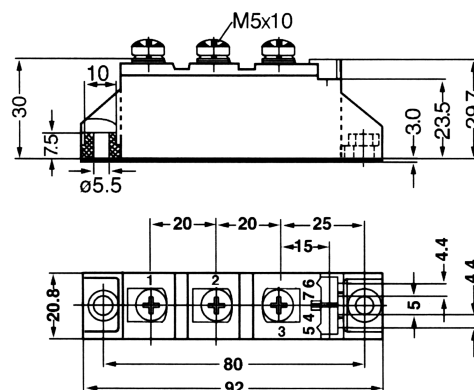


Diode-Diode Modules



Type	V_{RSM} V	V_{RRM} V
SDD100N08	900	800
SDD100N12	1300	1200
SDD100N14	1500	1400
SDD100N16	1700	1600
SDD100N18	1900	1800

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	$T_{VJ}=T_{VJM}$ $T_C=100^{\circ}C$; 180° sine		180 100	A
I_{FSM}	$T_{VJ}=45^{\circ}C$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	1700 1950	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	1540 1800	
$\int i^2 dt$	$T_{VJ}=45^{\circ}C$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	14450 15700	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	11850 13400	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+125	$^{\circ}C$
V_{ISOL}	50/60Hz, RMS $I_{ISOL} \leq 1mA$	$t=1min$ $t=1s$	3000 3600	V~
M_d	Mounting torque (M5) Terminal connection torque (M5)		2.5-4/22-35 2.5-4/22-35	Nm/lb.in.
Weight	Typical including screws		90	g

Diode-Diode Modules

Symbol	Test Conditions	Characteristic Values	Unit
I_R	$T_{VJ}=T_{VJM}; V_R=V_{RRM}$	15	mA
V_F	$I_F=300A; T_{VJ}=25^{\circ}C$	1.6	V
V_{TO}	For power-loss calculations only	0.8	V
r_T	$T_{VJ}=T_{VJM}$	2.3	m Ω
Q_s	$T_{VJ}=125^{\circ}C; I_F=50A; -di/dt=3A/us$	170	uC
I_{RM}		45	A
R_{thJC}	per diode; DC current	0.35	K/W
	per module	0.175	
R_{thJK}	per diode; DC current	0.55	K/W
	per module	0.275	
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

Diode-Diode Modules

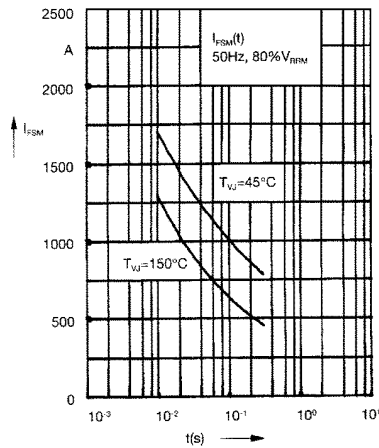


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

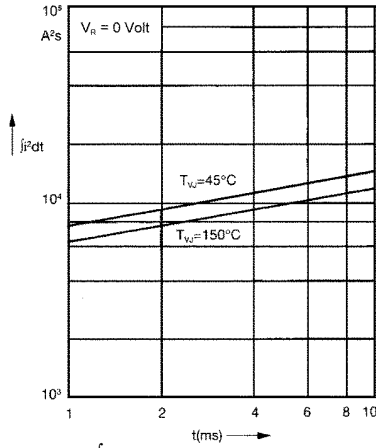


Fig. 2 $\int i^2 dt$ versus time (1-10 ms)

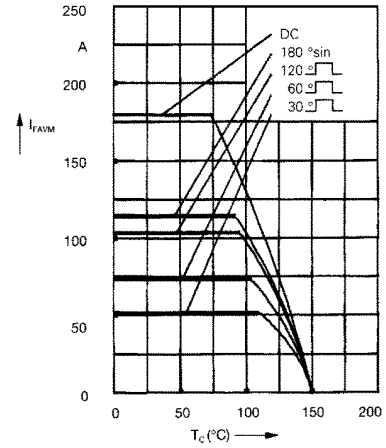


Fig. 2a Maximum forward current at case temperature

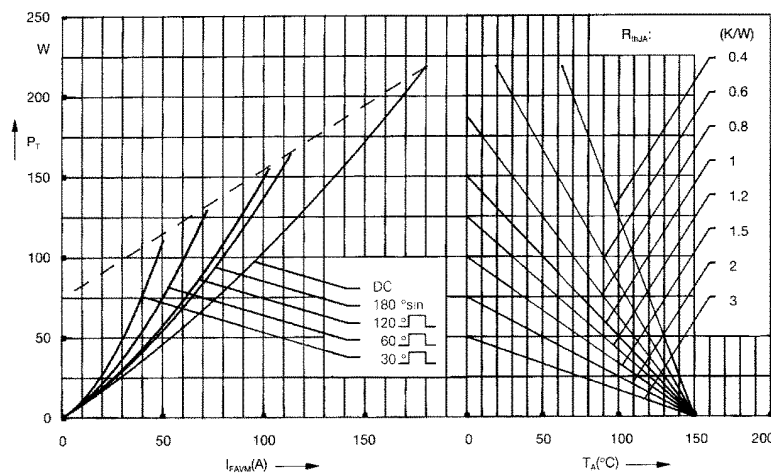


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

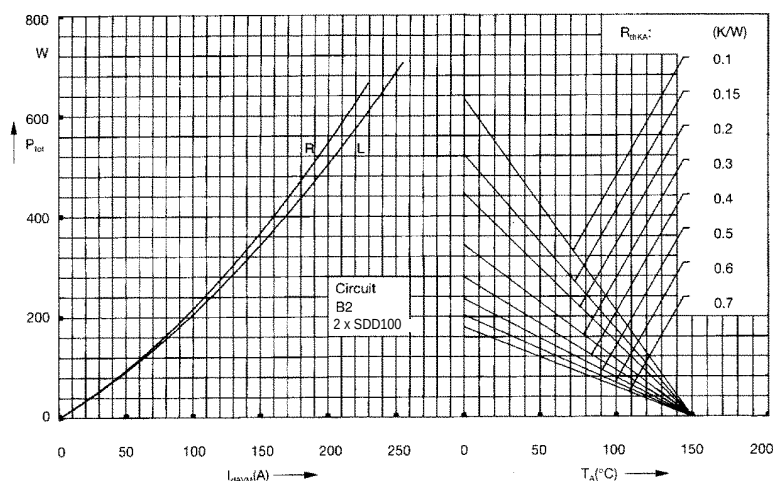


Fig. 4 Single phase rectifier bridge:
Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

Diode-Diode Modules

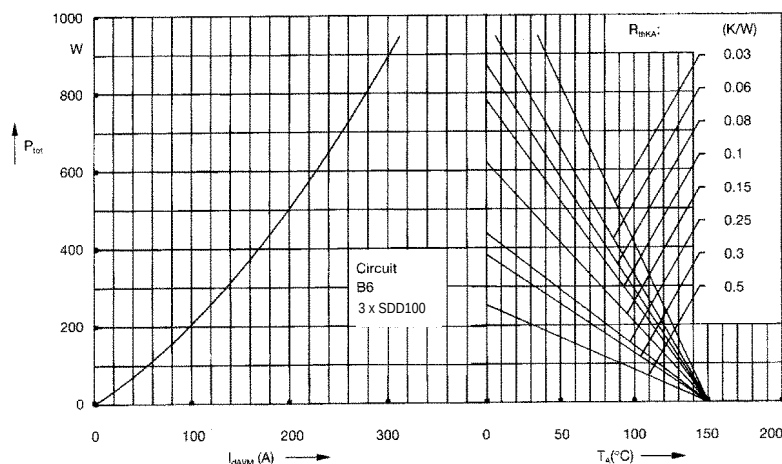


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

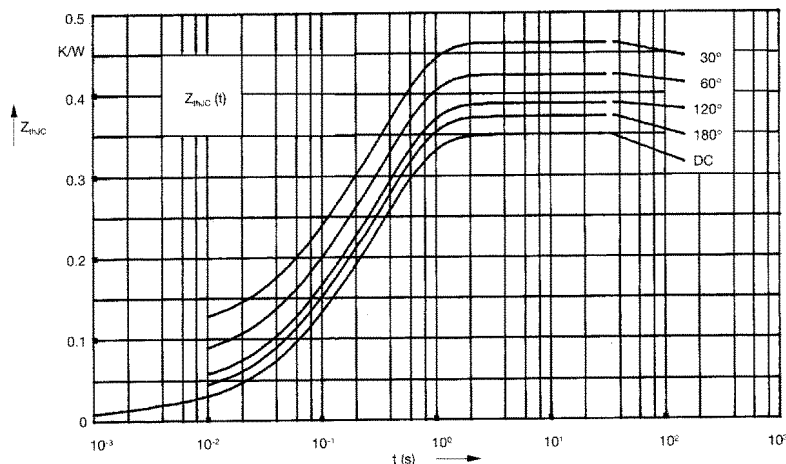


Fig. 6 Transient thermal impedance junction to case (per diode)

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

d	$R_{\theta JC}$ (K/W)
DC	0.35
180°	0.37
120°	0.39
60°	0.43
30°	0.47

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

i	$R_{\theta i}$ (K/W)	t_i (s)
1	0.013	0.0014
2	0.072	0.062
3	0.265	0.375

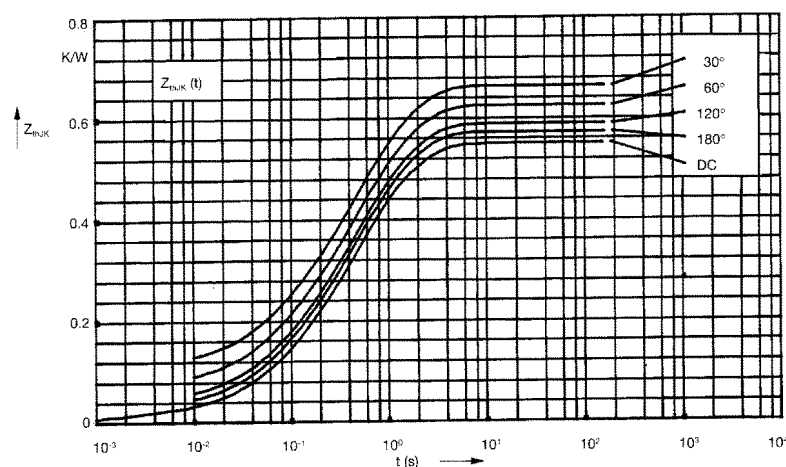


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

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

d	$R_{\theta JK}$ (K/W)
DC	0.55
180°	0.57
120°	0.59
60°	0.63
30°	0.67

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

i	$R_{\theta i}$ (K/W)	t_i (s)
1	0.013	0.0014
2	0.072	0.062
3	0.265	0.375
4	0.2	1.32