

SDD60

Diode-Diode Modules

Symbol	Test Conditions	Characteristic Values	Unit
I_R	$T_{VJ}=T_{VJM}; V_R=V_{RRM}$	10	mA
V_F	$I_F=200A; T_{VJ}=25^{\circ}C$	1.60	V
V_{TO}	For power-loss calculations only	0.8	V
r_T	$T_{VJ}=T_{VJM}$	4.3	m Ω
Q_S	$T_{VJ}=125^{\circ}C; I_F=50A; -di/dt=0.64A/us$	90	μC
I_{RM}		11	A
R_{thJC}	per diode; DC current per module	0.59 0.295	K/W
R_{thJK}	per diode; DC current per module	0.79 0.395	K/W
d_s	Creepage distance on surface	12.7	mm
d_A	Strike distance through air	9.6	mm
a	Maximum allowable acceleration	50	m/s ²

FEATURES

- * International standard package
- * Copper base plate
- * Planar passivated chips
- * Isolation voltage 3600 V~

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

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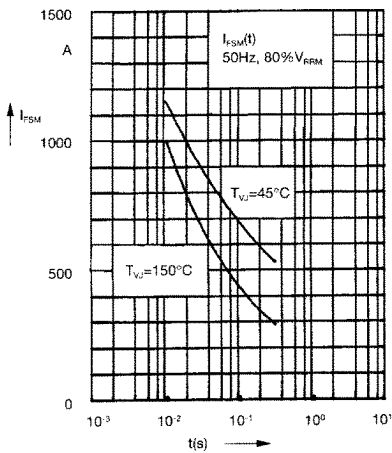


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

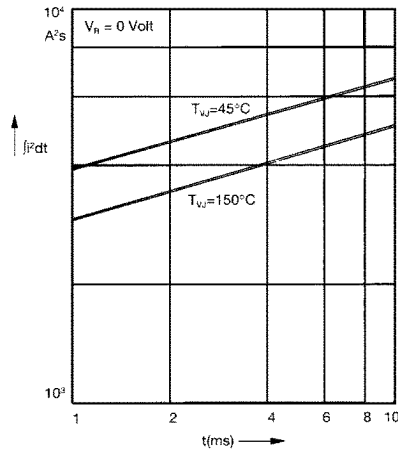


Fig. 2 $\int i^2 dt$ versus time (1-10 ms)

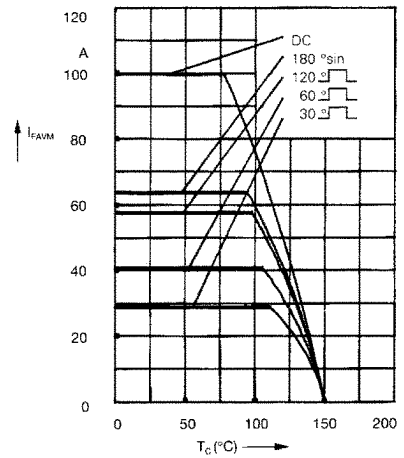


Fig. 2a Maximum forward current at case temperature

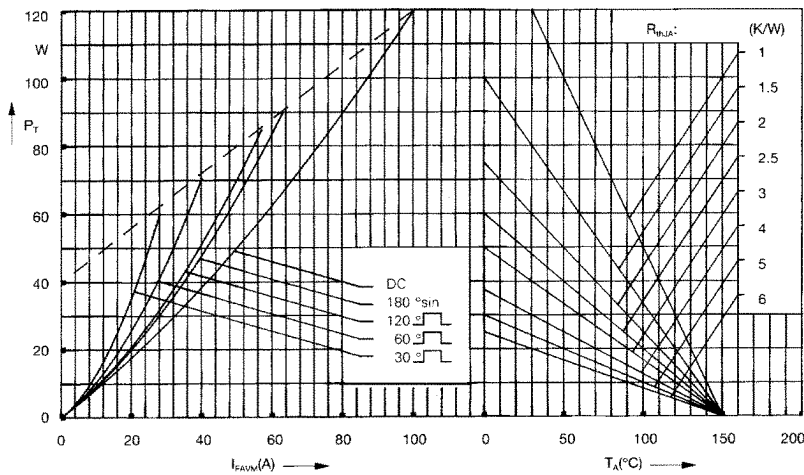


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

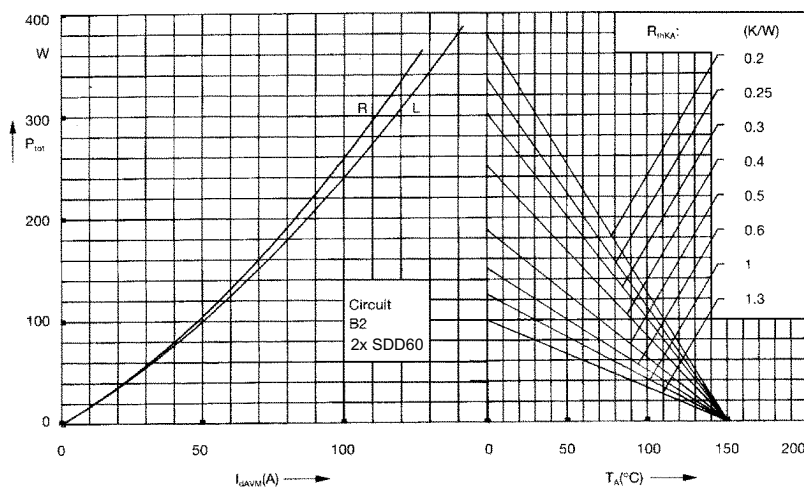


Fig. 4 Single phase rectifier bridge:
 Power dissipation versus direct output current and ambient temperature
 R = resistive load
 L = inductive load

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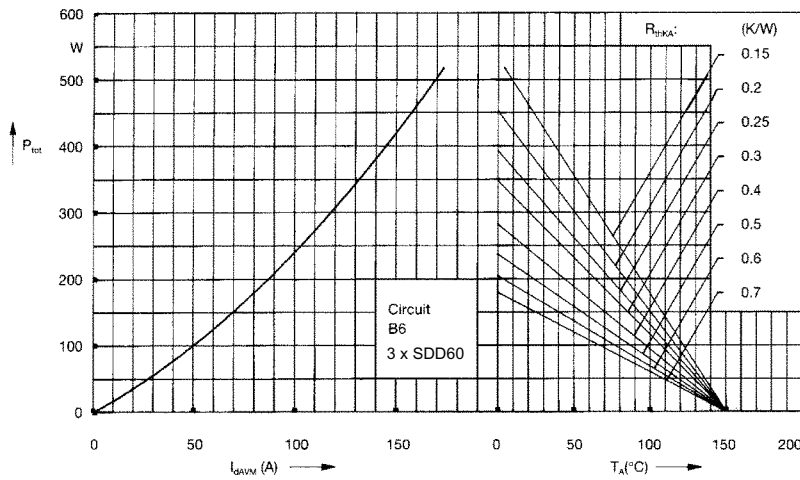


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

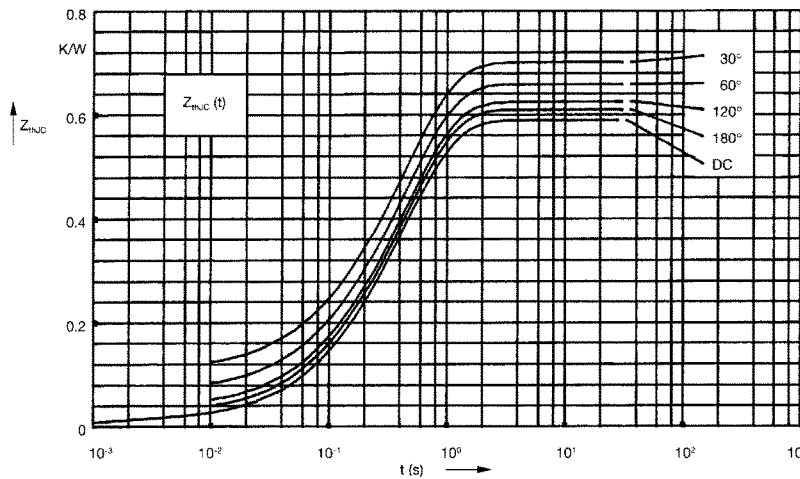


Fig. 6 Transient thermal impedance junction to case (per diode)

$R_{\theta JC}$ for various conduction angles d :

d	$R_{\theta JC}$ (K/W)
DC	0.59
180°C	0.61
120°C	0.63
60°C	0.66
30°C	0.70

Constants for $Z_{\theta JC}$ calculation:

i	$R_{\theta i}$ (K/W)	t_i (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455

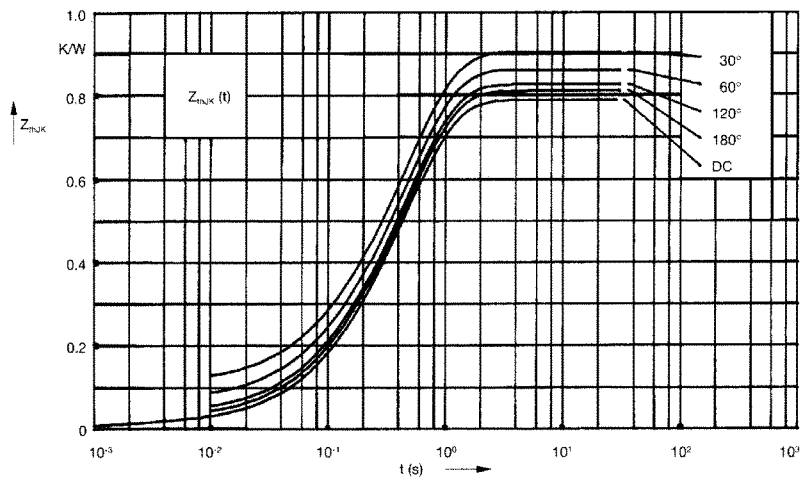


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

$R_{\theta JK}$ for various conduction angles d :

d	$R_{\theta JK}$ (K/W)
DC	0.79
180°C	0.81
120°C	0.83
60°C	0.86
30°C	0.90

Constants for $Z_{\theta JK}$ calculation:

i	$R_{\theta i}$ (K/W)	t_i (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455
4	0.2	0.495