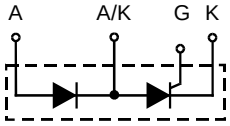
Thyristor/Diode Module

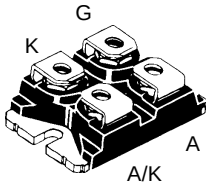
I_{TRMS} = 2x 60 A
I_{TAVM} = 2x 38 A
V_{RRM} = 1200-1600 V

Preliminary data

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	1200	MCD 40-12io6
1700	1600	MCD 40-16io6



SOT-227 B, miniBLOC



K = Cathode, A = Anode, G = Gate,
A/K = Common output

Symbol	Test Conditions		Maximum Ratings	
I_{TRMS}, I_{FRMS}	$T_{VJ} = T_{VJM}$; T_C = 85°C		60	A
I_{TAVM}, I_{FAVM}	$T_{VJ} = T_{VJM}$; T_C = 85°C; 180° sine		38	A
I_{TSM}, I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	500	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	440	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	450	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	490	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	1250	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	1220	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	1010	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	1010	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$	repetitive, I_T = 45 A	100	A/µs
	f = 50 Hz, t_P =200 µs			
	V_D = 2/3 V_{DRM}			
	I_G = 0.45 A	non repetitive, $I_T = I_{TAVM}$	500	A/µs
	di_G/dt = 0.45 A/µs			
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$;	V_{DR} = 2/3 V_{DRM}	1000	V/µs
	R_{GK} = ∞; method 1 (linear voltage rise)			
P_{GM}	$T_{VJ} = T_{VJM}$	t_P = 30 µs	10	W
	$I_T = I_{TAVM}$	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	$I_{ISOL} \leq$ 1 mA	2500	V~
M_d	Mounting torque (M4)		1.5/13	Nm/lb.in.
	Terminal connection torque (M4)		1.5/13	Nm/lb.in.
Weight	Typical including screws		30	g

Features

- International standard package miniBLOC, SOT-227 B
- Planar passivated chips

Applications

- DC motor control
- Softstart AC motor controller
- Light, heat and temperature control
- Half controlled rectifier bridge

Advantages

- Space and weight savings
- Simple mounting with two screws
- 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

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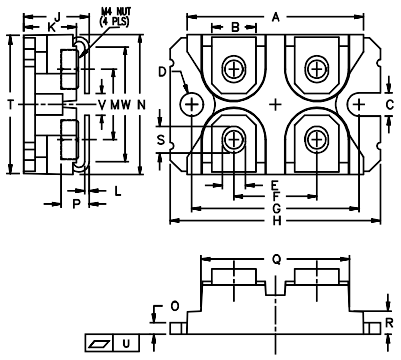
Symbol	Test Conditions		Characteristic Values	
I_{RRM}, I_{DRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$		5	mA
V_T, V_F	I_T, I_F = 80 A; T_{VJ} = 25°C		1.68	V
V_{T0}	For power-loss calculations only (T_{VJ} = 125°C)		0.85	V
r_T			9.5	mΩ
V_{GT}	V_D = 6 V;	T_{VJ} = 25°C	1.5	V
		T_{VJ} = -40°C	1.6	V
I_{GT}	V_D = 6 V;	T_{VJ} = 25°C	100	mA
		T_{VJ} = -40°C	200	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 = 0.45 A; di_G/dt = 0.45 A/µs		450	mA
I_H	T_{VJ} = 25°C; V_D = 6 V; R_{GK} = ∞		200	mA
t_{gd}	T_{VJ} = 25°C; V_D = 1/2 V_{DRM} I_G = 0.45 A; di_G/dt = 0.45 A/µs		2	µs
t_q	$T_{VJ} = T_{VJM}$; I_T = 120 A, t_P = 200 µs; -di/dt = 10 A/µs V_R = 100 V; dv/dt = 20 V/µs; V_D = 2/3 V_{DRM}		typ.150	µs
R_{thJC}	per thyristor/diode; DC current		0.6	K/W
R_{thCH}			0.1	K/W
d_S	Creepage distance on surface		8	mm
d_A	Strike distance through air		4	mm
a	Maximum allowable acceleration		50	m/s^2

miniBLOC, SOT-227 B



M4 screws (4x) supplied

Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.20	1.489	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004
V	3.30	4.57	0.130	0.180
W	0.780	0.830	19.81	21.08