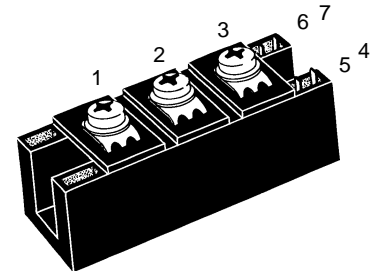
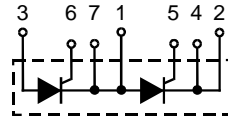


# Thyristor Module

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	
$I_{TRMS}$		300	A
$I_{TAVM}$	$T_C = 85^\circ\text{C}$ ; 180° sine	128	A
$I_{TSM}$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine	3600 3850 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine	3200 3420 A
$I^2dt$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine	64800 62300 $A^2s$
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine	51200 49100 $A^2s$
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $f = 50\text{Hz}$ , $t_p = 200\mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.5 \text{ A}$ $di_G/dt = 0.5 \text{ A}/\mu\text{s}$	repetitive, $I_T = 500 \text{ A}$	150 $A/\mu\text{s}$
		non repetitive, $I_T = 500 \text{ A}$	500 $A/\mu\text{s}$
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$ ; $R_{GK} = \infty$ ; method 1 (linear voltage rise)	$V_{DR} = \frac{2}{3} V_{DRM}$	1000 $V/\mu\text{s}$
$P_{GM}$	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	$t_p = 30 \mu\text{s}$ $t_p = 500 \mu\text{s}$	120 60 W
			8 W
$P_{GAV}$			8 W
$V_{RGM}$			10 V
$T_{VJ}$			-40...+125 °C
$T_{VJM}$			125 °C
$T_{stg}$			-40...+125 °C
$V_{ISOL}$	50/60 Hz, RMS	$t = 1 \text{ min}$	3000 V~
	$I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ s}$	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**

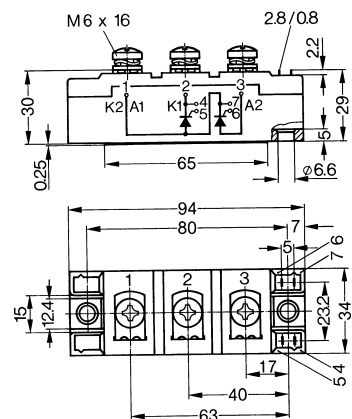
- International standard package
- Direct copper bonded  $\text{Al}_2\text{O}_3$ -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873
- Keyed gate/cathode twin pins

**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 $\Omega$
$V_{GT}$	$V_D = 6 \text{ V};$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	1.4 1.6	V V
$I_{GT}$	$V_D = 6 \text{ V};$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	150 200	mA 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	$\mu\text{s}$
$t_q$	$T_{VJ} = T_{VJM}; I_T = 120 \text{ A}, t_p = 200 \mu\text{s}; -di/dt = 10 \text{ A}/\mu\text{s typ.}$ $V_R = 100 \text{ V}; dv/dt = 20 \text{ V}/\mu\text{s}; V_D = \frac{2}{3} V_{DRM}$	150	$\mu\text{s}$
$Q_S$	$T_{VJ} = T_{VJM}; I_T, I_F = 200 \text{ A}, -di/dt = 50 \text{ A}/\mu\text{s}$	330	$\mu\text{C}$
$I_{RM}$		180	A
$R_{thJC}$	per thyristor/diode; DC current	0.2	K/W
	per module	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 <sup>2</sup>

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