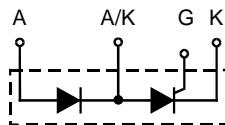


Thyristor/Diode Module

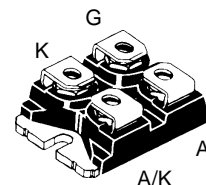
$I_{TRMS} = 2 \times 60 \text{ A}$
 $I_{TAVM} = 2 \times 38 \text{ A}$
 $V_{RRM} = 1200-1600 \text{ V}$

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	Features
I_{TRMS}, I_{FRMS}	$T_{VJ} = T_{VJM}; T_C = 85^\circ\text{C}$	60 A	<ul style="list-style-type: none"> International standard package miniBLOC, SOT-227 B Planar passivated chips
I_{TAVM}, I_{FAVM}	$T_{VJ} = T_{VJM}; T_C = 85^\circ\text{C}; 180^\circ \text{ sine}$	38 A	
I_{TSM}, I_{FSM}	$T_{VJ} = 45^\circ\text{C}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	500 A 440 A
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	450 A 490 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	1250 A ² s 1220 A ² s
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	1010 A ² s 1010 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}; f = 50 \text{ Hz}; t_p = 200 \mu\text{s}; V_D = 2/3 V_{DRM}; I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	repetitive, $I_T = 45 \text{ A}$	100 A/ μs
	$T_{VJ} = T_{VJM}; R_{GK} = \infty; \text{method 1 (linear voltage rise)}$	non repetitive, $I_T = I_{TAVM}$	500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}; V_{DR} = 2/3 V_{DRM}; R_{GK} = \infty; \text{method 1 (linear voltage rise)}$		1000 V/ μs
P_{GM}	$T_{VJ} = T_{VJM}; I_T = I_{TAVM}$	$t_p = 30 \mu\text{s}$ $t_p = 300 \mu\text{s}$	10 W 5 W
			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	$I_{ISOL} \leq 1 \text{ mA}$	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

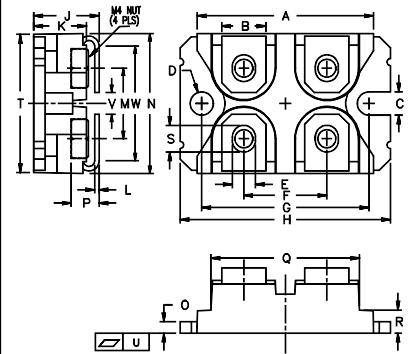
- DC motor control
- Softstart AC motor controller
- Light, heat and temperature control
- Half controlled rectifier bridge

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

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	$I_T, I_F = 80 \text{ A}; T_{VJ} = 25^\circ\text{C}$	1.68 V
V_{T0} r_T	For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$)	0.85 V 9.5 mΩ
V_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	1.5 V 1.6 V
I_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	100 mA 200 mA
V_{GD} I_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	0.2 V 5 mA
I_L	$T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}, V_D = 6 \text{ V}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	450 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	200 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	2 μs
t_q	$T_{VJ} = T_{VJM}; I_T = 120 \text{ A}, t_p = 200 \mu\text{s}; -di/dt = 10 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}; dv/dt = 20 \text{ V}/\mu\text{s}; V_D = 2/3 V_{DRM}$	typ.150 μs
R_{thJC} R_{thCH}	per thyristor/diode; DC current	0.6 K/W 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		Inches	
	Min.	Max.	Min.	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	0.031	0.033