IXYS

MCC 21

Thyristor Modules

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
900	800	MCC 21-08io8 B
1300	1200	MCC 21-12io8 B
1500	1400	MCC 21-14io8 B
1700	1600	MCC 21-16io8 B

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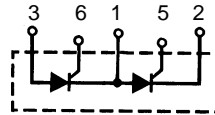
TO-240 AA
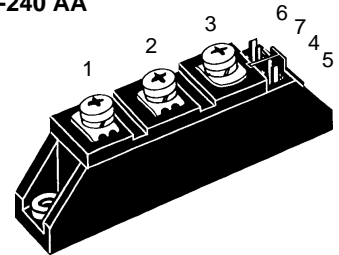
Symbol	Conditions		Maximum Ratings	
I_{TRMS}	$T_{VJ} = T_{VJM}$		33	A
I_{TAVM}	$T_C = 85°C$; 180° sine		21	A
I_{TSM}	$T_{VJ} = 45°C$; $V_R = 0$	t = 10 ms (50 Hz), sine	320	A
		t = 8.3 ms (60 Hz), sine	350	A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine	280	A
		t = 8.3 ms (60 Hz), sine	310	A
I^2dt	$T_{VJ} = 45°C$ $V_R = 0$	t = 10 ms (50 Hz), sine	500	A^2s
		t = 8.3 ms (60 Hz), sine	520	A^2s
	$T_{VJ} = T_{VJM}$ $V_R = 0$	t = 10 ms (50 Hz), sine	390	A^2s
		t = 8.3 ms (60 Hz), sine	400	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ f = 50Hz, t_P = 200μs	repetitive, I_T = 45 A	150	A/μs
	$V_D = {}^2/_3\, V_{DRM}$ I_G = 0.45 A di_G/dt = 0.45 A/μs	non repetitive, $I_T = I_{TAVM}$	500	A/μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = {}^2/_3\, V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise)		1000	V/μs
P_{GM}	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	t_P = 30 μs	10	W
		t_P = 300 μs	5	W
P_{GAV}			0.5	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 min	3000	V~
	$I_{ISOL} \leq 1$ mA	t = 1 s	3600	V~
M_d	Mounting torque (M5)		2.5-4.0/22-35	Nm/lb.in.
	Terminal connection torque (M5)		2.5-4.0/22-35	Nm/lb.in.
Weight	Typical including screws		90	g

Data according to DIN/IEC 747 and refer to a single thyristor unless otherwise stated.

Features

- International standard package, JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873
- Gate-cathode twin pins for version 1B

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

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![IXYS logo]

Symbol	Conditions		Characteristic Values	
I_{RRM}, I_{DRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$		5	mA
V_T	$I_T = 45$ A; $T_{VJ} = 25°C$		1.6	V
V_{T0}	For power-loss calculations only ($T_{VJ} = 125°C$)		0.85	V
r_T			15	mΩ
V_{GT}	$V_D = 6$ V;	$T_{VJ} = 25°C$	1.0	V
		$T_{VJ} = -40°C$	1.2	V
I_{GT}	$V_D = 6$ V;	$T_{VJ} = 25°C$	65	mA
		$T_{VJ} = -40°C$	80	mA
V_{GD}	$T_{VJ} = T_{VJM}$;	$V_D = {}^2/_3\, V_{DRM}$	0.2	V
I_{GD}			5	mA
I_L	$T_{VJ} = 25°C$; $t_P = 10$ µs; $V_D = 6$ V $I_G = 0.3$ A; $di_G/dt = 0.3$ A/µs		150	mA
I_H	$T_{VJ} = 25°C$; $V_D = 6$ V; $R_{GK} = \infty$		100	mA
t_{gd}	$T_{VJ} = 25°C$; $V_D = ½\, V_{DRM}$ $I_G = 0.3$ A; $di_G/dt = 0.3$ A/µs		2	µs
t_q	$T_{VJ} = T_{VJM}$; $I_T = 15$ A, $t_P = 300$ µs; $-di/dt = 10$ A/µs typ. $V_R = 100$ V; $dv/dt = 20$ V/µs; $V_D = {}^2/_3\, V_{DRM}$		150	µs
I_{RM}	$T_{VJ} = T_{VJM}$; $I_T = 30$ A, $-di/dt = 0.3$ A/µs		4	A
R_{thJC}	per thyristor; DC current	} other values	1.1	K/W
	per module	see Fig. 8/9	0.55	K/W
R_{thJK}	per thyristor; DC current		1.3	K/W
	per module		0.65	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/s²

Optional accessories for module-type MCC 23 version 1 B
Keyed gate/cathode twin plugs with wire length = 350 mm, gate = yellow, cathode = red
Type **ZY 200L** (L = Left for pin pair 4/5) } UL 758, style 1385,
Type **ZY 200R** (R = right for pin pair 6/7) } CSA class 5851, guide 460-1-1
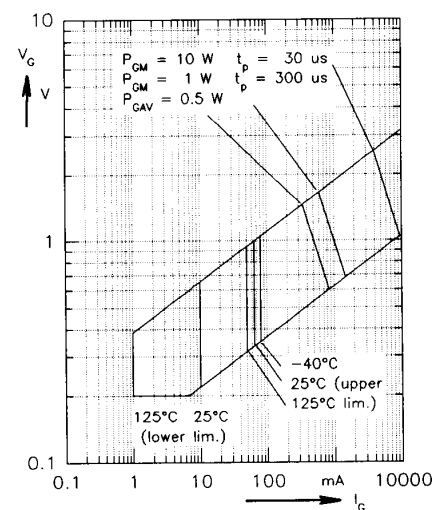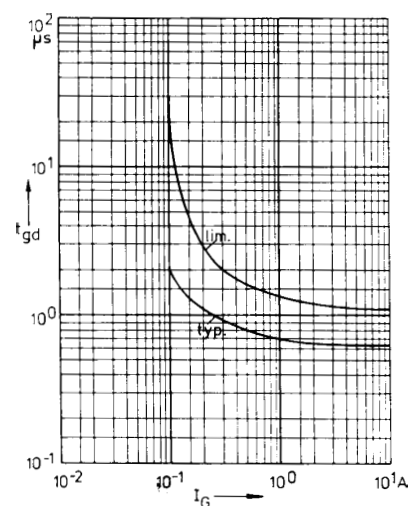

Fig. 1 Gate trigger characteristics

Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")