



MCC 95
MCD 95

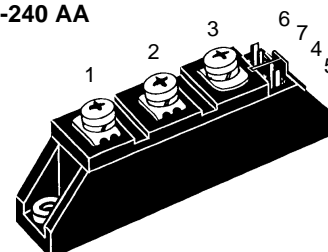
Thyristor Modules

Thyristor/Diode Modules

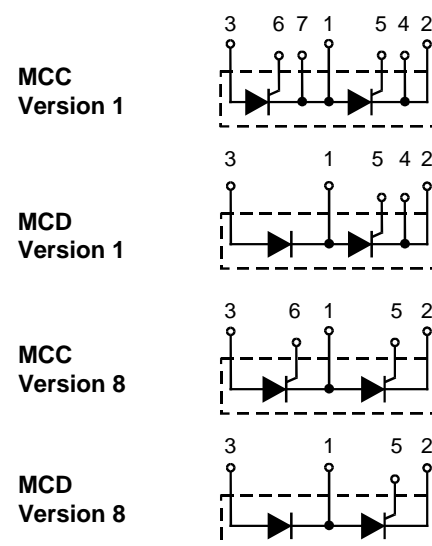
$I_{TRMS} = 2x 180 A$
 $I_{TAVM} = 2x 116 A$
 $V_{RRM} = 800-1800 V$

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type		Version 1		Version 8	
900	800	MCC 95-08io1 B	--	MCC 95-08io8 B	MCD 95-08io8 B		
1300	1200	MCC 95-12io1 B	MCD 95-12io1 B	MCC 95-12io8 B	MCD 95-12io8 B		
1500	1400	MCC 95-14io1 B	--	MCC 95-14io8 B	MCD 95-14io8 B		
1700	1600	MCC 95-16io1 B	MCD 95-16io1 B	MCC 95-16io8 B	MCD 95-16io8 B		
1900	1800	MCC 95-18io1 B	--	MCC 95-18io8 B	MCD 95-18io8 B		
1500	1400	MCC 95-16io1					
1700	1600	MCC 95-18io1					

TO-240 AA



Symbol	Test Conditions	Maximum Ratings
I_{TRMS}^1, I_{FRMS} I_{TAVM}^2, I_{FAVM}	$T_{VJ} = T_{VJM}$ $T_C = 85^\circ C; 180^\circ$ sine	180 A 116 A
I_{TSM}^3, I_{FSM}	$T_{VJ} = 45^\circ C;$ $V_R = 0$ $T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine 2250 A 2400 A 2000 A 2150 A
$\int i^2 dt$	$T_{VJ} = 45^\circ C$ $V_R = 0$ $T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine 25 300 A ² s 23 900 A ² s 20 000 A ² s 19 100 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ f = 50 Hz, t _p = 200 μs $V_D = 2/3 V_{DRM}$ $I_G = 0.45 A$ di _G /dt = 0.45 A/μs	repetitive, I _T = 250 A non repetitive, I _T = I _{TAVM} 150 A/μs 500 A/μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}^1;$ $R_{GK} = \infty;$ method 1 (linear voltage rise)	1000 V/μs
P_{GM}	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	t _p = 30 μs t _p = 300 μs 10 W 5 W
P_{GAV}		0.5 W
V_{RGM}		10 V
T_{VJ} T_{VJM} T_{stg}		-40...+125 °C 125 °C -40...+125 °C
V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq 1 mA$	t = 1 min t = 1 s 3000 V~ 3600 V~
M_d	Mounting torque (M5) Terminal connection torque (M5)	2.5-4.0/22-35 Nm/lb.in. 2.5-4.0/22-35 Nm/lb.in.
Weight	Typical including screws	90 g



Features

- International standard package, JEDEC TO-240 AA
- Direct copper bonded Al₂O₃ -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873
- Gate-cathode twin pins for version 1

Applications

- DC motor control
- Softstart AC motor controller
- Light, heat and temperature control

Advantages

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

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



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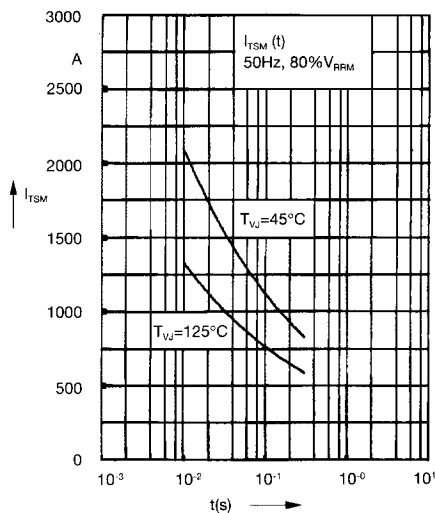


Fig. 3 Surge overload current
 I_{TSM} , I_{FSM} : Crest value, t: duration

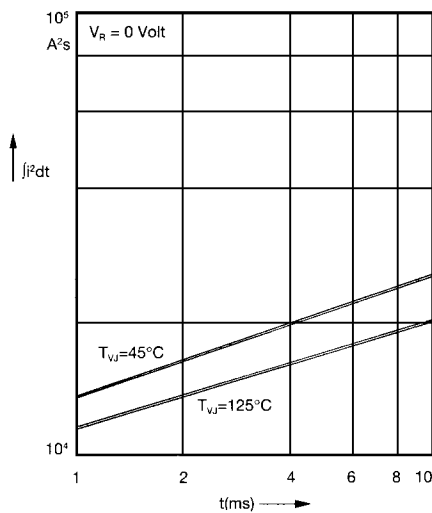


Fig. 4 $\int i^2 dt$ versus time (1-10 ms)

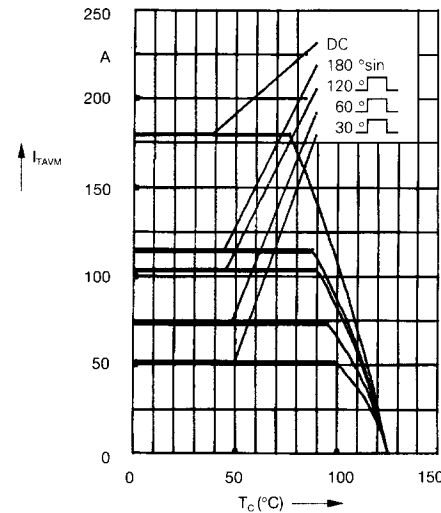


Fig. 4a Maximum forward current at case temperature

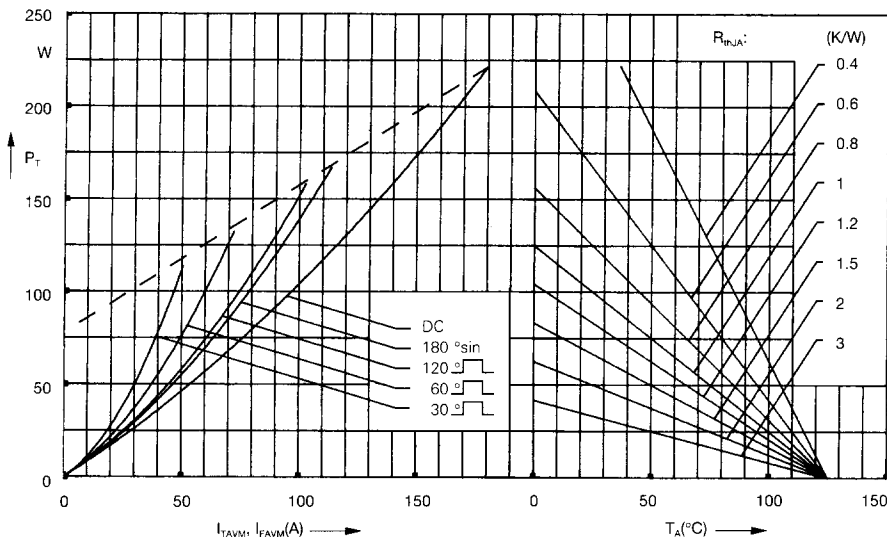


Fig. 5 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

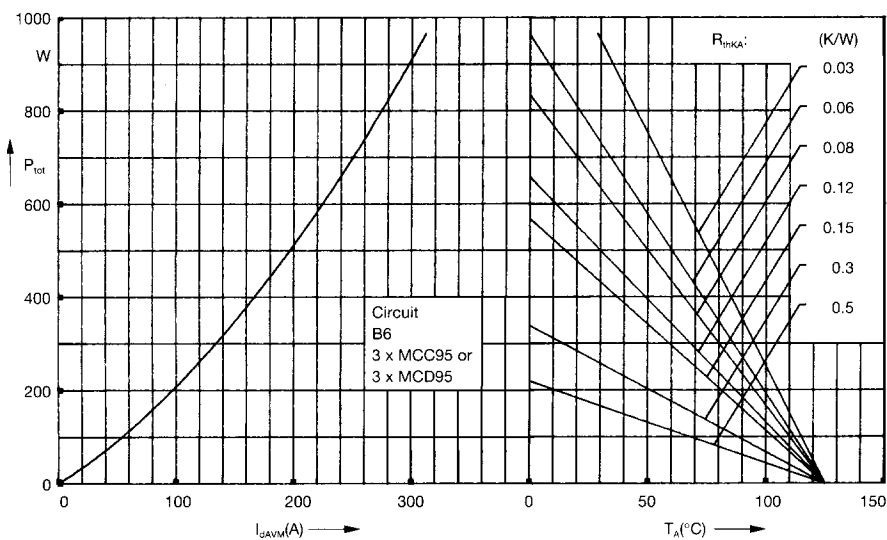


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature



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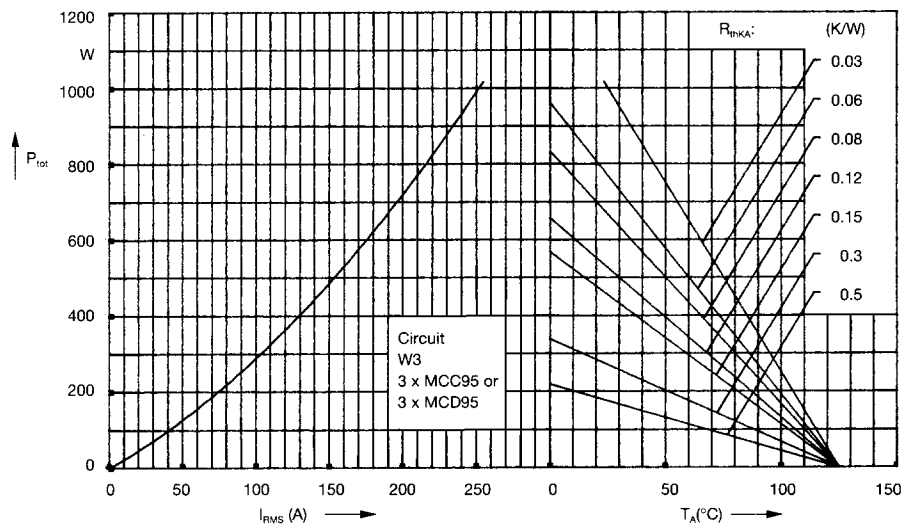


Fig. 7 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

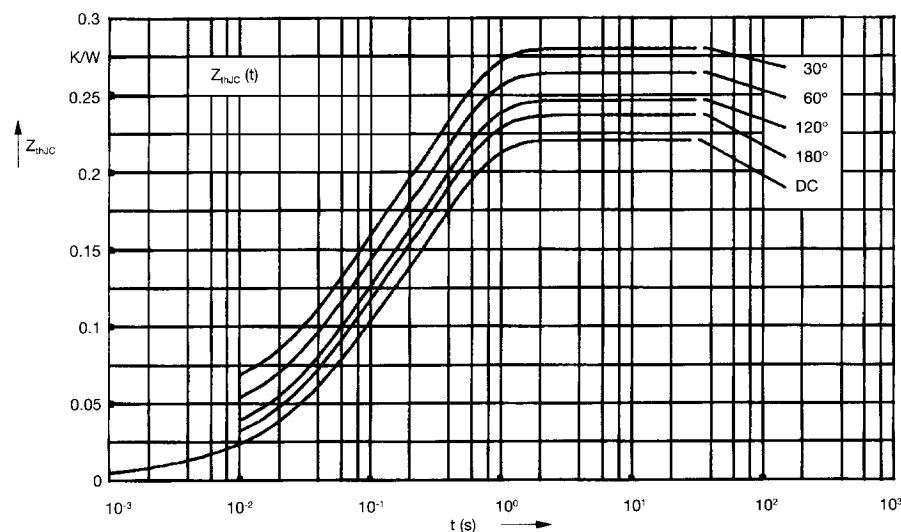


Fig. 8 Transient thermal impedance junction to case (per thyristor or diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.22
180°	0.23
120°	0.25
60°	0.27
30°	0.28

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0066	0.0019
2	0.0678	0.0477
3	0.1456	0.344

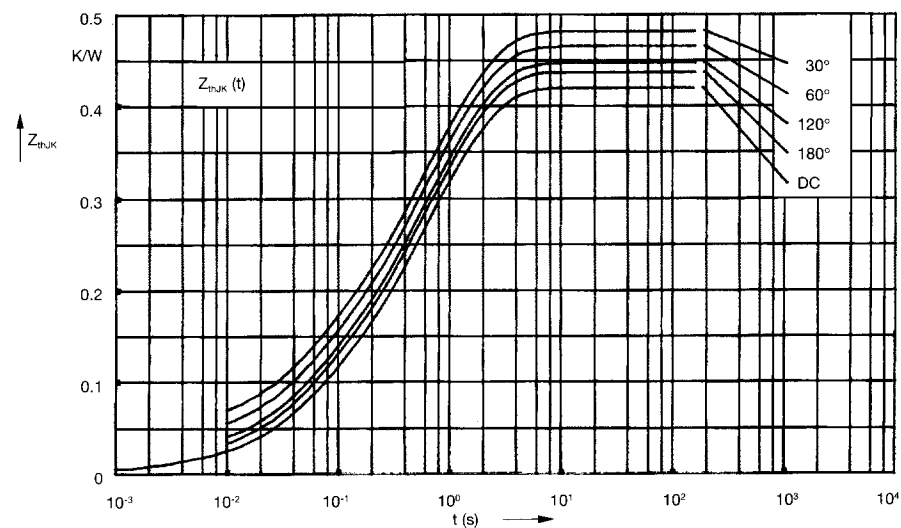


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor or diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.42
180°	0.43
120°	0.45
60°	0.47
30°	0.48

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0066	0.0019
2	0.0678	0.0477
3	0.1456	0.344
4	0.2	1.32