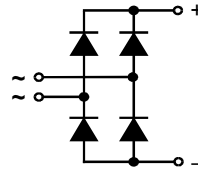


# Single Phase Rectifier Bridge

**$I_{dAV} = 40 \text{ A}$**   
 **$V_{RRM} = 800-1600 \text{ V}$**

$V_{RSM}$ V	$V_{RRM}$ V	Standard Types
900	800	VBO 40-08NO6
1300	1200	VBO 40-12NO6
1700	1600	VBO 40-16NO6



miniBLOC, SOT-227 B  
 E72873



Symbol	Test Conditions	Maximum Ratings
$I_{dAV}$	$T_C = 100^\circ\text{C}$	20 A (diode)
$I_{dAV} \text{ ①}$		40 A (module)
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}; V_R = 0$	t = 10 ms (50 Hz), sine 300 A t = 8.3 ms (60 Hz), sine 320 A
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine 260 A t = 8.3 ms (60 Hz), sine 280 A
$I^2t$	$T_{VJ} = 45^\circ\text{C}; V_R = 0$	t = 10 ms (50 Hz), sine 450 A <sup>2</sup> s t = 8.3 ms (60 Hz), sine 430 A <sup>2</sup> s
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine 340 A <sup>2</sup> s t = 8.3 ms (60 Hz), sine 330 A <sup>2</sup> s
$T_{VJ}$		-40...+150 °C
$T_{VJM}$		150 °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	typ.	30 g

### Features

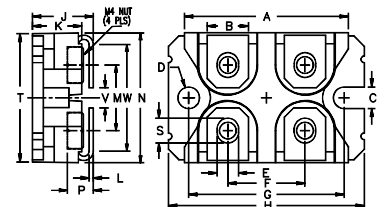
- Isolation voltage 2500 V~
- Planar passivated chips
- Low forward voltage drop

### Applications

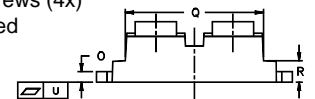
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

### Advantages

- Easy to mount
- Space and weight savings



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	38.30	1.489	1.509
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

Symbol	Test Conditions	Characteristic Values
$I_R$	$V_R = V_{RRM}; T_{VJ} = 25^\circ\text{C}$	$\leq 0.3 \text{ mA}$
	$V_R = V_{RRM}; T_{VJ} = T_{VJM}$	$\leq 5 \text{ mA}$
$V_F$	$I_F = 20 \text{ A}; T_{VJ} = 25^\circ\text{C}$	$\leq 1.15 \text{ V}$
$V_{T0}$	For power-loss calculations only	0.80 V
$r_T$	$T_{VJ} = T_{VJM}$	13 mΩ
$R_{thJC}$	per diode; DC current	1.7 K/W
	per module	0.42 K/W
$R_{thCH}$	per diode, DC current	typ. 0.3 K/W
	per module	typ. 0.08 K/W
$d_s$	Creeping distance on surface	8 mm
$d_A$	Creepage distance in air ③	4 mm
$a$	Max. allowable acceleration	50 m/s <sup>2</sup>

Data according to IEC 60747 and refer to a single diode unless otherwise stated

① for resistive load at bridge output

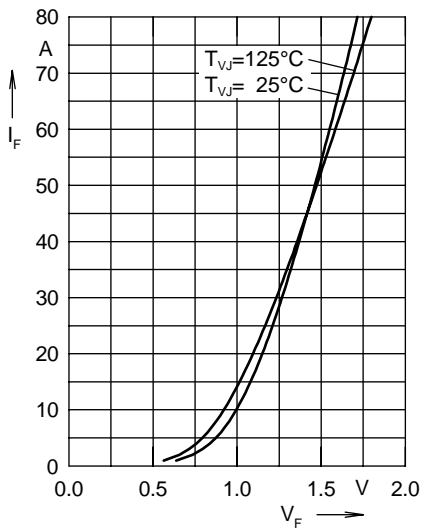


Fig. 1 Forward current versus voltage drop per diode

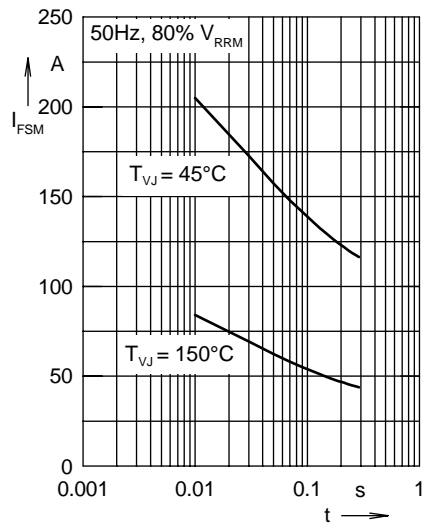


Fig. 2 Surge overload current

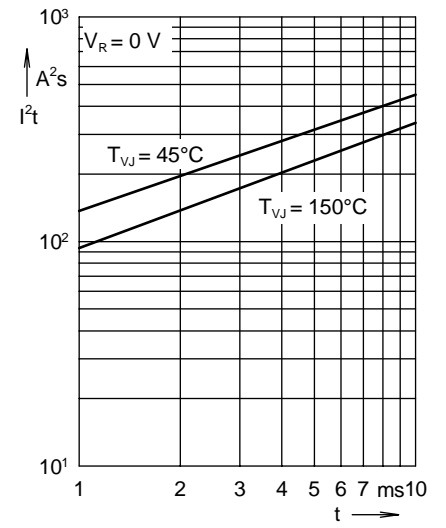


Fig. 3  $I^2t$  versus time per diode

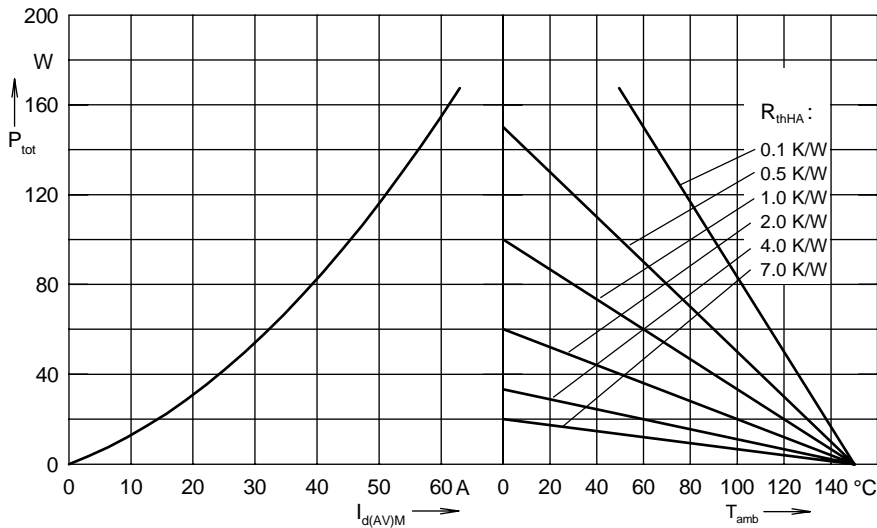


Fig. 4 Power dissipation versus direct output current and ambient temperature

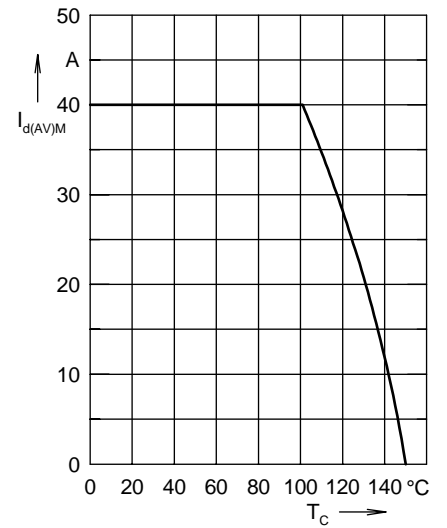


Fig. 5 Max. forward current versus case temperature

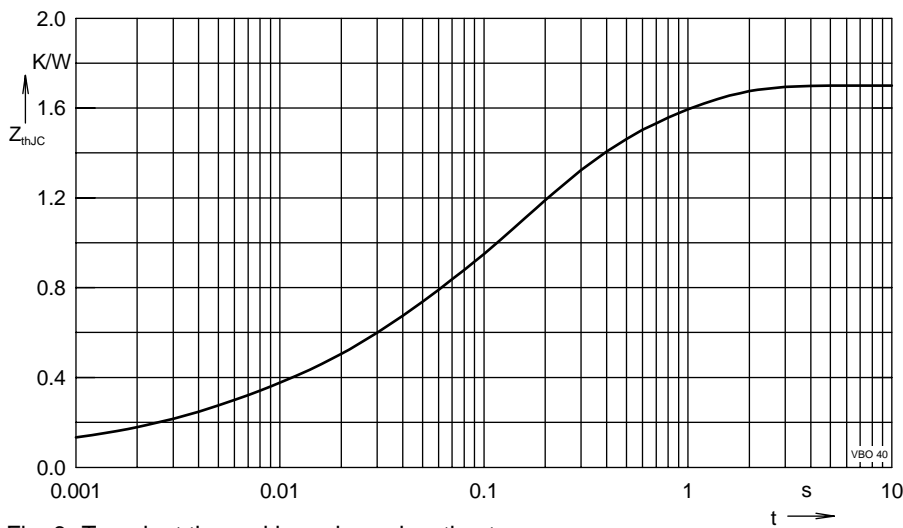


Fig. 6 Transient thermal impedance junction to case

Constants for  $Z_{thJC}$  calculation:

i	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.081	0.00024
2	0.1449	0.0036
3	0.2982	0.0235
4	0.735	0.142
5	0.441	0.7