

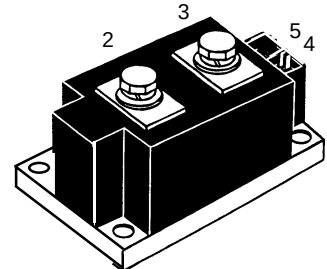
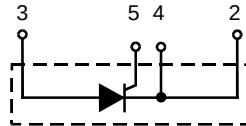
High Power Single Thyristor Module

$$I_{TRMS} = 750 \text{ A}$$

$$I_{TAV} = 464 \text{ A}$$

$$V_{RRM} = 2000\text{-}2200 \text{ V}$$

V_{RSM}	V_{RRM}	Type
V_{DSM}	V_{DRM}	
V	V	
2100	2000	MCO 450-20io1
2300	2200	MCO 450-22io1



Symbol	Test Conditions	Maximum Ratings
I_{TRMS}	$T_{VJ} = T_{VJM}$	750 A
I_{TAV}	$T_C = 85^\circ\text{C}; 180^\circ \text{ sine}$	464 A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$	
	$V_R = 0$	$t = 10 \text{ ms (50 Hz)}$
		$t = 8.3 \text{ ms (60 Hz)}$
I^2t	$T_{VJ} = 45^\circ\text{C}$	
	$V_R = 0$	$t = 10 \text{ ms (50 Hz)}$
		$t = 8.3 \text{ ms (60 Hz)}$
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$	
	$f = 50 \text{ Hz}, t_p = 200 \mu\text{s}$	
	$V_D = 2/3 V_{DRM}$	
	$I_G = 1 \text{ A},$ non repetitive, $I_T = I_{TAVM}$	
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}; V_{DR} = 2/3 V_{DRM}$	
	$R_{GK} = \infty;$ method 1 (linear voltage rise)	
P_{GM}	$T_{VJ} = T_{VJM}$	
	$I_T = I_{TAVM}$	
P_{GAV}		
V_{RGM}		
T_{VJ}		
T_{VJM}		
T_{stg}		
V_{ISOL}	50/60 Hz, RMS	
	$t = 1 \text{ min}$	
	$I_{ISOL} \leq 1 \text{ mA}$	
	$t = 1 \text{ s}$	
M_d	Mounting torque (M6)	
	Terminal connection torque (M8)	
Weight		

Features

- Direct copper bonded Al_2O_3 -ceramic with copper base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL applied
- Keyed gate/cathode twin pins

Applications

- Motor control, soft starter
- Power converter
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Solid state switches

Advantages

- Improved temperature and power cycling
- Reduced protection circuits

Data according to IEC 60747 refer to a single thyristor/diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Graph showing the gate delay time t_{gd} (in μs) versus the load current I_G (in A) for $T_{Vj} = 25^\circ C$. The graph includes two curves: 'typ.' (typical) and 'Limit' (limit). The y-axis is logarithmic, ranging from 1 to 100 μs . The x-axis is logarithmic, ranging from 0.01 to 10 A.

The technical drawing shows two views of a mechanical part:

- Front View (Top):** Shows a rectangular block with two vertical mounting features. The left feature has an M8x20 screw and a SW13 hex key hole. The right feature has a 2.8x0.8 slot. Dimensions include a total height of 62, a base thickness of 49, a central width of 43, and a right-side width of 45.
- Top View (Bottom):** Shows the plan view of the component. It includes three circular holes labeled 1, 2, and 3. Hole 1 is at the far left, hole 2 is in the center, and hole 3 is towards the right. There are also four corner mounting holes. Dimensions include horizontal distances of 22.5, 35, and 28.5 between the centers of the holes, and a total length of 80. Vertical dimensions include 6.2 from the bottom edge to the center of hole 2, 4.5 and 6.7 for hole 3, and overall widths of 38 and 50 on the right side.

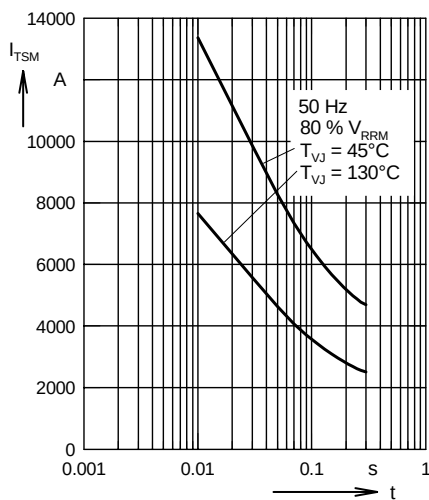


Fig. 3 Surge overload current
 I_{TSM} : Crest value, t : duration

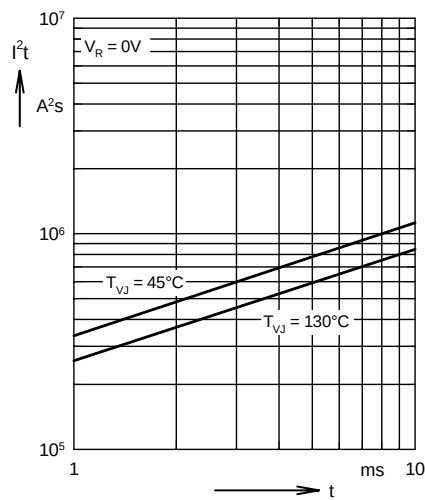


Fig. 4 I^2t versus time (1-10 ms)

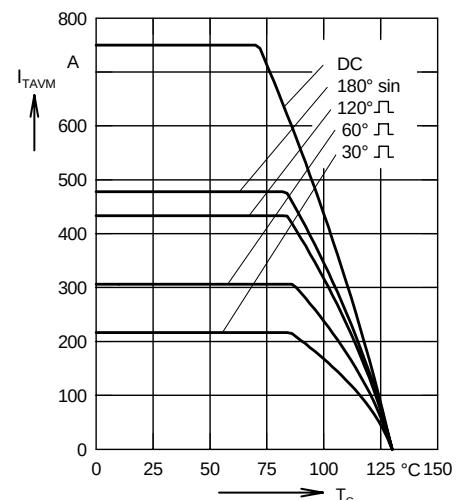


Fig. 5 Maximum forward current
at case temperature

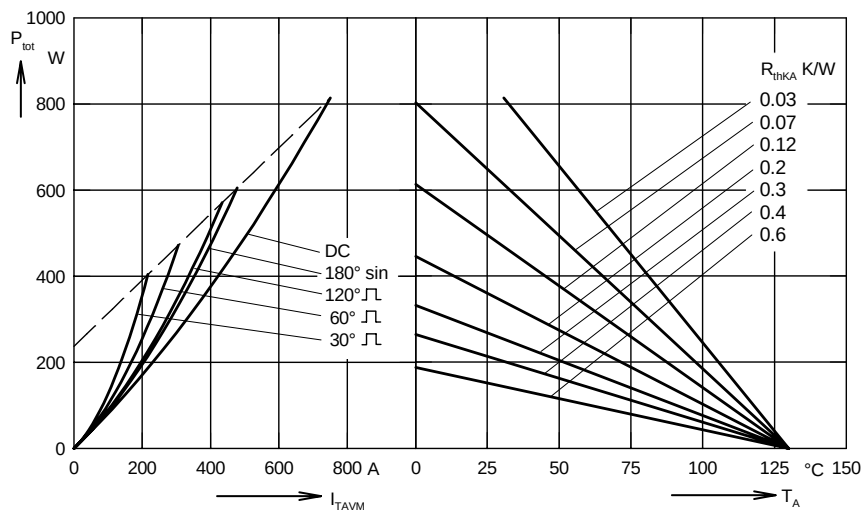


Fig. 6 Power dissipation versus on-state current and ambient temperature

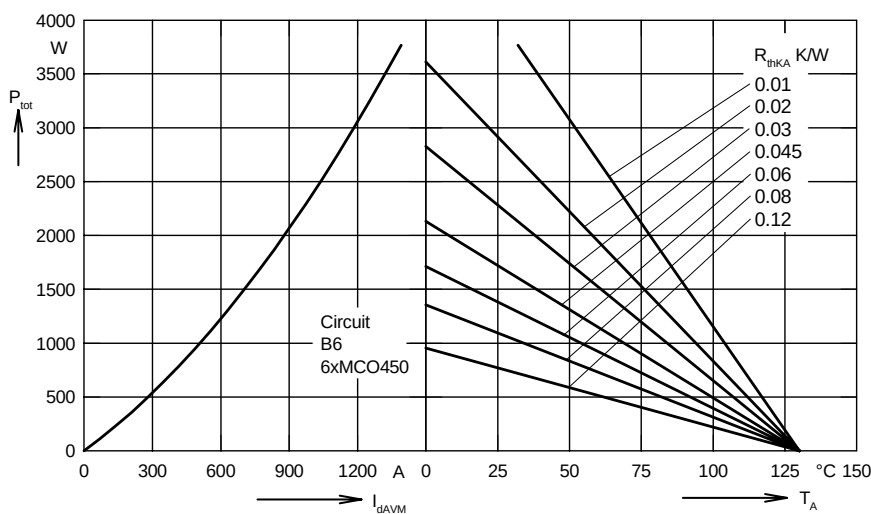


Fig. 7 Three phase rectifier bridge:
Power dissipation versus direct
output current and ambient
temperature

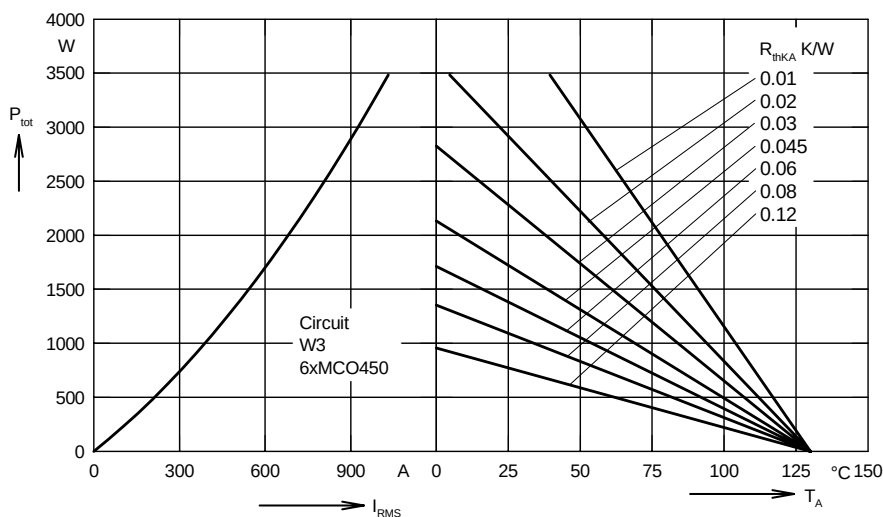


Fig. 8 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

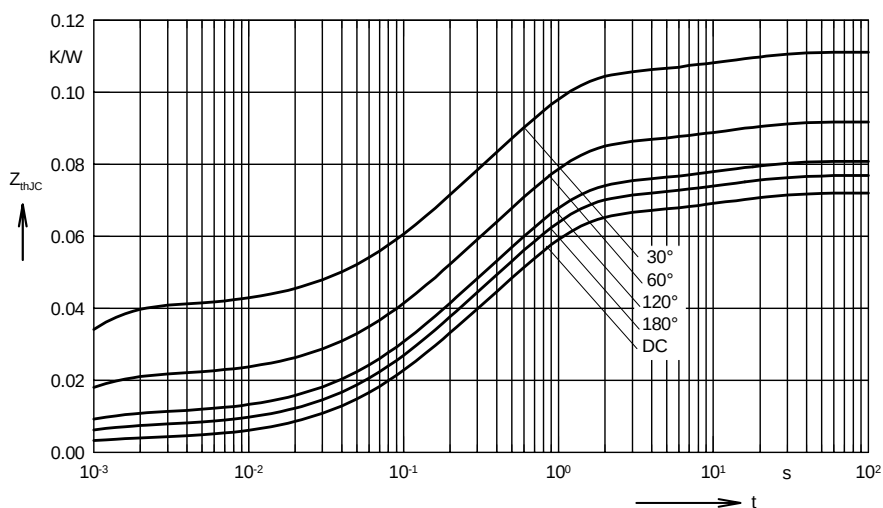


Fig. 9 Transient thermal impedance junction to case

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.072
180°	0.0768
120°	0.081
60°	0.092
30°	0.111

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12

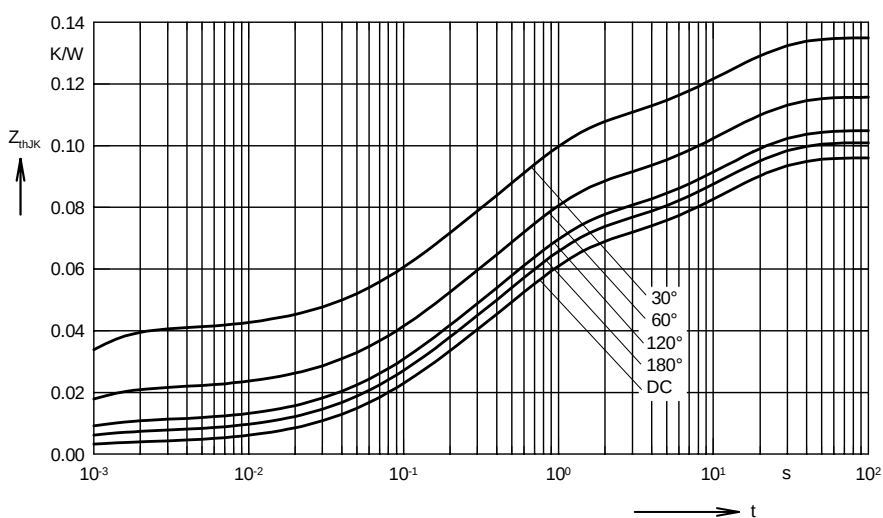


Fig.10 Transient thermal impedance junction to heatsink

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.096
180°	0.1
120°	0.105
60°	0.116
30°	0.135

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12
5	0.024	12