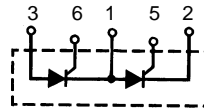
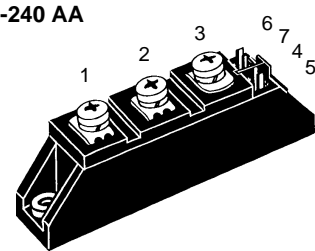


Thyristor Modules

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


TO-240 AA


Symbol	Conditions	Maximum Ratings
I_{TRMS}	$T_{VJ} = T_{VJM}$	33 A
I_{TAVM}	$T_C = 85^\circ\text{C}$; 180° sine	21 A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$	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	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$	t = 10 ms (50 Hz), sine: 500 A ² s t = 8.3 ms (60 Hz), sine: 520 A ² s
	$T_{VJ} = T_{VJM}$; $V_R = 0$	t = 10 ms (50 Hz), sine: 390 A ² s t = 8.3 ms (60 Hz), sine: 400 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; f = 50Hz, $t_p = 200\mu\text{s}$	repetitive, $I_T = 45\text{ A}$: 150 A/ μs
	$V_D = 2/3 V_{DRM}$; $I_G = 0.45\text{ A}$; $di_G/dt = 0.45\text{ A}/\mu\text{s}$	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}	$T_{VJ} = T_{VJM}$	$t_p = 30\ \mu\text{s}$: 10 W
	$I_T = I_{TAVM}$	$t_p = 300\ \mu\text{s}$: 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~
	$I_{ISOL} \leq 1\text{ mA}$	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

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 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

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

Symbol	Conditions	Characteristic Values
I_{RRM}, I_{DRM}	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	5 mA
V_T	$I_T = 45 A; T_{VJ} = 25^\circ C$	1.6 V
V_{T0}	For power-loss calculations only ($T_{VJ} = 125^\circ C$)	0.85 V
r_T		15 mΩ
V_{GT}	$V_D = 6 V; T_{VJ} = 25^\circ C$ $T_{VJ} = -40^\circ C$	1.0 V 1.2 V
I_{GT}	$V_D = 6 V; T_{VJ} = 25^\circ C$ $T_{VJ} = -40^\circ C$	65 mA 80 mA
V_{GD} I_{GD}	$T_{VJ} = T_{VJM}; V_D = \frac{2}{3} V_{DRM}$	0.2 V 5 mA
I_L	$T_{VJ} = 25^\circ C; t_p = 10 \mu s; V_D = 6 V$ $I_G = 0.3 A; di_G/dt = 0.3 A/\mu s$	150 mA
I_H	$T_{VJ} = 25^\circ C; V_D = 6 V; R_{GK} = \infty$	100 mA
t_{gd}	$T_{VJ} = 25^\circ C; V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.3 A; di_G/dt = 0.3 A/\mu s$	2 μs
t_q	$T_{VJ} = T_{VJM}; I_T = 15 A, t_p = 300 \mu s; -di/dt = 10 A/\mu s$ typ. $V_R = 100 V; dv/dt = 20 V/\mu s; V_D = \frac{2}{3} V_{DRM}$	150 μs
I_{RM}	$T_{VJ} = T_{VJM}; I_T = 30 A, -di/dt = 0.3 A/\mu s$	4 A
R_{thJC}	per thyristor; DC current	1.1 K/W
R_{thJK}	per thyristor; DC current	0.55 K/W
	per module	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/s ²

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

Dimensions in mm (1 mm = 0.0394")

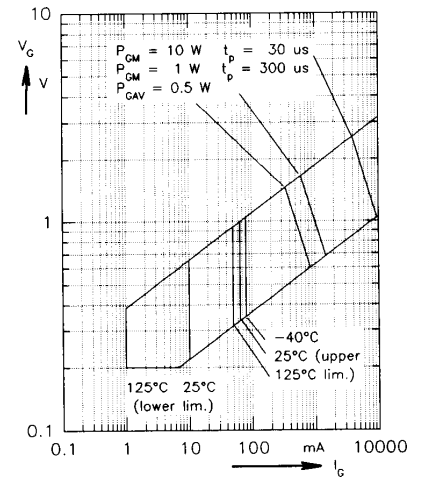
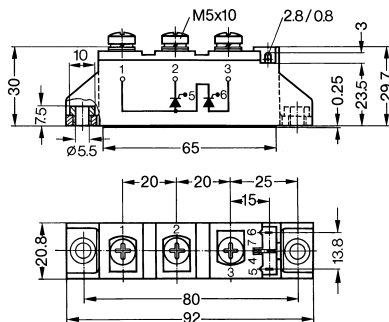


Fig. 1 Gate trigger characteristics

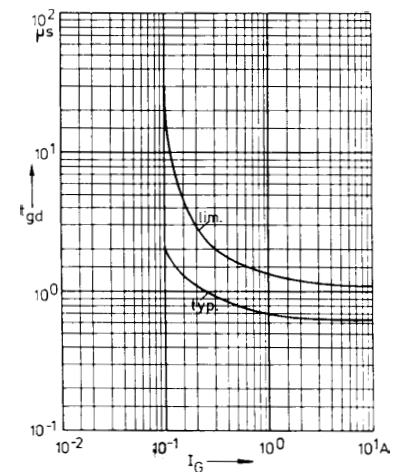


Fig. 2 Gate trigger delay time