

Thyristor Module

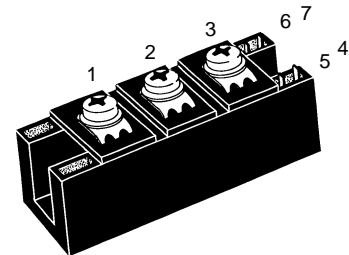
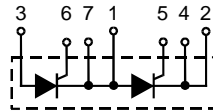
Preliminary data

$$I_{TRMS} = 2 \times 300 \text{ A}$$

$$I_{TAVM} = 2 \times 128 \text{ A}$$

$$V_{RRM, DRM} = 800-1800 \text{ V}$$

V_{RSM}	V_{RRM}	Type
V_{DSM}	V_{DRM}	
V	V	
900	800	MCC 122-08io1
1300	1200	MCC 122-12io1
1500	1400	MCC 122-14io1
1700	1600	MCC 122-16io1
1900	1800	MCC 122-18io1



Symbol	Conditions	Maximum Ratings	
I_{TRMS}	$T_C = 85^\circ\text{C}; 180^\circ \text{ sine}$	300	A
I_{TAVM}		128	A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$	$t = 10 \text{ ms (50 Hz), sine}$	3600 A
	$V_R = 0$	$t = 8.3 \text{ ms (60 Hz), sine}$	3850 A
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms (50 Hz), sine}$	3200 A
	$V_R = 0$	$t = 8.3 \text{ ms (60 Hz), sine}$	3420 A
I^2dt	$T_{VJ} = 45^\circ\text{C}$	$t = 10 \text{ ms (50 Hz), sine}$	64800 A ² s
	$V_R = 0$	$t = 8.3 \text{ ms (60 Hz), sine}$	62300 A ² s
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms (50 Hz), sine}$	51200 A ² s
	$V_R = 0$	$t = 8.3 \text{ ms (60 Hz), sine}$	49100 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $f = 50\text{Hz}, t_p = 200\mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.5 \text{ A}$ $di_G/dt = 0.5 \text{ A}/\mu\text{s}$	repetitive, $I_T = 500 \text{ A}$	150 A/ μs
		non repetitive, $I_T = 500 \text{ A}$	500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM};$ $R_{GK} = \infty;$ method 1 (linear voltage rise)	$V_{DR} = \frac{2}{3} V_{DRM}$	1000 V/ μs
P_{GM}	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	$t_p = 30 \mu\text{s}$	120 W
		$t_p = 500 \mu\text{s}$	60 W
P_{GAV}			8 W
V_{RGM}			10 V
T_{VJ}		-40...+125	$^\circ\text{C}$
T_{VJM}		125	$^\circ\text{C}$
T_{stg}		-40...+125	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$	3000 V~
		$t = 1 \text{ s}$	3600 V~
M_d	Mounting torque (M6)	2.25-2.75/20-25	Nm/lb.in.
	Terminal connection torque (M6)	4.5-5.5/40-48	Nm/lb.in.
Weight	Typical including screws	125	g

Features

- International standard package
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873
- Keyed gate/cathode twin pins

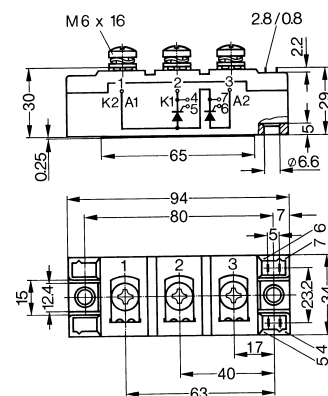
Applications

- Motor control
- Power converter
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Contactless switches

Advantages

- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.

Symbol	Conditions	Characteristic Values	
I_{RRM}, I_{DRM}	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	10	mA
V_T, V_F	$I_T, I_F = 120 \text{ A}; T_{VJ} = 25^\circ\text{C}$	1.13	V
V_{T0}	$T_{VJ} = 125^\circ\text{C};$ For power-loss calculations only	0.85	V
r_T	$T_{VJ} = T_{VJM}$	2	m Ω
V_{GT}	$V_D = 6 \text{ V};$	$T_{VJ} = 25^\circ\text{C}$	1.4 V
		$T_{VJ} = -40^\circ\text{C}$	1.6 V
I_{GT}	$V_D = 6 \text{ V};$	$T_{VJ} = 25^\circ\text{C}$	150 mA
		$T_{VJ} = -40^\circ\text{C}$	200 mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = \frac{2}{3} V_{DRM}$	0.2	V
I_{GD}		10	mA
I_L	$T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}, V_D = 6 \text{ V}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	300	mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	200	mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	2	μs
t_q	$T_{VJ} = T_{VJM}; I_T = 120 \text{ A}, t_p = 200 \mu\text{s}; -di/dt = 10 \text{ A}/\mu\text{s typ.}$ $V_R = 100 \text{ V}; dv/dt = 20 \text{ V}/\mu\text{s}; V_D = \frac{2}{3} V_{DRM}$	150	μs
Q_S	$T_{VJ} = T_{VJM}; I_T, I_F = 200 \text{ A}, -di/dt = 50 \text{ A}/\mu\text{s}$	330	μC
I_{RM}		180	A
R_{thJC}	per thyristor/diode; DC current per module	0.2	K/W
		0.1	K/W
R_{thCH}	per thyristor/diode; DC current	typ. 0.1	K/W
d_s	Creepage distance on surface	12.7	mm
d_A	Strike distance through air	9.6	mm
a	Maximum allowable acceleration	50	m/s ²

Optional accessories for modules

Keyed gate/cathode twin plugs with wire length = 350 mm, gate = yellow, cathode = red

Type **ZY 180L** (L = Left for pin pair 4/5) } UL Styles 1385,

Type **ZY 180R** (R = right for pin pair 6/7) } CSA Class 5851, File 41234