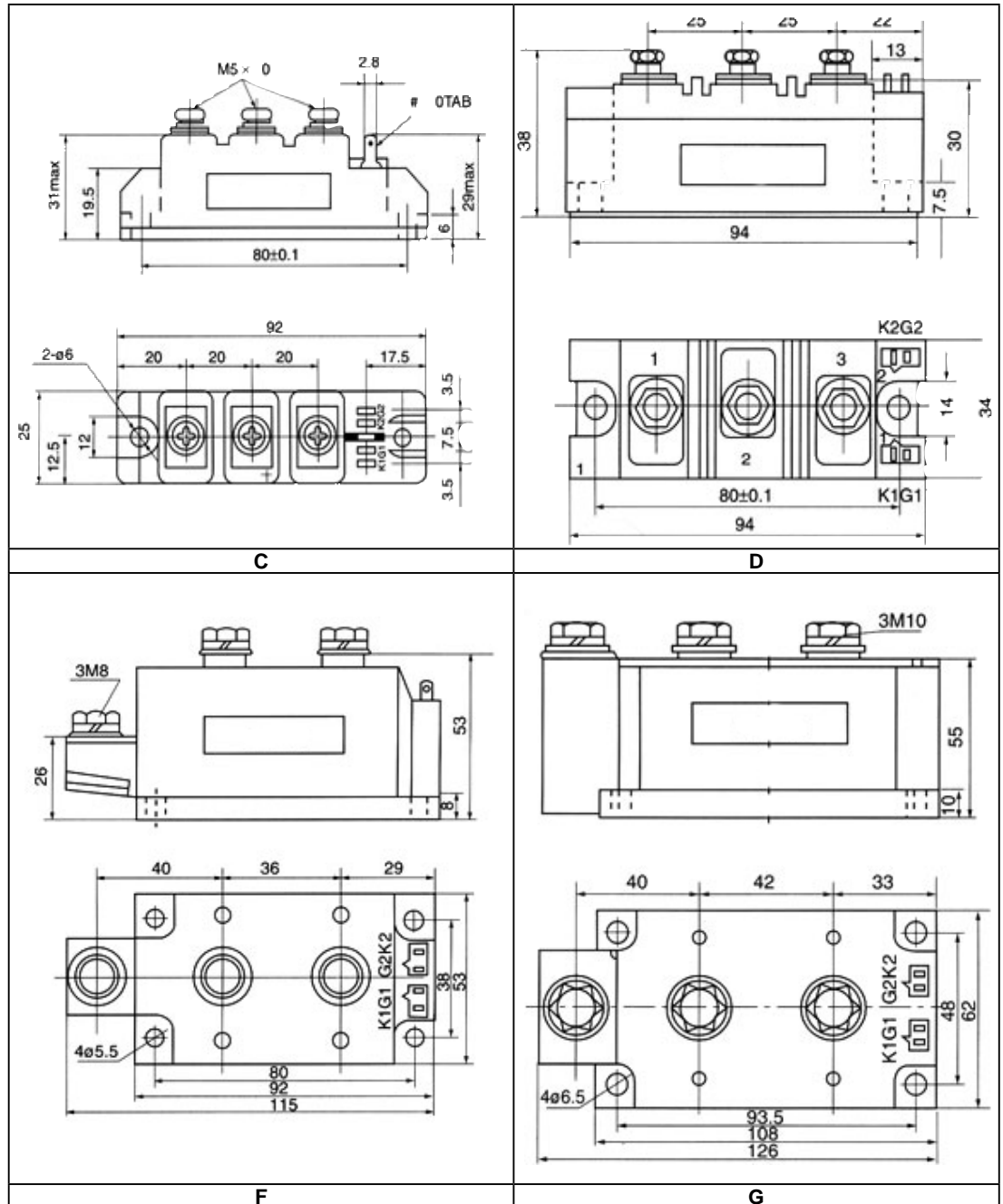
350-500A

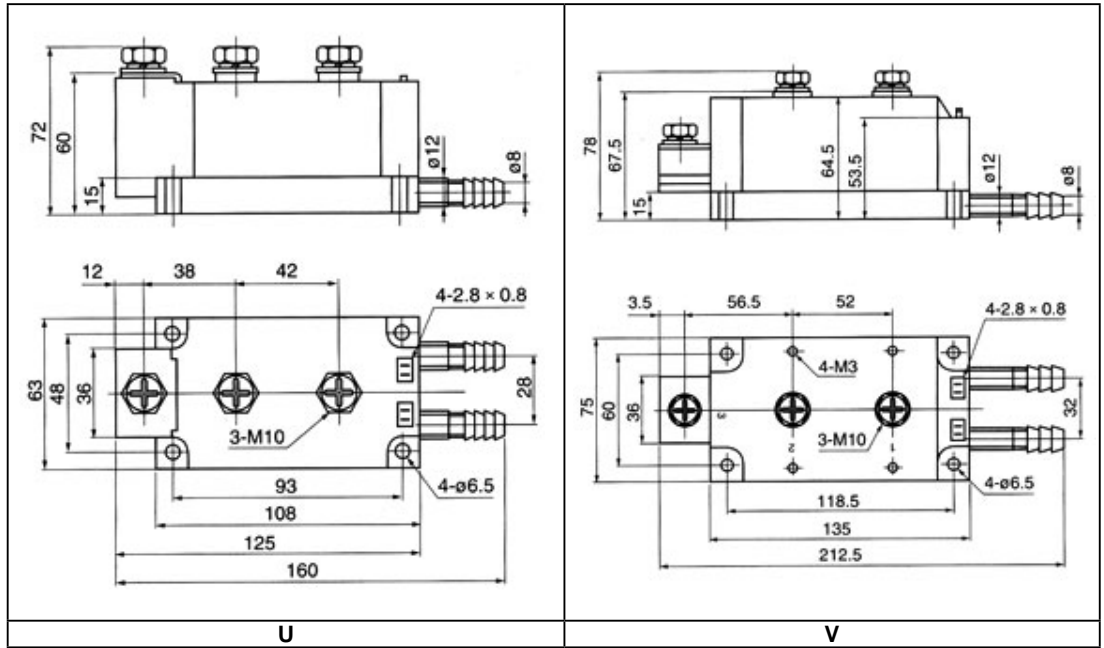
Technical parameters:

Model	$I_{T(AV)}$	$V_{DRM} V_{RRM}$	$V_{TM}@I_{TM}$		$I_{DRM} I_{RRM}$	I_{GT}	V_{GT}	I_H	dv/dt	di/dt	I_{TSM}	R_{jc}	T_{jm}	V_{iso}	Out-line (fig.)
	A	V	V	A	mA	mA	V	mA	V/us	Aus	$A \times 10^3$	°C/w	°C	VAC	
VMFx25	25	500-2500	1.69	80	8	100	2.5	100	800	50	0.55	0.95	125	2500	C
VMFx55	55	500-2500	1.5	170	8	100	2.5	100	800	50	1.25	0.53	125	2500	C
VMFx90	90	500-2500	1.94	270	15	100	2.5	100	800	100	2	0.28	125	2500	C
VMFx110	110	500-2500	1.9	330	20	100	2.5	100	800	100	2.4	0.25	125	2500	C
VMFx130	130	500-2500	1.96	410	20	150	2.5	100	800	100	3.8	0.2	125	2500	D
VMFx160	160	500-2500	1.9	480	25	150	2.5	100	800	100	5.4	0.17	125	2500	D
VMFx200	200	500-2500	1.9	600	30	180	2.5	100	800	100	7.2	0.14	125	2500	F
VMFx250	250	500-2500	1.73	750	40	180	2.5	100	800	100	8.5	0.12	125	2500	F
VMFx300	300	500-2500	1.58	900	30	180	2.5	100	800	100	9.3	0.1	125	2500	F
VMFx350	350	500-2500	1.45	1050	40	180	2.5	100	800	100	11	0.09	125	2500	G
VMFx500	500	500-2500	1.44	1500	50	200	3.0	100	800	100	16	0.065	125	2500	G
VMFx500*	500	500-2500	1.90	1500	40	200	3.0	100	800	100	11	0.087	125	2500	U
VMFx600*	600	500-2500	1.90	1800	40	200	3.0	100	800	100	13	0.073	125	2500	V
VMFx800*	800	500-2500	1.95	2400	40	200	3.0	100	800	100	16	0.054	125	2500	V

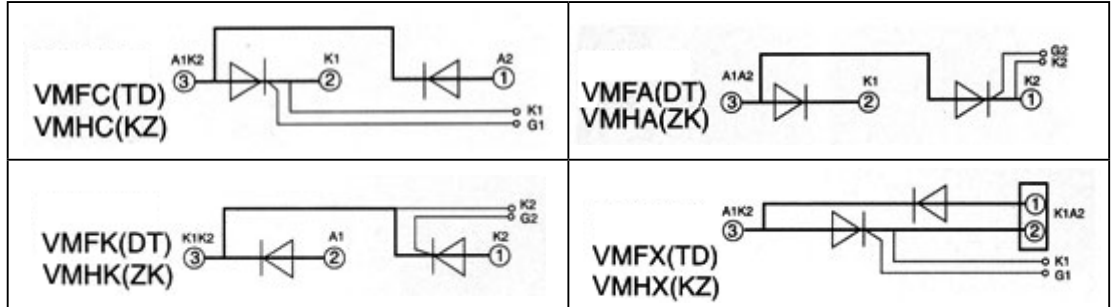
Remark: *=water cooling

Outline Dimension:





Circuit configurations



Comparison:

- non-isolated, soleplate is the common electrode
- Seal complies with international standard
- Pressure type, excellent temperature control and power cycling capability
- Max working temperature up to 140°C
- High surging current
- Low positive voltage drop

Typical applications:

- Power supply of welding machines
- Various DC power supply

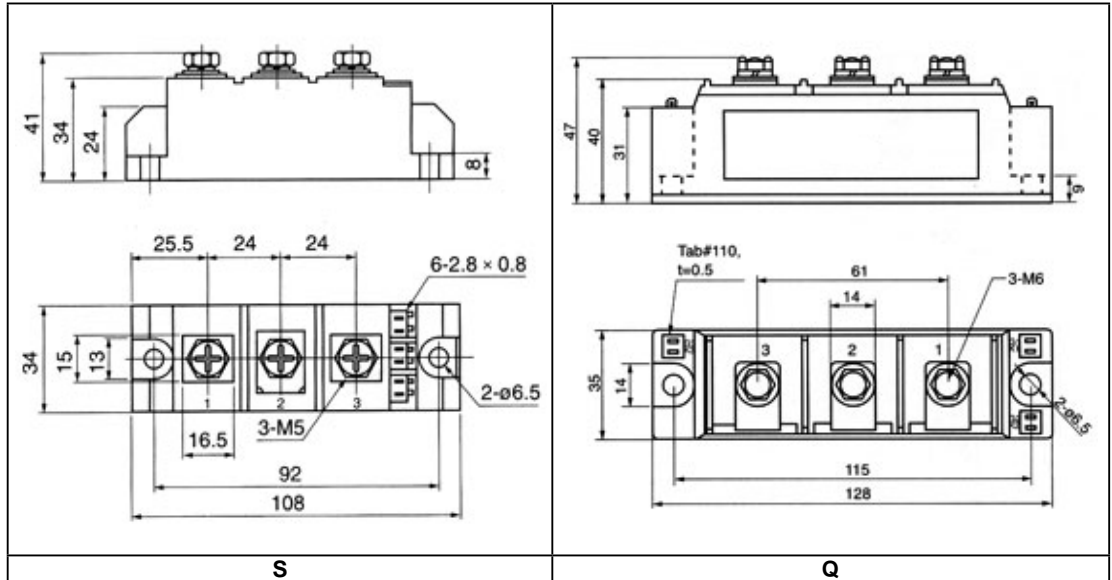
Remark:

- $V_{DSM}/V_{RSM}=V_{DRM}/V_{RRM}+200V$
- I_{GT} , V_{GT} , I_H , V_{TM} , V_{ISO} are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t=I^2_{TSM}T_w/2$; T_w : full bottomed value of sine and half wave current
On the condition current is 50Hz, $I^2t(10ms)=0.005I^2_{TSM}(A^2S)$
- On the condition current is 60Hz
 $I_{TSM}(8.3ms)=1.066I_{TSM}(10ms)$,
- $I^2t(8.3ms)=0.943I^2(10ms)$

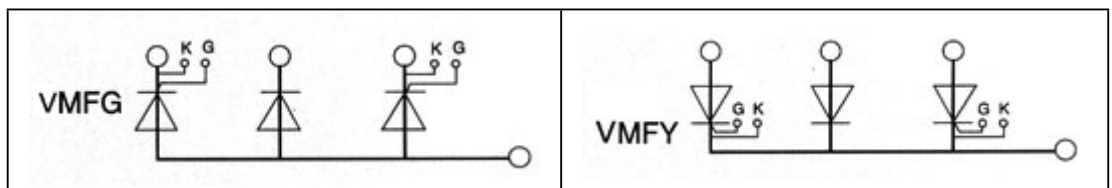
Technical parameter:

Model	I_T	V_{DRM} V_{RRM}	V_{TM} V_{FM}	$@I_{TM}$ $@I_{FM}$	I_{DRM} I_{RRM}	I_{GT}	V_{GT}	I_H	dv/dt	di/dt	I_{TSM}	R_{jc}	T_{jm}	Outline (fig.)
	$I_{F(AV)}$	V	V	A	mA	mA	V	mA	V/us	Aus	$A \times 10^3$	°c/w	°C	
VMF100	100	500-2500	1.67	300	12	100	2.5	100	800	100	3.2	0.25	125	S
VMF150	150	500-2500	1.67	450	12	100	2.5	100	800	100	5.1	0.16	125	Q
VMF200	200	500-2500	1.62	600	20	150	2.5	100	800	100	6.5	0.13	125	Q
VMF250	250	500-2500	1.65	750	20	150	2.5	100	800	100	8.5	0.1	125	Q
VMF300	300	500-2500	1.58	900	25	150	2.5	100	800	100	9.6	0.08	125	Q

Outline Dimension:



Circuit configurations





25-110A

Comparison:

- Chips isolated from soleplate electrically, 2500V AC voltage
- Seal complies with international standard
- Pressure type, excellent temperature control and power cycling capability
- Modules less than 400A are forced air cooling, while for modules higher than 500A, both air cooling and water cooling are selectable.
- Easy installation and convenient maintenance
- Compact size and light weight



130-160A

Typical applications:

- DC power supply of instruments
- AC & DC motor control
- Various kinds of rectifying power
- Motor's softstart
- Welding machine
- Transducer
- Battery charging and discharging



200-300A

Remark:

- $V_{RSM} = V_{RRM} + 200V$
- Except for VFM, V_{ISO} , all other parameters are tested in T_{JM} condition
- $I^2t = I_{TSM}^2 T_w / 2$; T_w : full bottomed value of sine and half wave current
On the condition current is 50Hz, $I^2t(10ms) = 0.005 I_{TSM}^2 (A^2S)$
- On the condition current is 60Hz
 $I_{TSM}(8.3ms) = 1.066 I_{TSM}(10ms)$,
- $I^2t(8.3ms) = 0.943 I^2(10ms)$



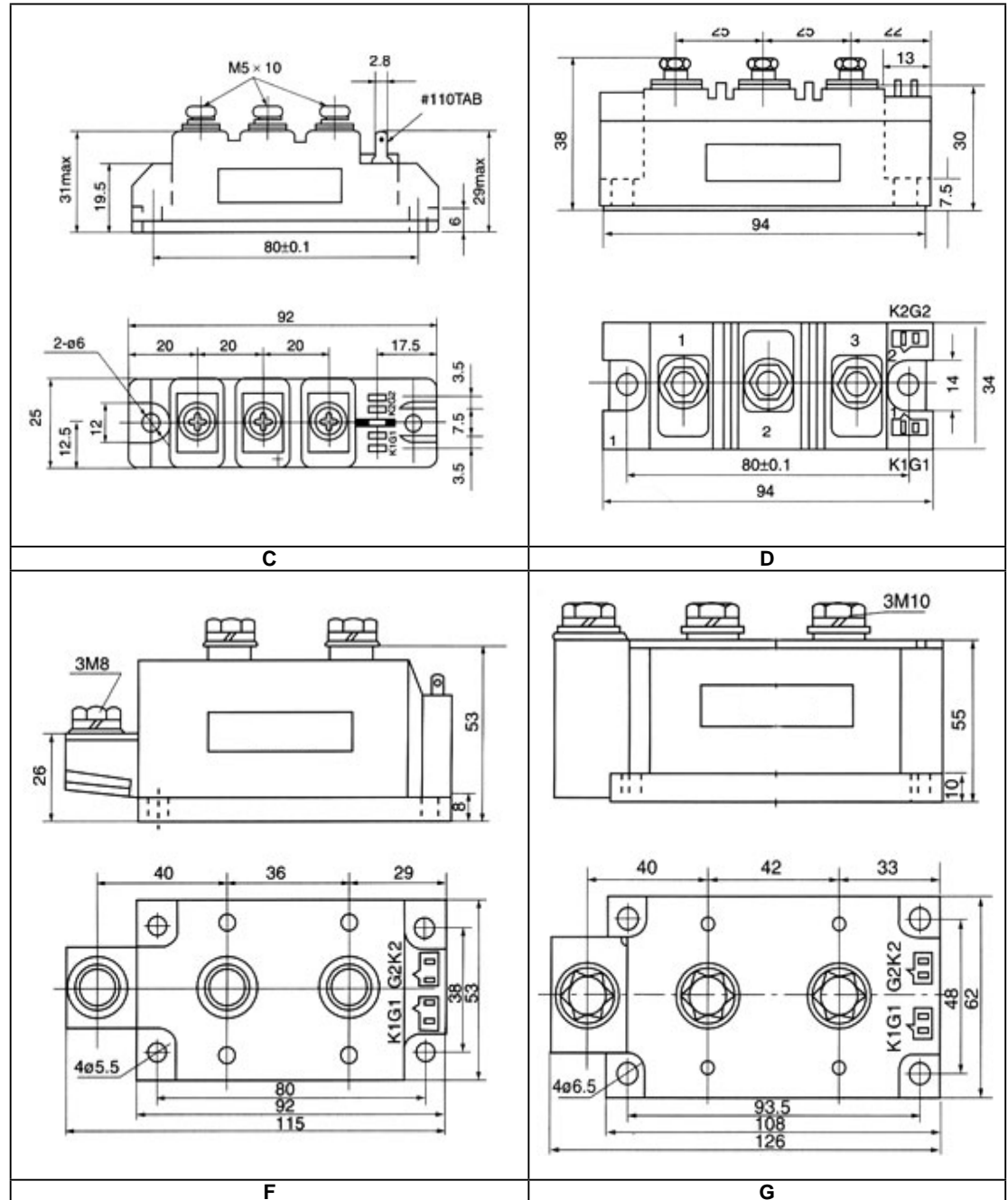
350-500A

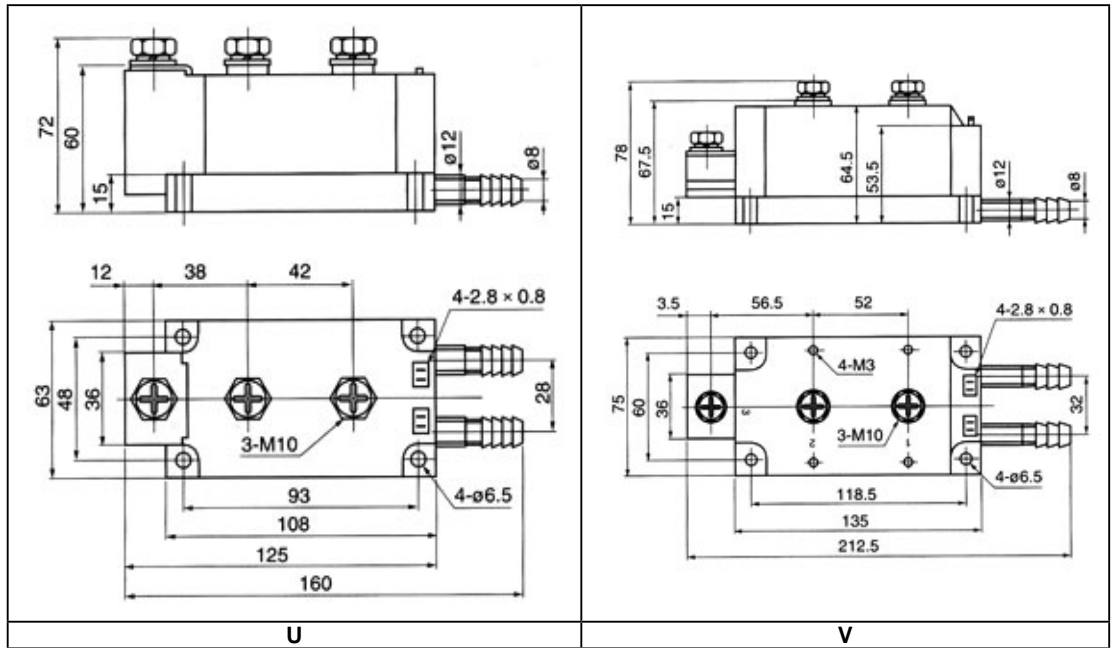
Technical parameter:

Model	$I_{F(AV)}$	V_{RRM}	$V_{FM} I_{FM}$		I_{RRM}	$I_{F(RMS)}$	I_{FSM}	$R_{\theta c}$	T_{jm}	V_{iso}	Outline (fig.)
	A	V	V	A	mA	A	$A \times 10^3$	$^{\circ}C/w$	$^{\circ}C$	V(AC)	
VMDx25	25	500-2500	1.65	80	8	41	0.65	1.3	150	2500	C
VMDx55	55	500-2500	1.45	170	8	86	1.3	0.7	150	2500	C
VMDx90	90	500-2500	1.33	270	8	141	2.3	0.47	150	2500	C
VMDx110	110	500-2500	1.45	330	8	173	2.6	0.35	150	2500	C
VMDx130	130	500-2500	1.38	410	12	212	3.9	0.31	150	2500	D
VMDx160	160	500-2500	1.56	480	12	251	6	0.23	150	2500	D
VMDx200	200	500-2500	1.38	600	12	314	8	0.21	150	2500	F
VMDx250	250	500-2500	1.43	750	20	393	11	0.14	150	2500	F
VMDx300	300	500-2500	1.35	900	20	471	12.5	0.13	150	2500	F
VMDx350	350	500-2500	1.5	1050	30	550	15	0.11	150	2500	G
VMDx500	500	500-2500	1.35	1500	40	785	21	0.09	150	2500	G
VMDx500*	500	500-2500	1.65	1500	40	785	12	0.13	150	2500	U
VMDx600*	600	500-2500	1.65	1800	40	942	15	0.11	150	2500	V
VMDx800*	800	500-2500	1.70	2400	40	1256	18	0.08	150	2500	V

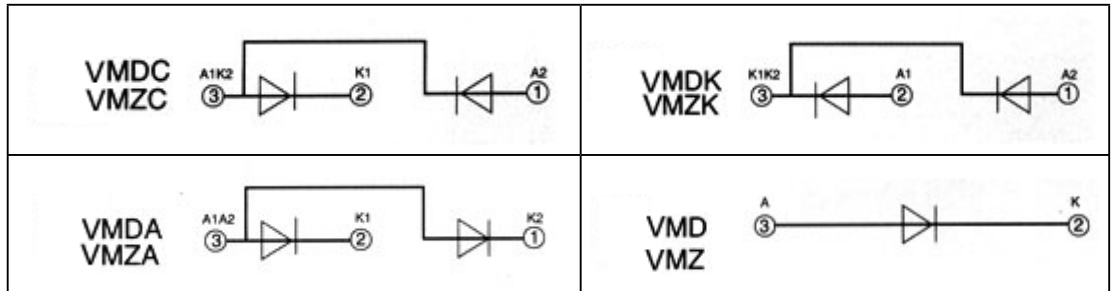
Remark: *=water cooling

Outline Dimension:





Circuit configurations



Comparison:

- non-isolated, soleplate is the common electrode
- Seal complies with international standard
- Pressure type, excellent temperature control and power cycling capability
- Max working temperature up to 140°C
- High surging current
- Low positive voltage drop

Typical applications:

- Power supply of welding machines
- Various DC power supply
- Transducer

Remark:

- $V_{DSM}/V_{RSM}=V_{DRM}/V_{RRM}+200V$
- $I_{GT}, V_{GT}, I_H, V_{TM}, V_{ISO}$ are the tested value at 25°C and the other parameters in the table are under T_{jm} , excepting additional explanations.
- $I^2t=I^2_{TSM}T_w/2$; T_w : full bottomed value of sine and half wave current
On the condition current is 50Hz, $I^2t(10ms)=0.005I^2_{TSM}(A^2S)$
- On the condition current is 60Hz
 $I_{TSM}(8.3ms)=1.066I_{TSM}(10ms)$,
- $I^2t(8.3ms)=0.943I^2(10ms)$

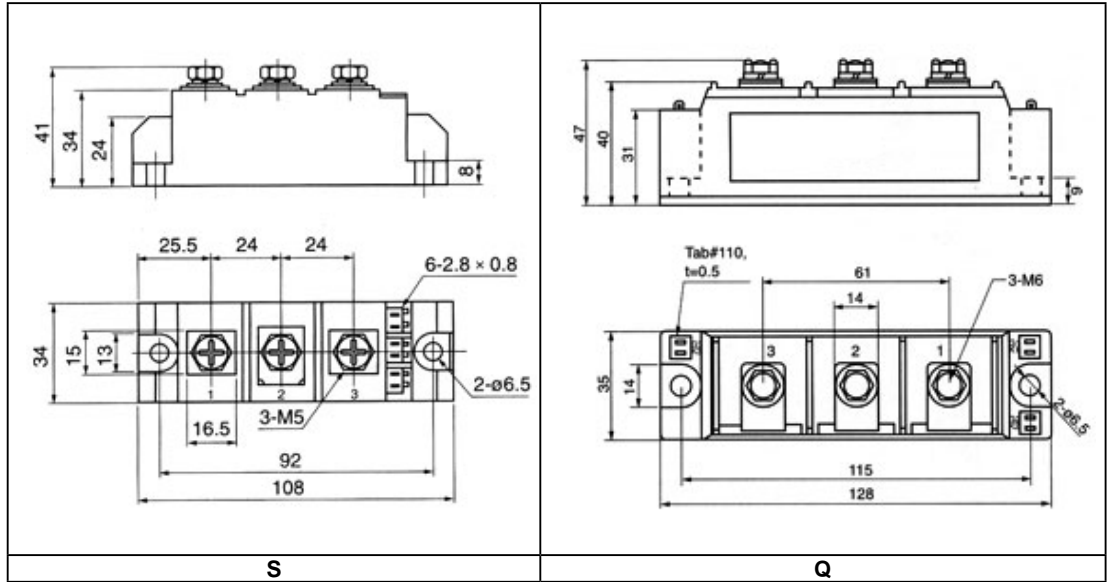
Technical parameter:(VMTG, VMTY)

Model	$I_{T(AV)}$	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_{lc}	T_{jm}	Outline (fig.)
	A	V	V	A	mA	mA	V	mA	V/us	A/us	Ax10 ³	°C/w	°C	
VMTx100	100	500-2500	1.67	300	12	100	2.5	100	800	100	3.2	0.25	125	S
VMTx150	150	500-2500	1.67	450	12	100	2.5	100	800	100	5.1	0.16	125	Q
VMTx200	200	500-2500	1.62	600	20	150	2.5	100	800	100	6.5	0.13	125	Q
VMTx250	250	500-2500	1.65	750	20	150	2.5	100	800	100	8.5	0.1	125	Q
VMTx300	300	500-2500	1.58	900	20	150	2.5	100	800	100	9.6	0.08	125	Q

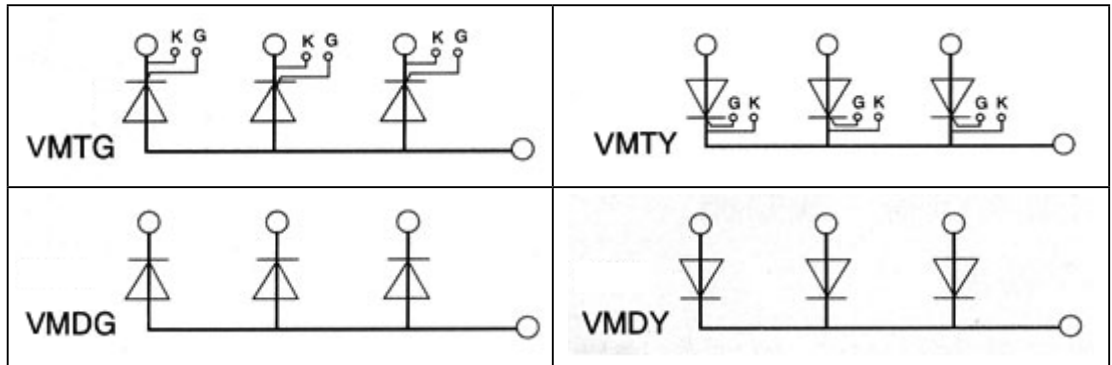
VMDG,VMDY

Model	$I_{T(AV)}$	V_{RRM}	$V_{FM}@I_{FM}$		I_{RRM}	$I_{F(RMS)}$	I_{TSM}	R_{lc}	T_{jm}	Outline (fig.)
	A	V	V	A	mA	A	Ax10 ³	°C/w	°C	
VMDx100	100	500-2500	1.57	300	12	157	3.9	0.38	150	S
VMDx150	150	500-2500	1.57	450	12	236	5.8	0.24	150	Q
VMDx200	200	500-2500	1.50	600	20	314	8	0.2	150	Q
VMDx250	250	500-2500	1.53	750	20	393	9.8	0.15	150	Q
VMDx300	300	500-2500	1.50	900	25	471	11.5	0.13	150	Q

Outline Dimension:



Circuit configurations





MDS60N 16



MDS 40-100A



MDS 150-200A

Comparison:

- Chips isolated from soleplate electrically, 2500V AC voltage
- Seal complies with international standard
- Soldering type, excellent temperature control and power cycling capability
- Easy installation and convenient maintenance
- Max working temperature up to 150°C
- Compact size and light weight

Typical applications:

- DC power supply of instruments
- Input rectifying power of PWM transducer
- DC motor excitation power supply power
- Capacitor charging in softstarters
- Electric drag and auxiliary current
- Inverting welding machines
- Charging DC power supply

Remark:

- $V_{RSM} = V_{RRM} + 200V$
- Except for VFM, V_{ISO} , all other parameters are tested in T_{JM} condition
- $I^2t = I^2_{TSM} T_w / 2$; T_w : full bottomed value of sine and half wave current
On the condition current is 50Hz, $I^2t(10ms) = 0.005 I^2_{TSM} (A^2S)$
- On the condition current is 60Hz
 $I_{TSM}(8.3ms) = 1.066 I_{TSM}(10ms)$,
- $I^2t(8.3ms) = 0.943 I^2(10ms)$

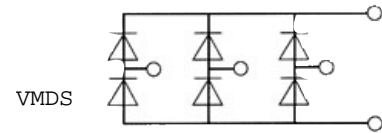
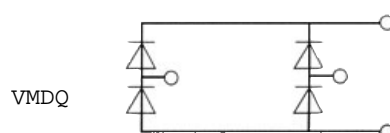
Technical parameters:(VMDQ)

Model	$I_0 @ T_C$		V_{RRM}	$V_{FM} @ I_{FM}$		I_{RRM}	$I_{F(AV)}$	$I_{F(RMS)}$	I_{TSM}	R_{jc}	T_{jm}	V_{iso}	Outline (fig.)
	A	°C		V	V								
VMDQ50	50	100	600-2000	1.55	75	8	25	60	0.75	0.55	150	2500	J
VMDQ75	75	100	600-2000	1.47	110	8	38	70	1	0.32	150	2500	J
VMDQ100	100	100	600-2000	1.53	150	10	50	86	1.5	0.24	150	2500	J
VMDQ150	150	100	600-2000	1.47	230	10	75	106	2.5	0.15	150	2500	L

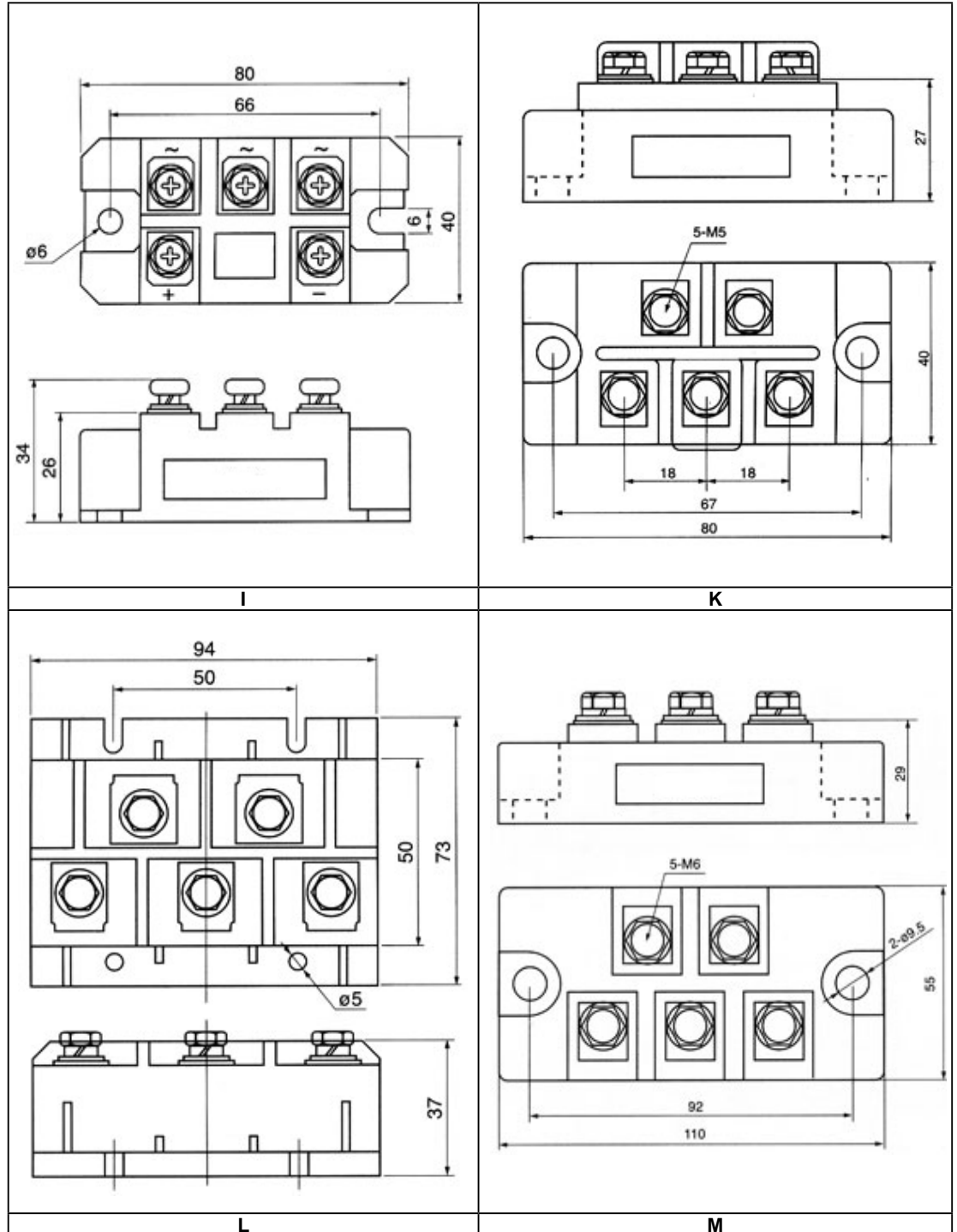
VMDS

Model	$I_0 @ T_C$		V_{RRM}	$V_{FM} @ I_{FM}$		I_{RRM}	$I_{F(AV)}$	$I_{F(RMS)}$	I_{TSM}	R_{jc}	T_{jm}	V_{iso}	Outline (fig.)
	A	°C		V	V								
VMDS50	50	100	600-2000	1.55	50	8	17	39	0.75	0.55	150	2500	I / K
VMDS75	75	100	600-2000	1.47	75	8	25	47	1	0.32	150	2500	I / K
VMDS100	100	100	600-2000	1.53	100	10	33	51	1.5	0.24	150	2500	I / K
VMDS150	150	100	600-2000	1.50	150	10	50	71	2.5	0.15	150	2500	L / M

Circuit configurations



Outline Dimension:





Intelligent module

Introduction

1. Application

It is applicable for AC electric motor's start-up, DC electric motor's timing, industrial electric automation, solid switch and power supplies used in industry, communication & war industry (temperature adjusting, light adjusting, excitation, electroplate, charging, voltage regulating).

2. Features

1) advanced technics, superior performance

SCR intelligent module, no phase series, no synchronous transformer, pulse transformer isolated triggering, internal phase shift, digital fixed width adjustment, triggering part without any adjustable components, pulse symmetry <0.5 degree, low compact on load and high anti-interference. It can be used in the rectifying circuit of three-phase controlled bridge, three-phase half-controlled bridge and three-phase half wave SCR. Users can control output voltage and current manually or automatically. In addition to feedback signal, they can realize regulated voltage and current system.

Spring type and welding type are available. Adopting vacuum agglomeration technics guarantees no hollows and high reliable performance.

Special IC and tips greatly improve controlling capability of intelligent modules.

Ceramic copperplate and other superior heat conducting insulated material have very good heat conducting performance and have no electrification on bottom plating. These guarantee safety use.

Heat cycling load is 10 times higher than the standard and has long service life.

2) reliable quality, safe and convenient

Phase shift controlling system. Main circuit is isolated from heat conducting bottom plate. Dielectric strength $\geq 2500\text{VAC}$.

1~5V DC signal can adjust output voltage of main circuit smoothly.

The control is completed by hand, instrument or microprocessor.

There is no phase series for AC input of three-phase module's main circuit

Applicable for resistance load and inductance load.

3. choose suitable current for module

The marked current of module is the maximum allowable current in normally working conditions. Considering thyristor's low ability of anti current impact, we suggest you keep some surplus when choosing module.

Resistance load: marked current of module should be two times as high as rated load current

Inductance load: marked current of module should be three times as high as rated load current.

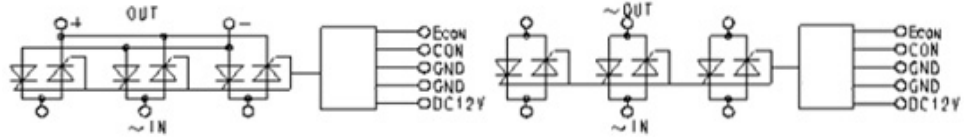
4. service condition

1) ambient temperature: $-25^{\circ}\text{C} \sim +45^{\circ}\text{C}$.

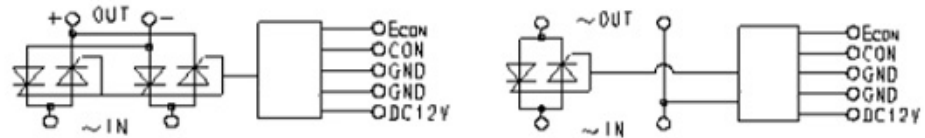
2) environment: dry, ventilation, no dust, no corrosive gas.

Internal electric connection

1. Three-phase rectifier intelligent module
2. Three-phase AC intelligent module



3. single phase rectifier intelligent module
4. single phase AC intelligent module



Select & use

1. To choose suitable current for module

The marked current of module is the maximum allowable current in normally working conditions. Considering thyristor's low ability of anti current impact, we sincerely suggest you keep some surplus when choosing module.

Resistance load: marked current of module should be two times as high as rated load current

Inductance load: marked current of module should be three times as high as rated load current.

2. requirements on conduction angle

At small conduction angle (namely, high input voltage and low output voltage), the output current of module is high. This will make module heat or even burn. Because if it is not sine wave, the ordinary meter will not show virtual current value .

Therefore, though displayed current on meter doesn't exceed marked current, yet effective value is often several times higher than marked value. For this reason, module should operate at a higher conduction angle (higher than 100 degree). About the maximum allowable output current ratio in different output voltage, please refer to the following table 3.

Us/Ub	1	0.75	0.50	0.25	0.15
Is/Ib	1	0.85	0.60	0.45	0.3

Us : Real output voltage of module

Ub : Maximum allowable output voltage of module

Is : Real output current of module

I b: Marked maximum current of module

i.e. for 100A three phase AC module, electric network 380V, the maximum output current in different output voltage as below.

Input voltage	380V	285A	190V	50V
Maximum output current	100A	85V	60A	25A

Select & use

3. requirement on DC12V regulated power supply

- 1) requirement on DC12V regulated power supply: $12 \pm 0.5V$, ripple voltage $< 10mV$.
- 2) the current of DC12V regulated power supply must be 2 times higher than the real operation current or more.
- 3) if we use transformer type rectifying regulated power supply, the filtering capacitance must be higher than $2000\mu f / 25V$.
- 4) don't connect the polarity of DC12V power supply reversely. Otherwise, the module will burn.

4. service condition

- 1) ambient temperature: $25^{\circ}C \sim 45^{\circ}C$
- 2) environment: dry, ventilation, no dust, no corrosive gas

5. other requirements

- 1) because eduction of main circuit bends 90 degree and is easy to break off, please avoid external force or cable's gravity pull up electrode and then break.
- 2) strictly prohibit springing copper wire on the electrode directly without any connecting terminal. This can avoid bad contact and heating.
- 3) module cannot be used as disconnect switch. In order to guarantee safety, an air switch should be added in the front of module.
- 4) when measuring working temperature of shell, test point should be chosen on the surface of heat sink near to the center of module's bottom plate. We can dig a hole below surface to the center of heat sink, then insert the thermometer's probe to the bottom of hole. The temperature of test point should be $\leq 80^{\circ}C$.

installation & testing

1. installation

- 1) suitably mount heat sink and fan on the machine according to their requirements.
- 2) evenly smear some silicon grease on the surface of heat conducting bottom plate of module and heat sink, then use four screws to fix module on the heat sink. These four screws should have same strength and make module's bottom plate and heat sink intimate contact.
- 3) use connecting terminal to fasten copper wire firmly, then set some insulated heat shrinkable tube and use sirocco or hot water to heat up shrink.
- 4) place connecting terminal on the electrode of module flatly, fasten it with screws and keep good contact between pressure and surface. Connecting diagram refers to Fig.6~9.

Fig.6 three-phase rectifier module

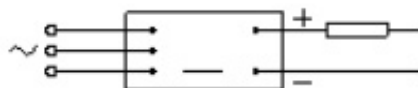


Fig.7 three-phase AC module

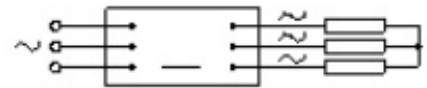


Fig.8 single-phase rectifier module

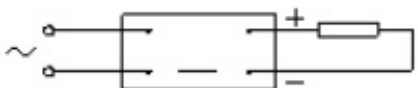


Fig.9 single-phase AC module



Select & use

5) connect controlling wire

a. control manually(potentiometer), computer or meter. Wiring diagram refers to Fig.11~14

Pin No	1	2	3	4	5	6	7	8
Pin color	brown	red	orange	yellow	green	blue	pink	gray
Pin function	GND1	CON	VREF1	GND2	GON2	VREF2	F/V	F/A
Pin No	9	10	11	12				
Pin color	white	black,	light green	light blue				
Pin function	DC12V (+)	DC12V (-)	null	null				

The function code name of the pin is explained:

1 pin: GND1, earth line and shield line of controlling power supply

2 pin: CON1, 1~5V signal input

3 pin: VREF1, internal datum voltage

4 pin: GND2, earth line and shield line of controlling power supply

5 pin: CON2, 1~5V signal input

6 pin: VREF2, internal datum voltage

7 pin: F/V

8 pin: F/A

9 pin: DC12V(+) connects externally with anode of 12V power supply

10 pin: DC12V(-) connects externally with cathode of 12V power supply

11 pin: null

12 pin: null

b. control manually(potentiometer), computer or meter. Wiring diagram refers to Fig.11~12

Pin No	1	2	3	4	5	6
Pin color	brown	red	orange	yellow	green	blue
Pin function	GND	CON	VREF		DC 12V (+)	DC 12V (-)

The function code name of the pin is explained:

1 pin: GND, earth line and shield line of controlling power supply

2 pin: CON, 1~5V signal input

3 pin: VREF, internal datum voltage

4 pin: null

5 pin: DC12V(-) connects externally with cathode of 12V power supply

6 pin: DC12V(+) connects externally with anode of 12V power supply

Signal input: manual control (potentiometer adjustment), computer control, meter control.

2) for connector type six-core module, the method of controlling signal input refers to Fig.11-12.

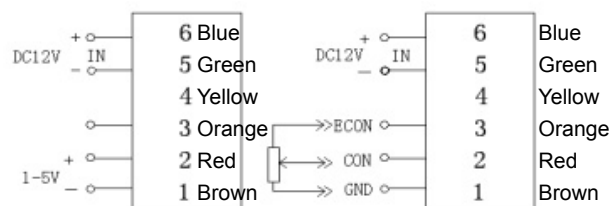


Fig.11 connection for six-core manual control

Fig.12 connection with computer

Select & use

3) for connector type twelve-core module, the method of controlling signal input refers to Fig.13-14.

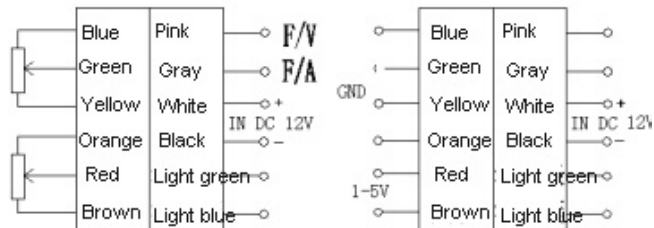


Fig.13 connection for twelve-core manual control Fig.14 connection with computer

If a converting circuit for input signal is set inside module, users just need insert all pins directly into the controlling side of module according to Pin No in Fig.5 and Fig.6.

2. the test of module

In order to check if the module is ok, we can do some simple test for controlling function of modules. Please note:

- 1) before getting through electricity, please check if connecting circuit is right.
- 2) When measuring the output voltage of main circuit, output load shouldn't be less than 100W and the minimum operating current of main circuit should be more than 50mA. The testing result will be not correct when empty load.
- 3) When using multimeter to test output voltage, the red neb and black neb press AB(red and black), BC(red and black), CA(red and black) correspondingly and test. Otherwise, the tested voltage will not be correct.

Main parameters of module

1) main parameters

- a. working frequency: 50Hz or 60Hz
- b. input line voltage range V_{INRMS} : 300~450V_{AC}
- c. dissymmetry for three-phase AC output voltage <0.5%
- d. voltage for controlling signal V_{CON} : 1-5V
- e. voltage for controlling signal $I_{CON} \leq 10\mu A$
- f. temperature coefficient for output voltage <600PPM/ °C
- g. isolated voltage of module $V_{ISO}(RMS) \geq 2500V$

Main parameters of module

2) detailed parameters of module

model	parameter	input voltage	max input current per phase	max output current per phase	triggering current	working temperature for shell
	title	V OUT (AV)	I IN (AV)	I OUT (AV)	I E	T C
	value	V	A	A	mA	C
three phase AC	VMSA-350	1.0V IN	350	350	400	= 80
	VMSA-300		300	300	400	= 80
	VMSA-260		260	260	400	= 80
	VMSA-150		150	150	400	= 80
	VMSA-100		100	100	400	= 80
	VMSA-75		75	75	400	= 85
	VMSA-40		40	40	400	= 88
	VMSA-20		20	20	300	= 88
single phase AC	VMQA-300	1.0V IN	300	300	300	= 80
	VMQA-150		150	150	200	= 85
	VMQA-100		100	100	200	= 85
	VMQA-75		75	75	200	= 85
	VMQA-40		40	40	200	= 88

model	parameter	parameter	input voltage	max input current per phase	max output current per phase	triggering current	working temperature for shell
	title	title	V OUT (AV)	I IN (AV)	I OUT (AV)	I E	T C
	value	value	V	A	A	mA	C
three phase AC	VMSD-500	1.35V IN		410	500	400	= 80
	VMSD-400			320	400	400	= 80
	VMSD-300			260	300	400	= 80
	VMSD-200			160	200	400	= 80
	VMSD-150			120	150	400	= 80
	VMSD-100			80	100	400	= 85
	VMSD-50			45	50	400	= 88
	VMSD-30			25	30	300	= 88
single phase AC	VMQD-200	1.35V IN		222	200	300	= 80
	VMQD-150			166	150	300	= 85
	VMQD-100			111	100	300	= 85
	VMQD-50			55	50	300	= 88
	VMQD30			33	30	300	= 88

Main parameters of module

2. main parameters for chip in thyristor

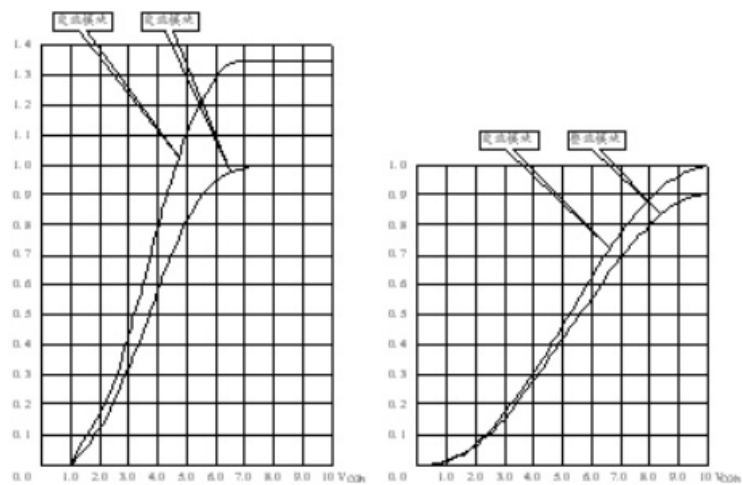
- a. temperature of chip: $T_j=125\text{ }^\circ\text{C}(\text{max})$
- b. $di/dt:100\text{A}/\mu\text{s}$
- c. $dv/dt:500\text{V}/\mu\text{s}$

2) detailed parameters for chip in thyristor

code parameter Model	$I_{T(AV)}$	I_{TSM}	I_{oA}	V_T	I_E	T_C	V_{DRM} V_{RRM}						
	$T_j=125^\circ\text{C}$	45°C 10ms	125°C	$T_j=125^\circ\text{C}$									
	V	A	mA	V	A	V	V						
VMSD-500	250	8000	20	1.20	600	0.8	1200-2200						
VMSA-350													
VMSD-400	220	7000	15	1.24	600			0.8	1200-2200				
VMSD-300													
VMQA-300													
VMSA-300													
VMSA-260	180	5000	15	1.25	450					0.8	1200-2200		
VMSD-200	100	2300	10	1.36	300								
VMQD-200													
VMSA-150	74	1500	10	1.39	200							0.8	1200-1800
VMQA-150													
VMQD-150													
VMSA-100													
VMQA-100													
VMQD-100													
VMSD-100													
VMQA-75	57	1150	10	1.55	200	0.85	1200-1800						
VMSA-75													
VMSD-50	35	600	3	1.35	60			0.85	1200-1800				
VMQD-50													
VMSA-40													
VMQA-40													
VMQD30	24	400	2	1.42	45					0.90	1200-1600		
VMSD-30													
VMSA-20	19	300	1	1.55	44							0.90	800-1200

Output characteristics curve

- 1) X axis stands for voltage of controlling signal and Y axis stands for the ratio of output voltage and input voltage in main circuit.
- 2) the above four curves are for those full controlled modules with digital circuit and resistance load.
- 3) for half controlled module and inductance load, their controlling curves have a little difference from above because of their different controlling method and different load characteristics.
- 4) this drawing is just for reference.

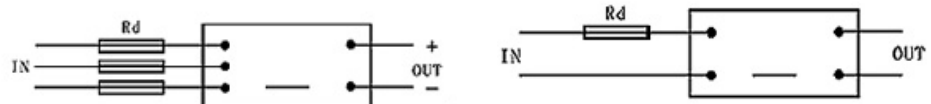


Protection of module

1. over current protection

Fast fuse, fast overcurrent relay and sensor can be connected externally to protect module. Fast fuse is most common way. Please refer to following introduction.

1)connection: fast fuse is connected at the input side of modules. Take three-phase rectifier module and single-phase AC module for example, please refer to Fig.14~15.



Protection of module

2) Select of fast fuse

Rated voltage of fuse should be higher than working voltage in circuit in normal conditions.
Rated current of fuse should be selected in reference to Table 10~11.

Model of module	Fuse		
	Rated current(A)	Quantity(pcs)	Rated current (~V)
VMSD-500	250	3	500
VMSA-350			
VMSD-400	160	3	
VMSD-300			
VMQA-300			
VMSA-300			
VMSA-260			
VMSD-200	80	3	
VMQD-200			
VMSA-150			
VMQA-150			
VMQD-150			
VMSA-100	60	3	
VMQA-100			
VVMQD-100			
VMSD-100			
VMQA-75			
VMSA-75	40	3	
VMSD-50			
VMQD-50	25	3	
VMSA-40			
VMQA-40			
VMQD30			
VMSD-30	16	3	
VMSA-20			

Model of modules fuse, rated current(A), quantity(pcs), rated voltage(~V)

2. over-voltage protection

For the over-voltage protection, we highly recommend snubber (capacitor/resistor) and thermistor

Capacitor turns the electromagnetic energy of over voltage to static energy and then stores it. It avoids producing oscillations. This kind of absorbed circuit can restrain the produced over voltage during the whole process and avoid penetrating thyristors.

Protection of module

Fig.19 three-phase rectifier module

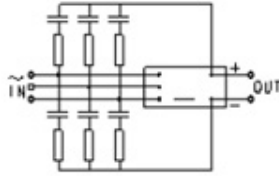


Fig.20 single-phase rectifier module

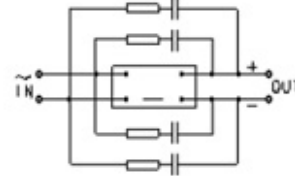


Fig.21 three-phase AC module

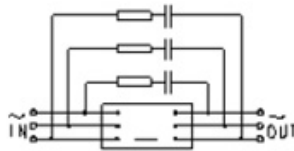
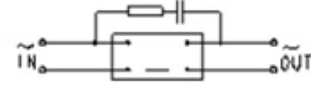


Fig.22 single-phase AC module



Select capacitive resistance component

Item	Model	R(Ω /W)	C(Mf)630V _{AC}	Quantity
Three phase bridge rectifier	VMSD-500	8.2/15	0.68	6pcs for each
	VMSD-400			
	VMSD-300			
	VMSD-200	20/10	0.33	
	VMSD-150			
	VMSD-100	33/5	0.22	
	VMSD-50	62/5		
	VMSD-30			
Three phase AC	VMSA-350	8.2/15	0.68	3pcs for each
	VMSA-300			
	VMSA-260			
	VMSA-150	20/10	0.33	
	VMSA-100			
	VMSA-75	33/5	0.22	
	VMSA-40	62/5		
	VMSA-20			
Single phase bridge rectifier	VMQD-200	20/10	0.33	4pcs for each
	VMQD-150			
	VMQD-100	33/5	0.22	
	VMQD-50	62/5		
	VMQD30			
Three phase AC	VMQA-300	8.2/15	0.68	1pcs for each
	VMQA-150	20/10	0.33	
	VMQA-100			
	VMQA-75	33/5	0.22	
	VMQA-40	62/5		

Protection of module

In the table, R and C are applicable for resistance load or inductance load. When users use it for capacitive load, R and C are selected as below.

Capacitance C: same capacitance, withstanding voltage increases 1.5 times.

Resistance R: same resistance,

3) thermistor absorbs over voltage.

thermistor absorbs high power and lasting over voltage produced by lightning strike. Marked voltage of thermistor (V1mA) means voltage of two side when thermistor passes 1ma. Voltage of thermistor should be selected $710V \leq V_{1mA} \leq 1000V$. The connection refers to Fig.23~24.

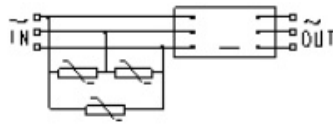


Fig.23 Three phase module

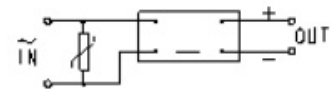


Fig.24 Single phase module

3. over-heat protection

The condition of heating radiation relates greatly to the operation of modules. A good heat radiation not only can guarantee safe operation for module and avoid burning but also can improve output current of modules. If users use high power modules, we suggest you choose those modules with over-heat protection. Even over heat protection is available, heat sink and fan are also necessary.

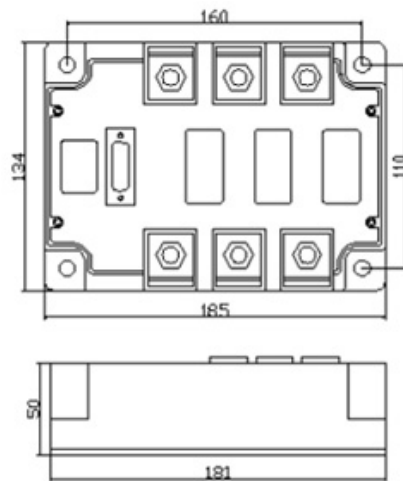
Dimensions & weight of module

Code Model	L1	L2	B1	B2	h	4-φ	Weight(g)
VMSA-350	160	185	110	135	67	8.5	2650
VMSA-300							
VMSA-260							
VMSA-150	102	116	58	72	39	6.2	550
VMSA-100							
VMQA-300							
VMQA-100							
VMSA-75	78	92	46	60	39	5.2	380
VMSA-40							
VMSA-20							
VMQA-75							
VMQA-40	78	92	38	52	39	5.2	310
VMQA-20							

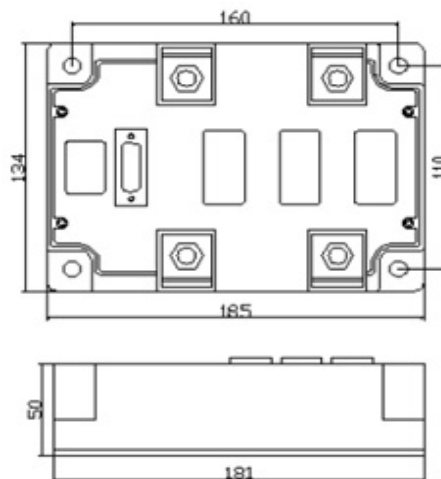
Dimensions & weight of module

Code Model	L1	L2	B1	B2	h	4-φ	Weight (g)
VMSD-500	160	185	110	135	67	8.5	2650
VMSD-400							
VMSD-300							
VMSD-200	102	116	58	72	39	6.2	550
VMQD-200							
VMSD-150							
VMQD-150	78	92	46	60	39	5.2	380
VMSD-100							
VMQD-100							
VMSD-50	78	92	38	52	39	5.2	310
VMQD-50							
VMQD-30							

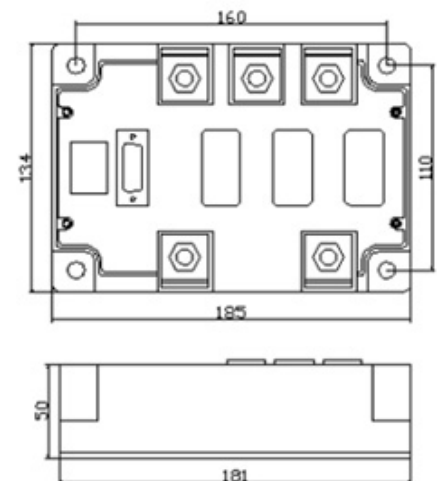
Outline for three phase AC module



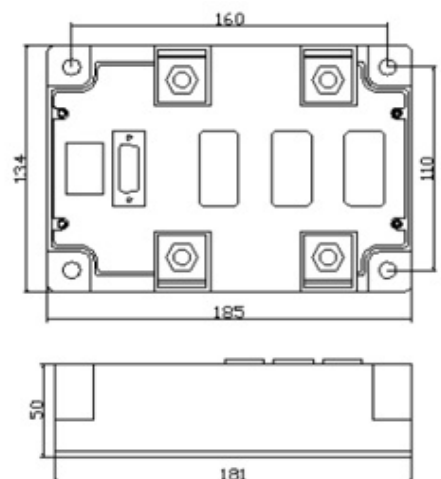
Outline for single phase AC module



outline for three phase rectifier modules



outline for single phase rectifier modules





VQL₁5A-40A



VQL₅5A-50A



VQL₃2A-100A



VQL₄150A-300A

Comparison:

- Current:5-300A
- Voltage:100-1600V
- All models feature the same compact dimensions to provide a uniform mounting pitch
- Glass passivated diode chips
- Excellent power/volume ratio
- High thermal conductivity package, electrically insulated case

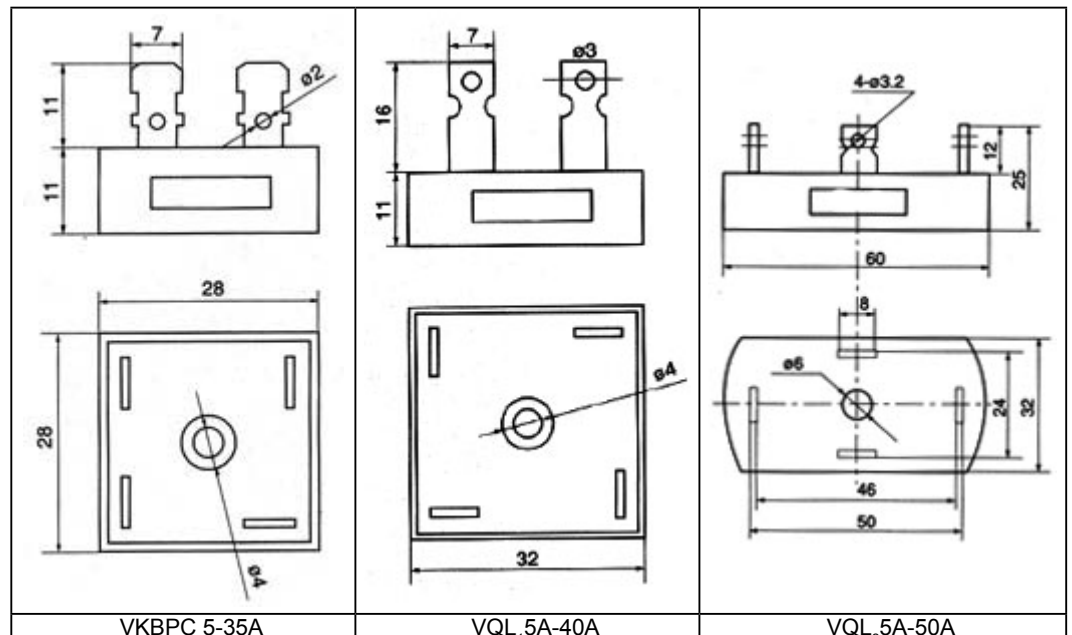
Typical applications:

- Eliminator supply
- Industrial automatic control
- Numerical-controlled machinery, telecontrol system

Technical parameter:

Model	V _{FM}	V _{RRM}	I _{RRM}	Visol	T _J	Weight	Outline (fig.)
	V	V	mA	V			
VKBPC5A-35A	≤ 1.3	100-1600	5	2500	-40°C~150°C	29	VKBPC5A-35A
VQL ₁ 5A-40A	≤ 1.3	100-1600	5	2500		35	VQL ₁ 5A-40A
VQL ₂ 5A-50A	≤ 1.3	100-1600	5	2500		47	VQL ₂ 5A-50A
VQL ₃ 20A-100A	≤ 1.4	100-1600	7	2500		315	VQL ₃ SQL3 20A-100A
VQL ₄ 150A-300A	≤ 1.5	100-1600	10	2500		1200	VQL ₄ SQL4 150A-300A
VsQL ₃ 20A-100A	≤ 1.4	100-1600	7	2500		315	
VsQL ₄ 150A-300A	≤ 1.5	100-1600	10	2500		1200	VMDS3 20-40A
VZPQ10A-40A	≤ 1.3	100-1600	5	2500		220	VZPQ10A-40A
V4ZQ10A-40A	≤ 1.3	100-1600	5	2500		150	V4ZQ10A-40A
V6ZQ10A-40A	≤ 1.3	100-1600	5	2500		395	V6ZQ10A-40A

Outline Dimension:



Outline Dimension:



VMDS3 20-40A



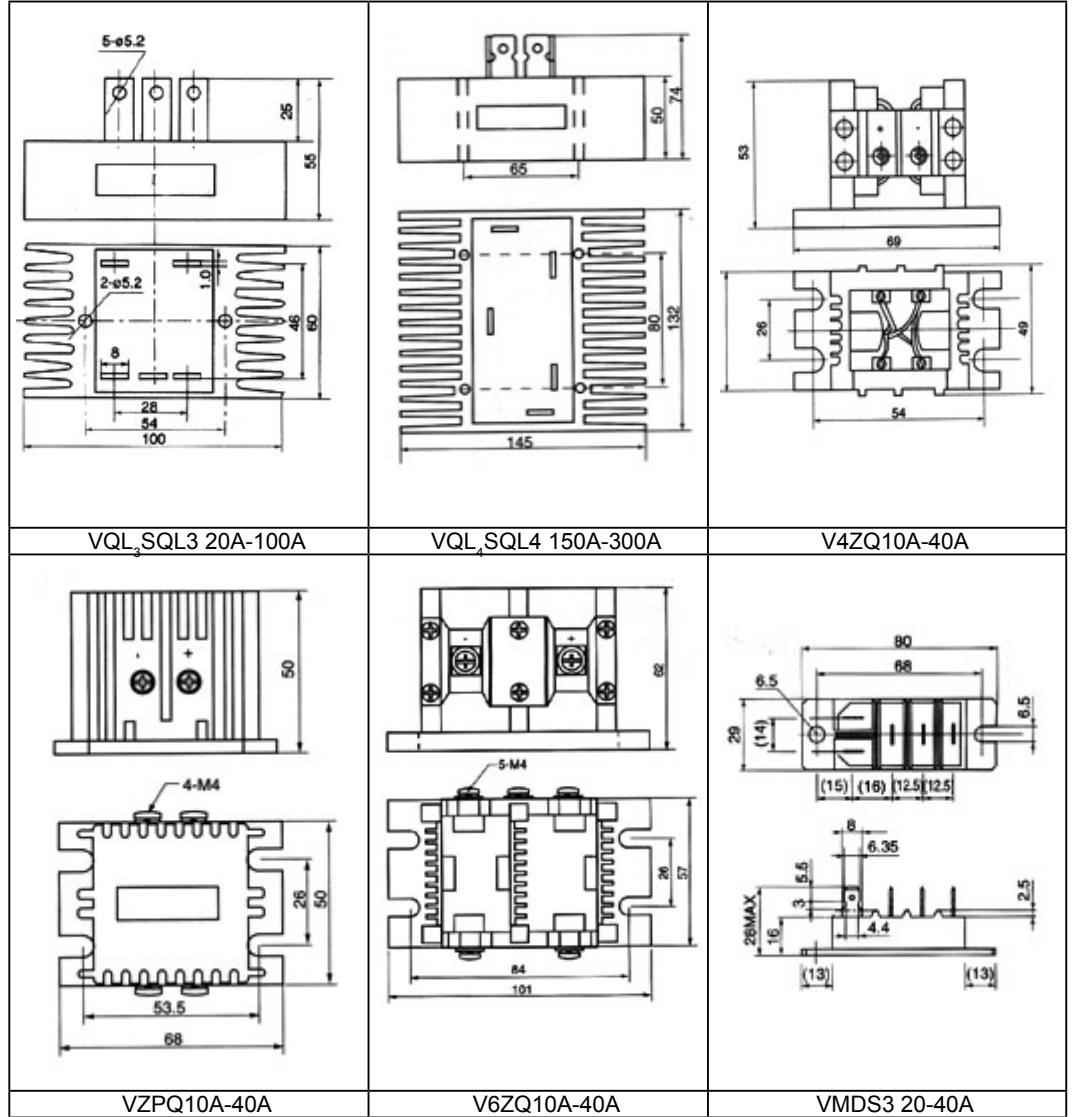
V4ZQ 10-40A



V6ZQ 10-40A



VZPQ10-40A



VSS / VSF series heatsinks:

- VSS11,SS12,ss11BL,SS12BL heatsinks
- VSS15.ss15BL heatsinks
- VSF14 SF15 SF16 SF17 heatsinks



SS series heatsinks

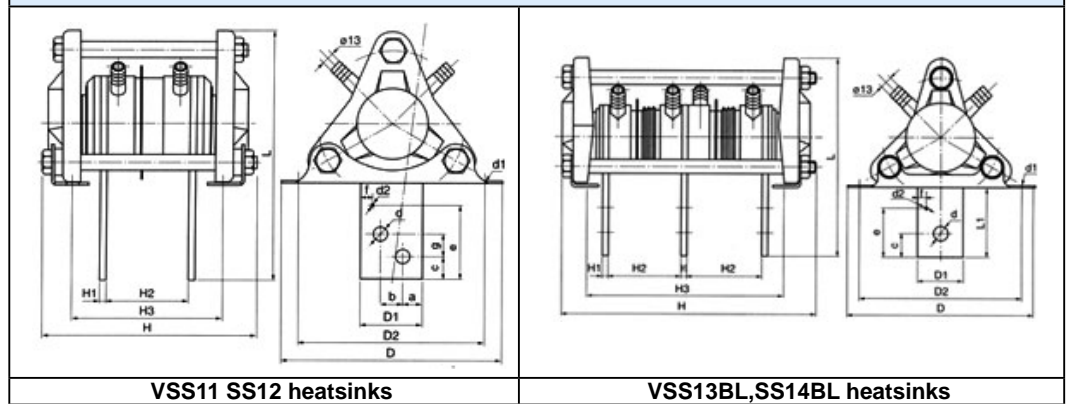


SF series heatsinks

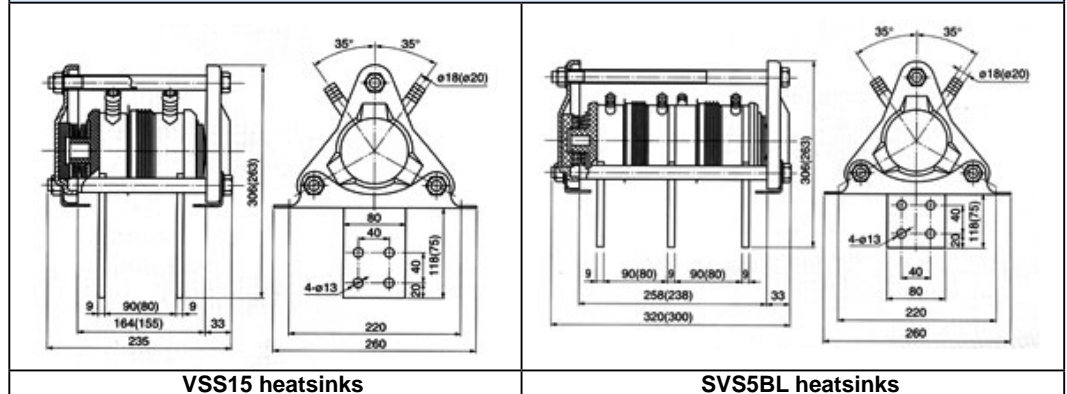
SS11 SS12 SS11BL SS12BL heatsinks

Model	Outline dimension			size of electric line			Installation dimension											
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	d2	b	c	e	f	g	a
VSS11	140	135	145.5	53	4	30	112	64	105	2-Ø9	9X14	M3	/	20	35	6	/	45
VSS12	190	160	152	78	5	40	140	64	105	2-Ø13	11X14	M3	/	20	60	8	/	45
VSS11BL	140	135	215	53	4	30	112	64	147	3-Ø9	9X14	M3	/	20	35	6	/	
VSS12BL	190	160	220	78	5	40	140	64	172	3-Ø13	11X14	M3	/	20	65	8	/	
VSS13	190	160	152	78	6	50	140	64	105	4-Ø13	11X13	M3	20	15	60	8	20	45
VSS14	220	195	188	85	6	55	165	74	130	4-Ø13	11X13	M3	20	20	65	10	20	45
VSS13BL	190	160	220	78	6	50	140	64	172	4-Ø13	11X13	M3	20	15	60	8	20	
VSS14BL	220	195	268	85	6	55	165	74	210	4-Ø13	11X13	M3	20	20	65	10	20	

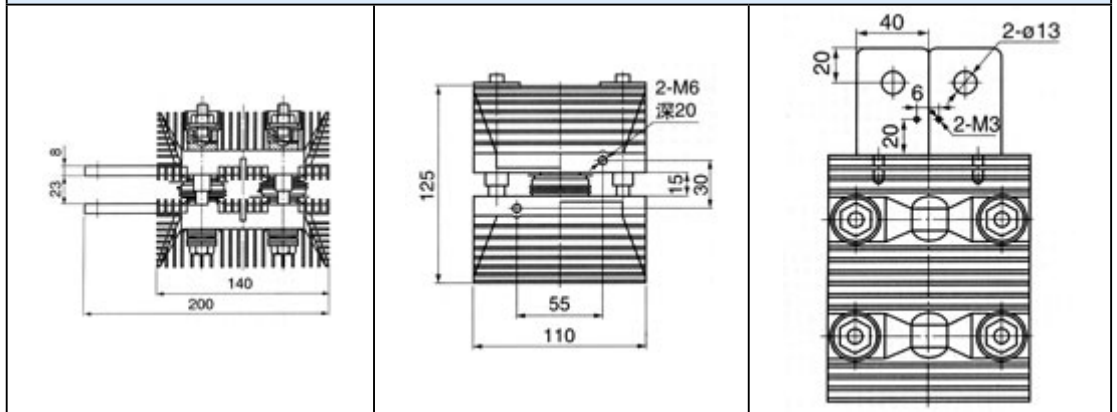
Outline Dimension:



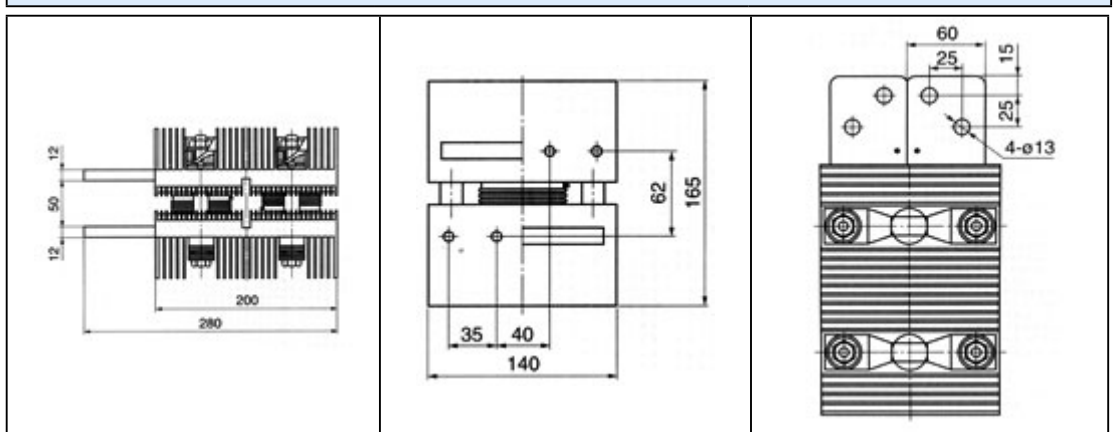
VSS15 SS15BL heatsinks



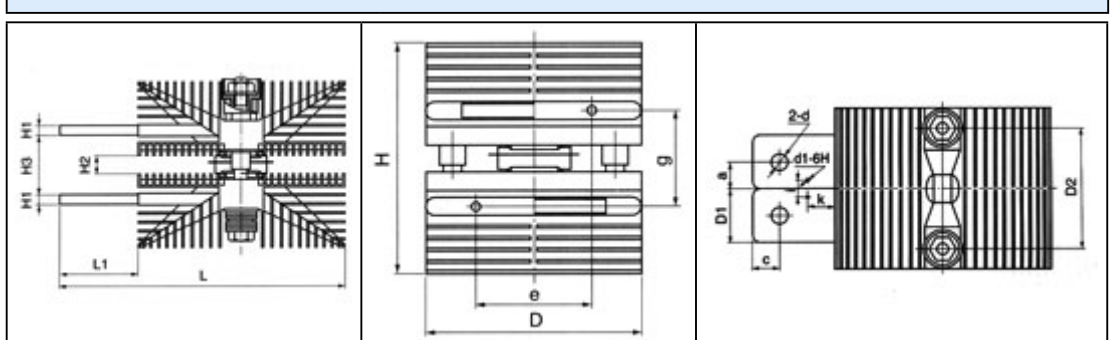
VSF12BL heatsinks



VSF15BL heatsinks

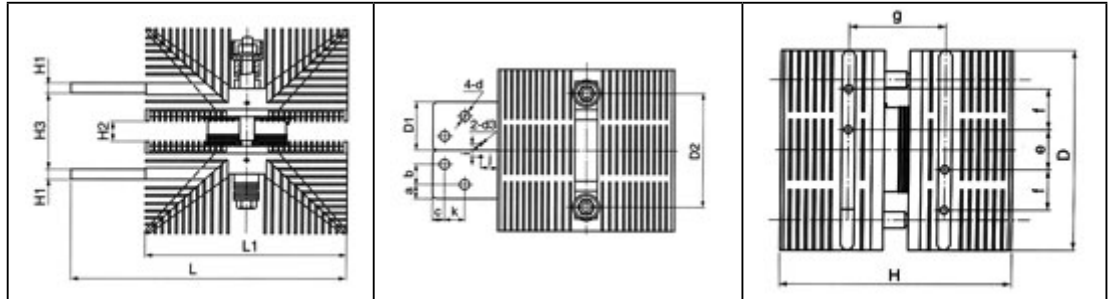


VSF15CL heatsinks



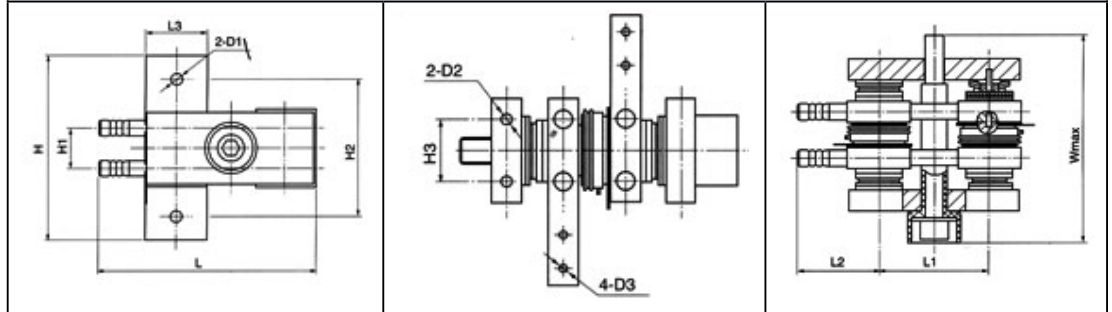
Model	Outline dimension			size of electric line			Installation dimension										
	L	D	H	L1	H1	D1	D2	H2	H3	d	d1	a	c	e	g	i	k
VSF12	200	110	125	60	40	8	80	15	22	Ø13	M3	20	20	55	30	6	20
VSF13	200	120	130	60	40	8	90	15	45	Ø13	M3	20	20	64	53	6	20

VSF14,VSF15, VSF16, VSF17 heatsinks



Model	Outline dimension			size of electric line			Installation dimension													
	L	D	H	L1	D1	H1	D2	H2	H3	d	d1	a	b	c	e	f	g	i	j	2k
VSF14	250	140	145	80	50	10	105	15	45	Ø11	M6	12.5	25	12.5	40	35	55	8	20	25
VSF15	280	140	165	80	60	12	105	15	50	Ø11	M6	17.5	25	15	40	35	62	8	20	25
VSF16	280	180	200	80	60	12	130	15	66	Ø13	M6	17.5	25	15	30	40	78	8	20	25
VSF17	300	200	215	80	60	12	130	15	73	Ø13	M6	17.5	25	15	40	40	85	8	20	25
VSF17A	300	200	224	80	60	12			82	Ø13	M6	17.5	25	15	40	40	94	8	20	25

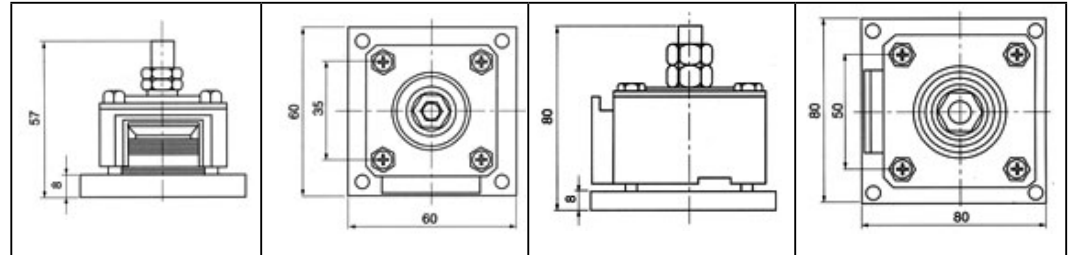
VDSS type water cooling heatsink



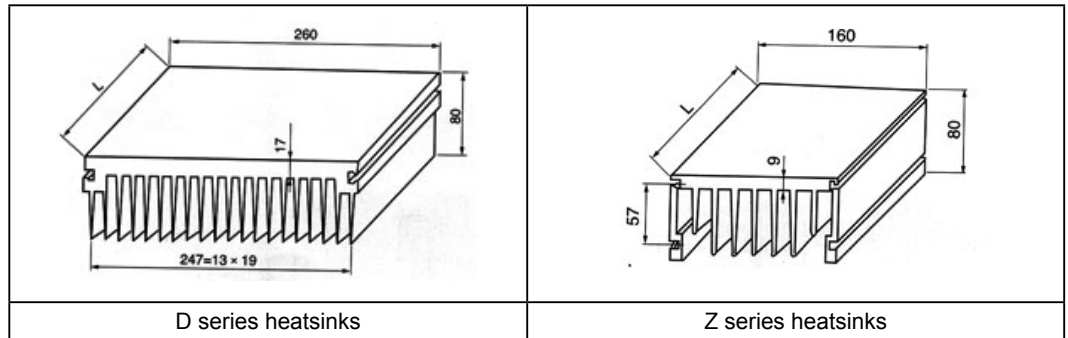
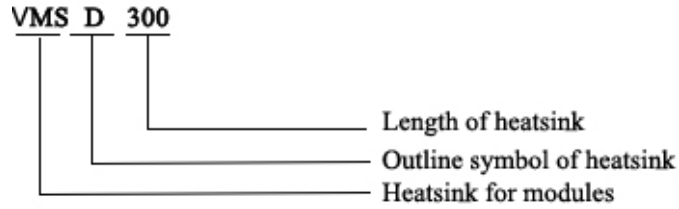
Model	Outline dimension						Installation dimension					
	L	L1	L2	L3	H	H1	H2	H3	D1	D2	D3	Wmax
VDSS3	140	70	50	40	118	25	88	25	Ø8.2	M5X7	M3X6	135
VDSS5	170	88	57	50	130	30	100	30	Ø11	M6X15	M3X6	155
VDSS6	148	93	59.5	55	151	35	121	35	Ø11	M6X15	M3X6	155
VDSS8	202	100	62	60	190	50	160	50	Ø11	M6X10	M3X6	160

Technical parameter:

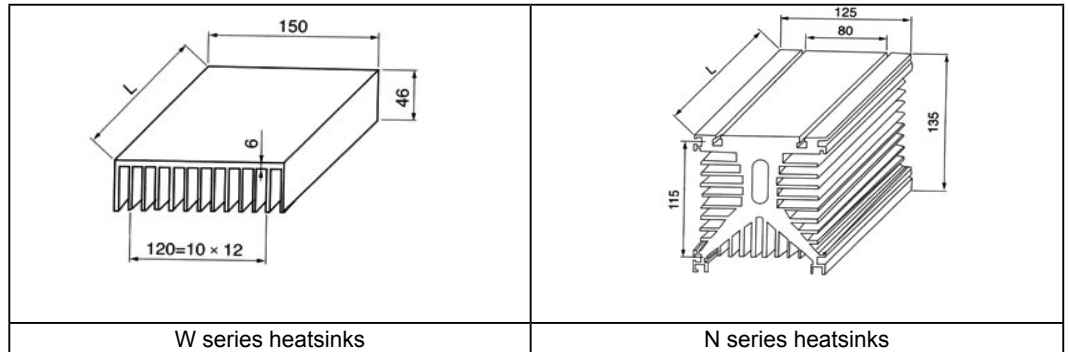
Type	Number of devices	Outlines of devices	Rth (c-p) (°C/w)	Rth (p-hs) (°C/w)
VMP25-200	1	KT19aT KT25aT	0.095	0.012
VMP33-500	1	KT33CT	0.090	0.010



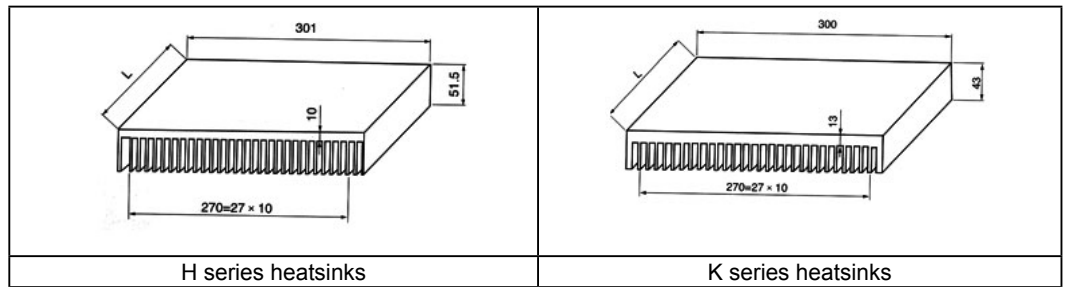
Modules Heatsink Type code



Section area(cm ²)	Circumference (mm)	Weight (kg/m)	Section area(cm ²)	Circumference (mm)	Weight (kg/m)
93.3	2540	25.2	44.45	1652	12

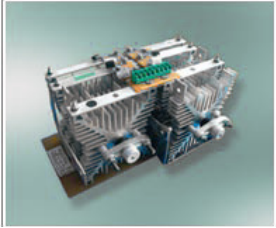


Section area(cm ²)	Circumference (mm)	Weight (kg/m)	Section area(cm ²)	Circumference (mm)	Weight (kg/m)
29.3	1924	7.95	77.78	2302	21



Section area(cm ²)	Circumference (mm)	Weight (kg/m)	Section area(cm ²)	Circumference (mm)	Weight (kg/m)
59.3	3060	16	66.7	1205	18.8

Single phase, three phase fully controlled bridge, rectifying bridge, half controlled bridge, half phase half wave air cooling components



300A-500A

Application:

It can rectify AC to adjustable DC, and applied in the adjustment and excitation of electric machine, voltage regulating source, DC stationary power supply, electroanalysis, electroplating, electric welding machines etc

Technical parameters:

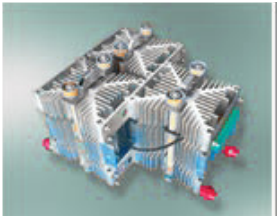
type	Item	DC (A)	DC	Peak voltage	LXWXH	LXWXH	Temporary loadrate	Quantity of heat sink	Drawing No.
		A	V	V	(mm)	(mm)			
VTS1250	fully	1250	300-1200	≤1.8	490X280X235	330X280X426	60%	9	Fig1, Fig2
VFS1250	half	1250	300-1200	≤1.8	490X280X235	330X280X426		9	Fig1, Fig2
VTS1000	fully	1000	300-1200	≤1.8	490X225X235	330X225X426	60%	9	Fig1, Fig2
VFS1000	half	1000	300-1200	≤1.8	490X225X235	330X225X426		9	Fig1, Fig2
VTS630	fully	630	300-1200	≤1.8	490X190X235	330X190X426	60%	9	Fig1, Fig2
VFS630	half	630	300-1200	≤1.8	490X190X235	330X190X426		9	Fig1, Fig2
VTS500	fully	500	300-1200	≤1.8	490X180X235	330X180X426	60%	9	Fig1, Fig2
VFS500	half	500	300-1200	≤1.8	490X180X235	330X180X426		9	Fig1, Fig2
VTS500	fully	500	300-1200	≤1.8	327X214X203			7	

Note:

fully: three phase fully controlled bridge half: three phase half controlled bridge



400-630A



1250A

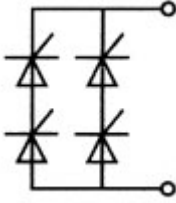
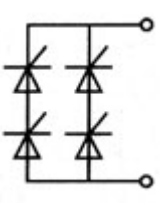
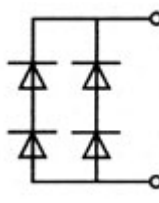
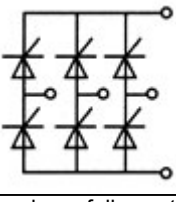
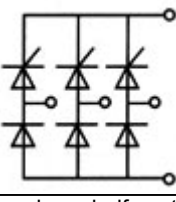
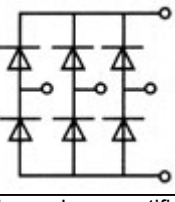
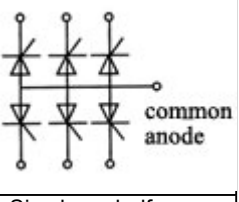
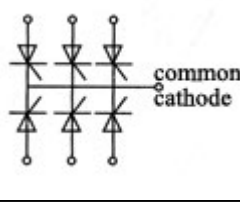
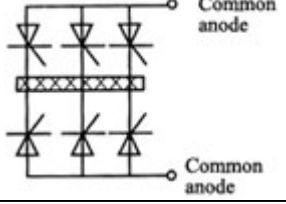
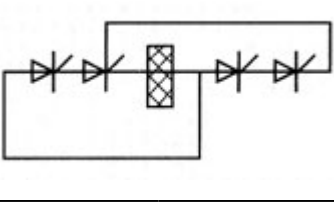


600-630A

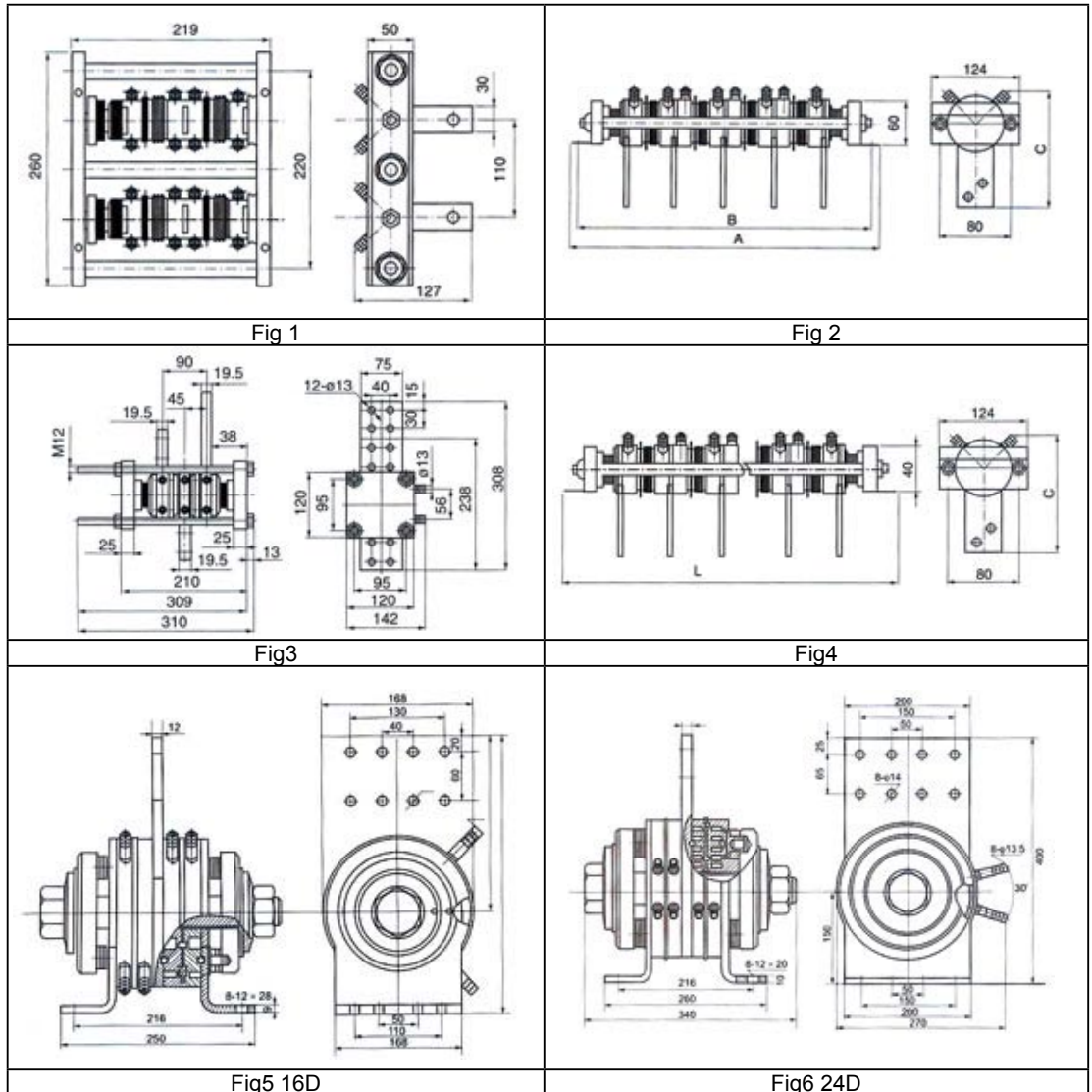
type	I _o	V _o	V _{TM} V _{PM} V	LXWXH	LXWXH	Quantity of heat sink	Drawing No.
		A	V	(mm)	(mm)		
VTGG630	630	300-1200	≤1.8	484X190X235	380X126X235	12	Fig3, Fig4,
VTGG800	800	300-1200	≤1.8	494X205X235	480X126X486	12	
VTGG1000	1000	300-1200	≤1.8	494X205X235	480X126X486	12	
VTGG1250	1250	300-1200	≤1.8	494X245X235	480X136X486	12	
VTM800	800	300-1200	≤1.8	455X190X215		9	
VDM800	800	300-1200	≤1.8	455X190X215		9	Fig5
VTM1000	1000	300-1200	≤1.8	455X190X235		9	
VDM1000	1000	300-1200	≤1.8	455X190X235		9	
VTM1250	1250	300-1200	≤1.8	494X225X235		9	
VDM1250	1250	300-1200	≤1.8	494X225X235		9	
VTM1500	1500	300-1200	≤1.8	494X280X235		9	
VDM1500	1500	300-1200	≤1.8	494X280X235		9	
VTM1250	1250	300-1200	≤1.8	465X180X1275		12	

Single phase, three phase fully controlled bridge, rectifying bridge, half controlled bridge, half phase half wave air cooling components

forms of electrical connection

			
Single phase fully controlled bridge (VTQ)	Single phase half controlled bridge (VFQ)	Single phase half controlled bridge (VTQ)	
			
Three phase fully controlled bridge (VTS)	Three phase half controlled bridge (VFS)	Three phase rectifier (VDS)	Six phase half wave (common anode)
			
Six phase half wave (common cathode)	Two groups three phase half wave (VTGG)	Single phase fully controlled bridge (VTQ)	

Single phase, three phase fully controlled bridge, rectifying bridge, half controlled bridge, half phase half wave air cooling components



VZP Extra High Current Rectifier Components



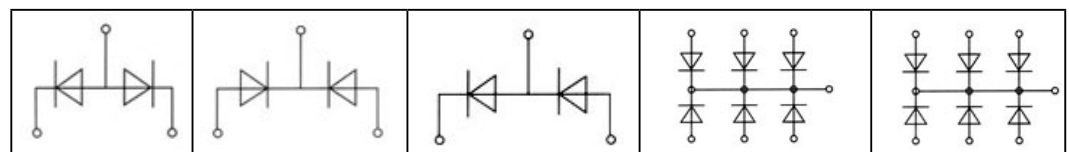
Application:

It is applied in various rectifying supply units with large capacity, e.g. secondary rectifying electric welding machine, the rectifying device of graphite gasifier in carbon industry, the rectifying device for DC steel-making metallurgy and the rectifying device for electroanalysis, electroplating.

Technical parameter:

type	$I_{F(AV)}$	I_F	V_F	I_V	I_V	V_{RRM}	I_{RRM}	Q	WXDXH	
	KA	KA	V	KA	KA	V	mA	L/min	mm	
6D	5.0	6	1.0-1.3	7.2	9	300-1200	≤60	≥8	270X150X260	fig 10
8D	6.5	8	1.0-1.3	9.6	12	300-1200	≤80	≥8	250X144X310	fig 1
12D	10	12	1.0-1.3	14.4	18	300-1200	≤120	≥10	250X190X325	fig 2
16D	13	16	1.0-1.3	19.2	24	300-1200	≤160	≥12	250X185X345	fig 3
24D	20	24	1.0-1.3	28.8	36	300-1200	≤240	≥20	340X270X400	fig 4
36D	30	36	1.0-1.3	43.2	54	300-1200	≤320	≥25	420X270X490	
12DX3	10X3	12X3	1.0-1.3	14.4X3	18X3	300-1200	≤120X3	≥10X3	635X264X250	fig 5
16DX3	13X3	16X3	1.0-1.3	19.2X3	24X3	300-1200	≤160X3	≥12X3	608X264X255	fig 6
24DX3	20X3	24X3	1.0-1.3	28.8X3	36X3	300-1200	≤240X3	≥20X3	744X370X340	fig 7
36DX3	30X3	36X3	1.0-1.3	43.2X3	54X3	300-1200	≤320X3	≥25X3	920X280X327	fig 8
16D	13	16	1.0-1.3	19.2	24	300-1200	≤60	≥10	142X73X133	fig 9

connection		DC output current I_{dn} (KA)									
Description		UZP									
		6D	8D	12D	16D	24D	36D	12DX3	16DX3	24DX3	36DX3
Single phase half wave fig1	180°	5	7	10	13	20	30				
Single phase half wave fig2	180°	5	7	10	13	20	30				
Single phase bridge fig3	180°	5	7	10	13	20	30				
Single phase bridge fig4	120°	7	9	14	19	28	42				
Sixphaes with midhine Fig4, Fig5	60°	11	15	23	29	44	66	23X3	29X3	44X3	66X3
double-star with balanced reactor Fig 4, Fig5	120°	14	18	28	37	56	83	28X3	37X3	56X3	83X3



VZP Extra High Current Rectifier Components

