



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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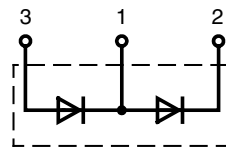
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High Power Diode Modules

$$\begin{aligned} I_{FRSM} &= 2 \times 450 \text{ A} \\ I_{FAVM} &= 2 \times 290 \text{ A} \\ V_{RRM} &= 1200-1600 \text{ V} \end{aligned}$$

V_{RSM} V	V_{RRM} V	Type
1300	1200	MDD 250-12N1
1500	1400	MDD 250-14N1
1700	1600	MDD 250-16N1



E72873

Symbol	Conditions	Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$	450	A
I_{FAVM}	$T_C = 100^\circ\text{C}; 180^\circ \text{ sine}$	290	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms}$ (50 Hz)	11	kA
	$V_R = 0; t = 8.3 \text{ ms}$ (60 Hz)	11,7	kA
	$T_{VJ} = T_{VJM}; t = 10 \text{ ms}$ (50 Hz)	9	kA
	$V_R = 0; t = 8.3 \text{ ms}$ (60 Hz)	9,6	kA
I^2t	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms}$ (50 Hz)	605	kA ² s
	$V_R = 0; t = 8.3 \text{ ms}$ (60 Hz)	560	kA ² s
	$T_{VJ} = T_{VJM}; t = 10 \text{ ms}$ (50 Hz)	405	kA ² s
	$V_R = 0; t = 8.3 \text{ ms}$ (60 Hz)	380	kA ² s
T_{VJ}		-40...+150	°C
T_{VJM}		150	°C
T_{stg}		-40...+125	°C
V_{ISOL}	50/60 Hz, RMS $t = 1 \text{ min}$	3000	V~
	$I_{ISOL} \leq 1 \text{ mA} \quad t = 1 \text{ s}$	3600	V~
M_d	Mounting torque (M5)	2.5 - 5	Nm
	Terminal connection torque (M8)	12 - 15	Nm
Weight	Typical including screws	320	g

Features

- Direct copper bonded Al_2O_3 ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications

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

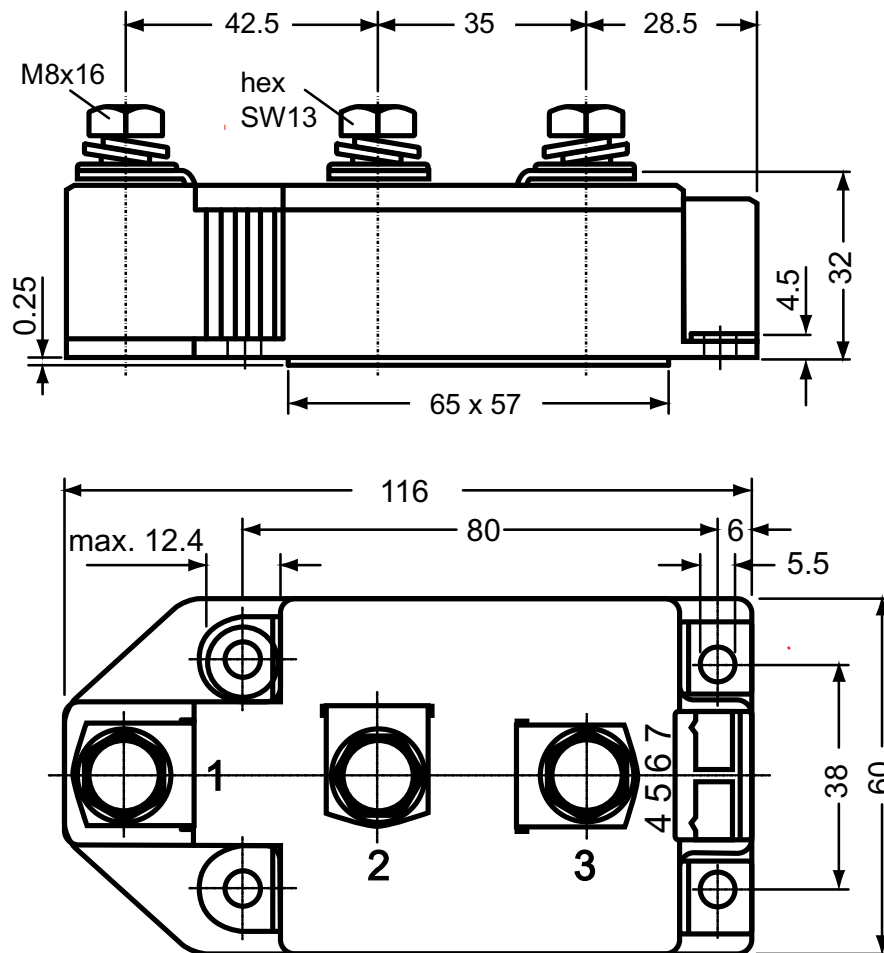
Advantages

- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Symbol	Conditions	Characteristics Values	
I_{RRM}	$V_R = V_{RRM}; T_{VJ} = T_{VJM}$	40	mA
V_F	$I_F = 600 \text{ A}; T_{VJ} = 25^\circ\text{C}$	1.3	V
V_{T0}	For power-loss calculations only	0.75	V
r_t	$T_{VJ} = T_{VJM}$	0.75	mΩ
R_{thJC}	per diode; DC current	0.129	K/W
	per module <i>other values</i>	0.065	K/W
R_{thJK}	per diode; DC current <i>see Fig. 6/7</i>	0.169	K/W
	per module	0.0845	K/W
Q_S	$T_{VJ} = 125^\circ\text{C}; I_F = 400 \text{ A}; -di/dt = 50 \text{ A}/\mu\text{s}$	760	μC
I_{RM}		275	A
d_s	Creeping distance on surface	12.7	mm
d_A	Creepage distance in air	9.6	mm
a	Maximum allowable acceleration	50	m/s ²

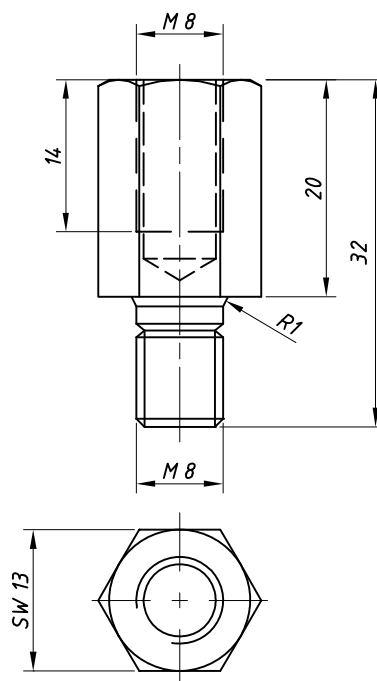
Data according to IEC 60747 and refer to a single diode unless otherwise stated.

Dimensions in mm (1 mm = 0.0394")



Threaded spacer for higher Anode / Cathode construction:

Type **ZY 250** (material brass)



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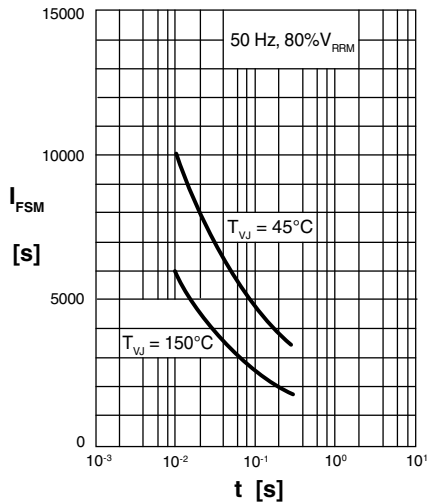


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

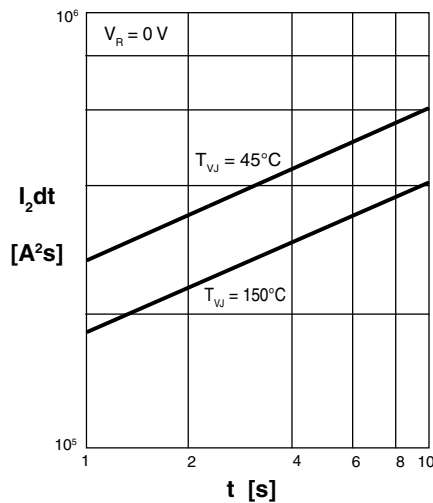


Fig. 2 I^2dt versus time (1-10 ms)

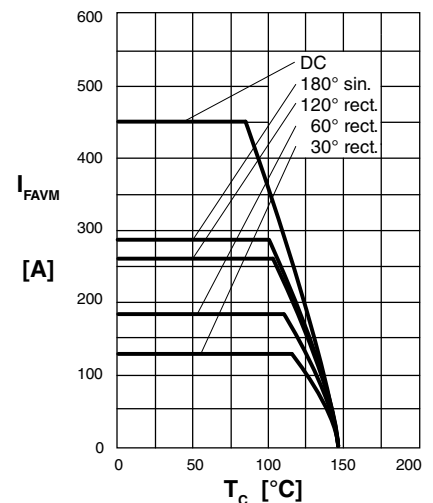


Fig. 2a Maximum forward current
at case temperature

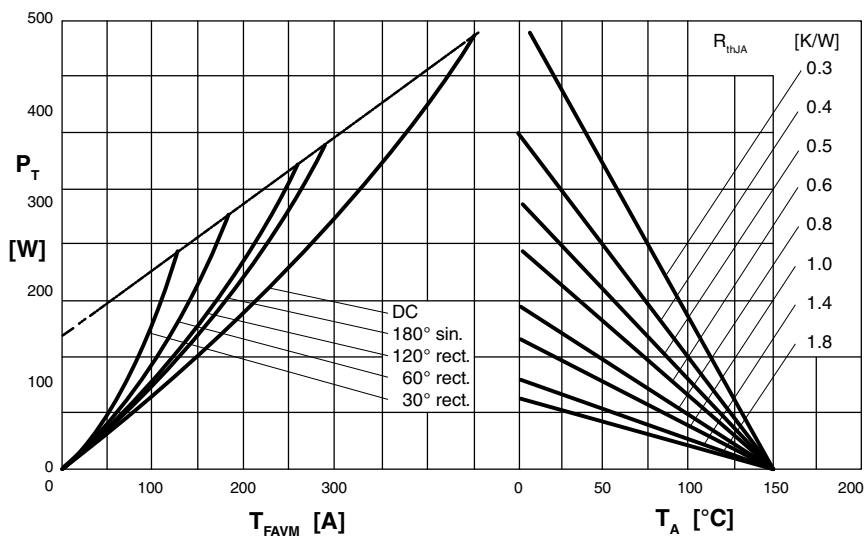


Fig. 3 Power dissipation vs. forward current and ambient temperature (per diode)

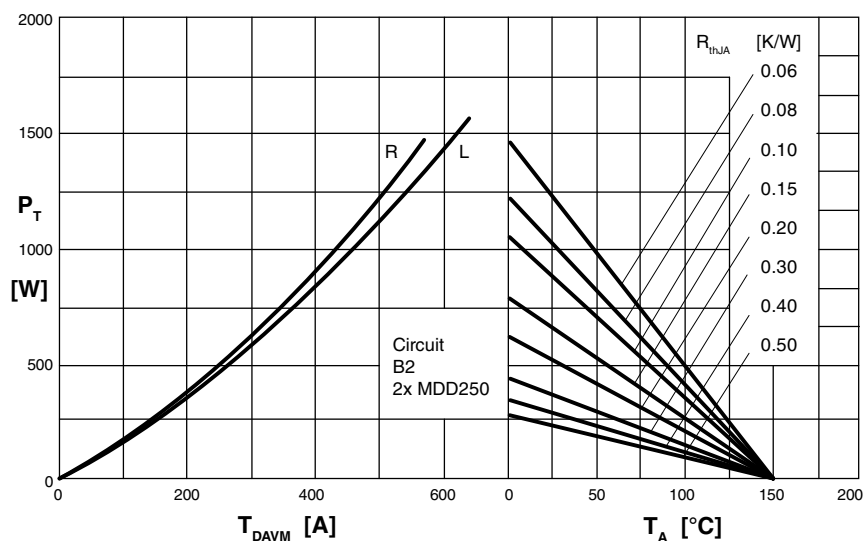


Fig. 4 Single phase rectifier bridge: Power dissipation vs. direct output current and ambient

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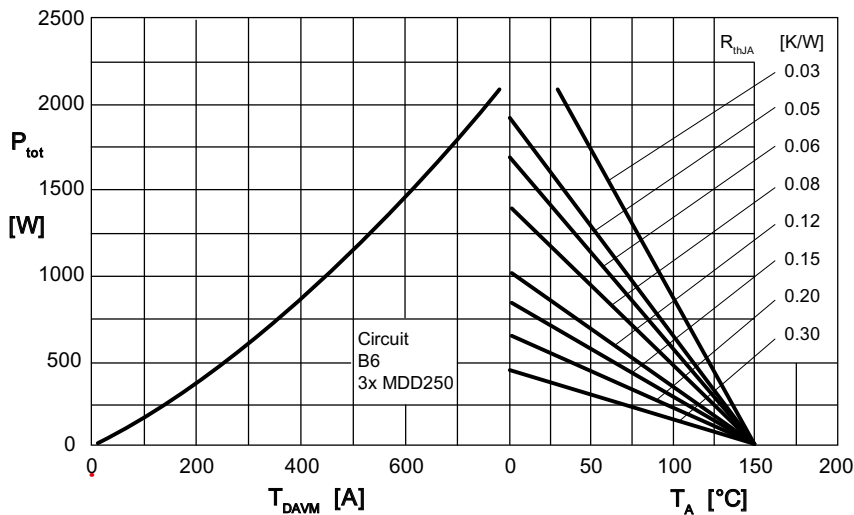


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

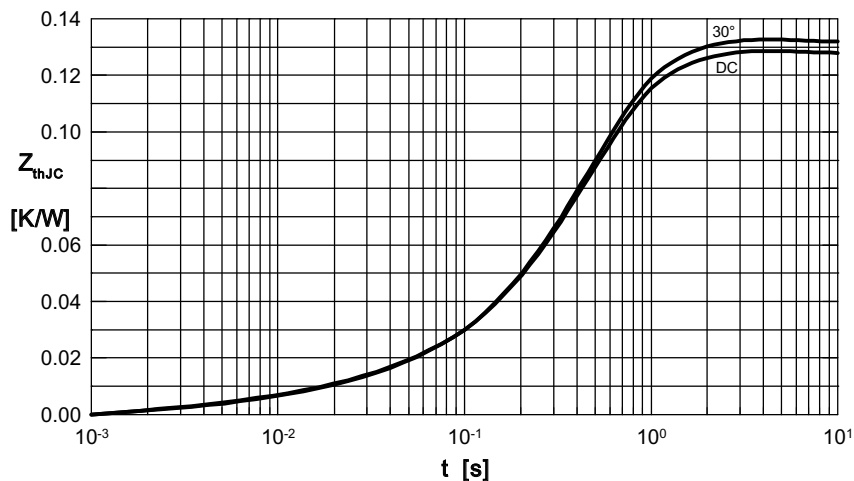


Fig. 7 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d :

d	R_{thJC} [K/W]
DC	0.129
180°	0.131
120°	0.132
60°	0.132
30°	0.133

Constants for Z_{thJC} calculation:

i	R_{thi} [K/W]	t_i [s]
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456

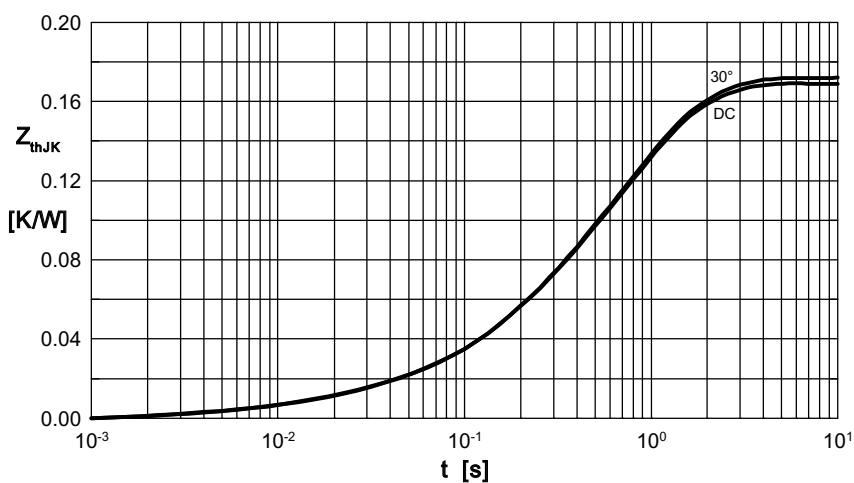


Fig. 8 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d :

d	R_{thJK} (K/W)
DC	0.169
180°	0.171
120°	0.172
60°	0.172
30°	0.173

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456
4	0.04	1.36