

Single Thyristor Module

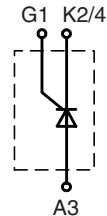
$$I_{TRMS} = 234 \text{ A}$$

$$V_{RRM} = 1200-1600 \text{ V}$$

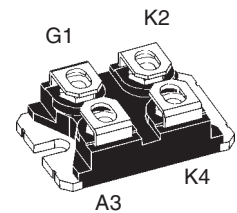
$$I_{TAV} = 149 \text{ A}$$

Preliminary data

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1200	1200	MCO 150-12io1
1600	1600	MCO 150-16io1



miniBLOC, SOT-227 B



Symbol	Test Conditions		Maximum Ratings	
I_{TRMS}	$T_{VJ} = T_{VJM}$		234	A
I_{TAV}	$T_C = 80^{\circ}\text{C}; (180^{\circ} \text{ sine})$		149	A
I_{TSM}	$T_{VJ} = 45^{\circ}\text{C};$	$t = 10 \text{ ms } (50 \text{ Hz}), \text{ sine}$	2000	A
	$V_R = 0$	$t = 8.3 \text{ ms } (60 \text{ Hz}), \text{ sine}$	2150	A
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms } (50 \text{ Hz}), \text{ sine}$	1750	A
	$V_R = 0$	$t = 8.3 \text{ ms } (60 \text{ Hz}), \text{ sine}$	1850	A
I^2t	$T_{VJ} = 45^{\circ}\text{C}$	$t = 10 \text{ ms } (50 \text{ Hz}), \text{ sine}$	20000	A^2s
	$V_R = 0$	$t = 8.3 \text{ ms } (60 \text{ Hz}), \text{ sine}$	19400	A^2s
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms } (50 \text{ Hz}), \text{ sine}$	15300	A^2s
	$V_R = 0$	$t = 8.3 \text{ ms } (60 \text{ Hz}), \text{ sine}$	14400	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $f = 50 \text{ Hz}, t_p = 200 \mu\text{s}$	repetitive, $I_T = 150 \text{ A}$	100	$\text{A}/\mu\text{s}$
	$V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.45 \text{ A}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$	non repetitive, $I_T = I_{TAVM}$	500	$\text{A}/\mu\text{s}$
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM};$ $R_{GK} = \infty; \text{method 1 (linear voltage rise)}$	$V_{DR} = \frac{2}{3} V_{DRM}$	1000	$\text{V}/\mu\text{s}$
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_{GAVM}			0.5	W
V_{RGM}			10	V
T_{VJ}			-40...+150	$^{\circ}\text{C}$
T_{VJM}			150	$^{\circ}\text{C}$
T_{stg}			-40...+150	$^{\circ}\text{C}$
V_{ISOL}	50/60 Hz, RMS;	$I_{ISOL} \leq 1 \text{ mA}$	2500	V~
M_d	Mounting torque (M4)		1.1 - 1.5 / 9 - 13 Nm/lb.in.	
	Terminal connection torque (M4)		1.1 - 1.5 / 9 - 13 Nm/lb.in.	
Weight	typ.		30	g

Data according to IEC 60747 and to a single thyristor/diode unless otherwise stated.

Features

- International standard package miniBLOC (ISOTOP compatible)
- Isolation voltage 2500 V~
- Planar passivated chips

Applications

- Solid state switches
- motor control
- soft starter
- light and temperature control

Advantages

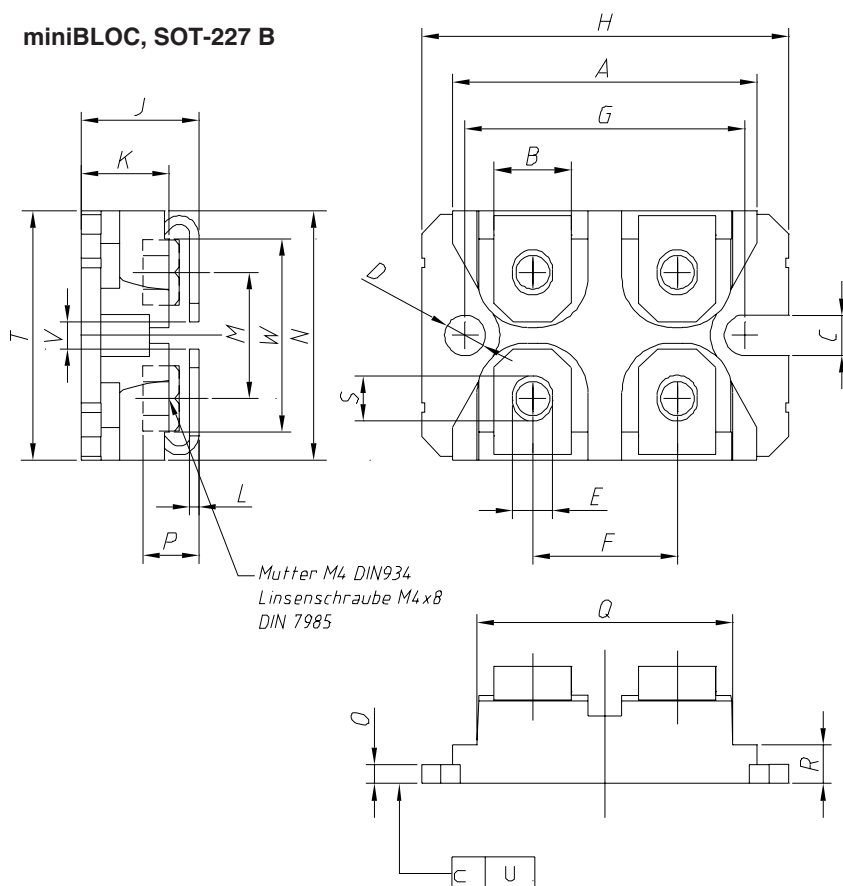
- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling
- High power density

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Symbol	Test Conditions	Characteristic Values
I_{RRM}/D_{RM}	$T_{VJ} = 125^{\circ}\text{C}; V_R = V_{RRM}; V_D = V_{DRM}$	$\leq 10 \text{ mA}$
V_T	$I_T = 80; T_{VJ} = 25^{\circ}\text{C}$	$\leq 1.16 \text{ V}$
V_{T0}	For power-loss calculations only	0.8 V
r_T		$3.8 \text{ m}\Omega$
V_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$	$\leq 1.5 \text{ V}$
	$T_{VJ} = -40^{\circ}\text{C}$	$\leq 1.6 \text{ V}$
I_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$	$\leq 150 \text{ mA}$
	$T_{VJ} = -40^{\circ}\text{C}$	$\leq 200 \text{ mA}$
V_{GD}	$T_{VJ} = T_{VJM}; V_D = \frac{2}{3} V_{DRM}$	$\leq 0.2 \text{ V}$
I_{GD}		$\leq 5 \text{ mA}$
I_L	$T_{VJ} = 25^{\circ}\text{C}; t_p = 10 \mu\text{s}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	$\leq 450 \text{ mA}$
I_H	$T_{VJ} = 25^{\circ}\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	$\leq 200 \text{ mA}$
t_{gd}	$T_{VJ} = 25^{\circ}\text{C}; V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	$\leq 2 \mu\text{s}$
t_q	$T_{VJ} = T_{VJM}; I_T = 20 \text{ A}; t_p = 200 \mu\text{s}; di/dt = -10 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}; dv/dt = 15 \text{ V}/\mu\text{s}; V_D = \frac{2}{3} V_{DRM}$	typ. $150 \mu\text{s}$
R_{thJC}	DC current	0.2 K/W
R_{thCH}	DC current	typ. 0.1 K/W
d_s	Creeping distance on surface	8 mm
d_A	Creepage distance in air	4 mm
a	Max. allowable acceleration	50 m/s^2

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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	38.23	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

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