

SDD36

Diode-Diode Modules

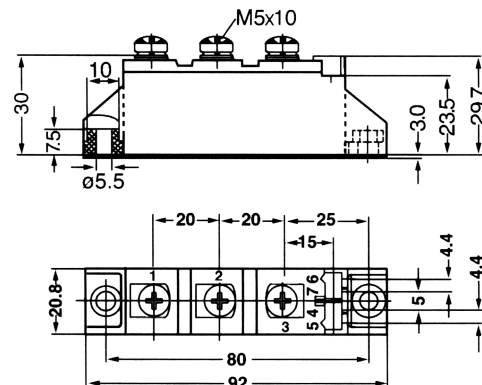


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Type	V_{RSM} V	V_{RRM} V
SDD36N08	900	800
SDD36N12	1300	1200
SDD36N14	1500	1400
SDD36N16	1700	1600
SDD36N18	1900	1800

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	60 36	A
I_{FSM}	$T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	650 760	A
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	580 630	
$\int i^2 dt$	$T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	2100 2400	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1700 1900	
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



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Symbol	Test Conditions	Characteristic Values	Unit
I_R	$T_{VJ}=T_{VJM}; V_R=V_{RRM}$	10	mA
V_F	$I_F=80A; T_{VJ}=25^{\circ}C$	1.38	V
V_{TO}	For power-loss calculations only	0.8	V
r_T	$T_{VJ}=T_{VJM}$	6.1	m Ω
Q_s	$T_{VJ}=125^{\circ}C; I_F=25A; -di/dt=0.6A/\mu s$	50	μC
I_{RM}		6	A
R_{thJC}	per diode; DC current per module	1.0 0.5	K/W
R_{thJK}	per diode; DC current per module	1.2 0.6	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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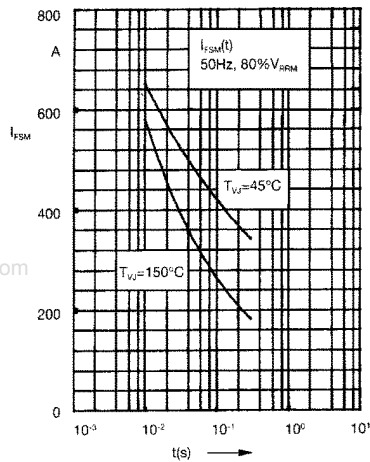


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

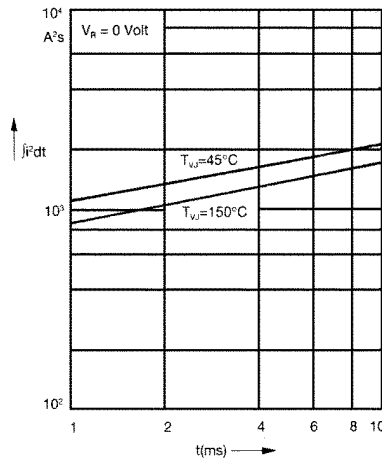


Fig. 2 $\int i^2 dt$ versus time (1-10 ms)

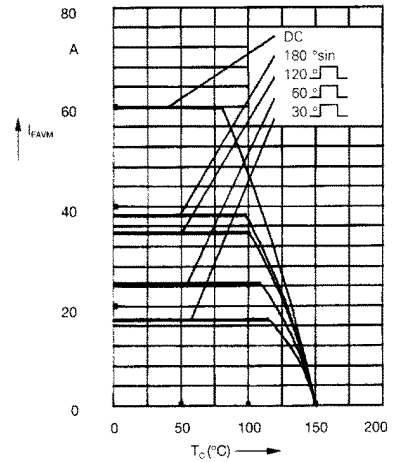


Fig. 2a Maximum forward current
at case temperature

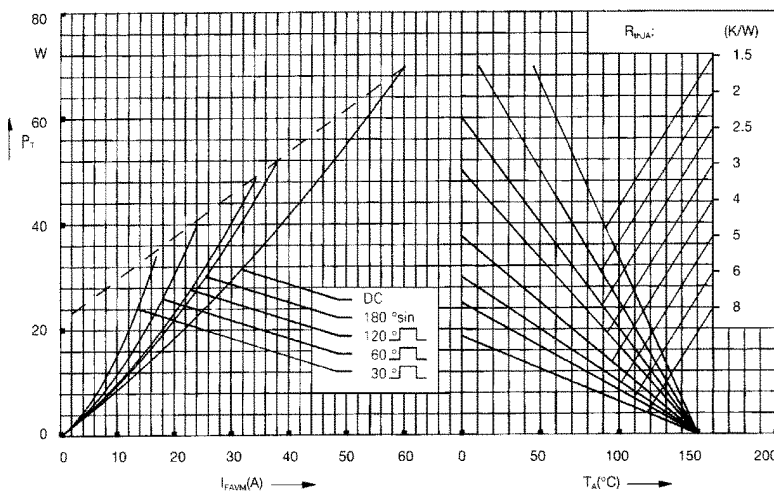


Fig. 3 Power dissipation versus
forward current and ambient
temperature (per diode)

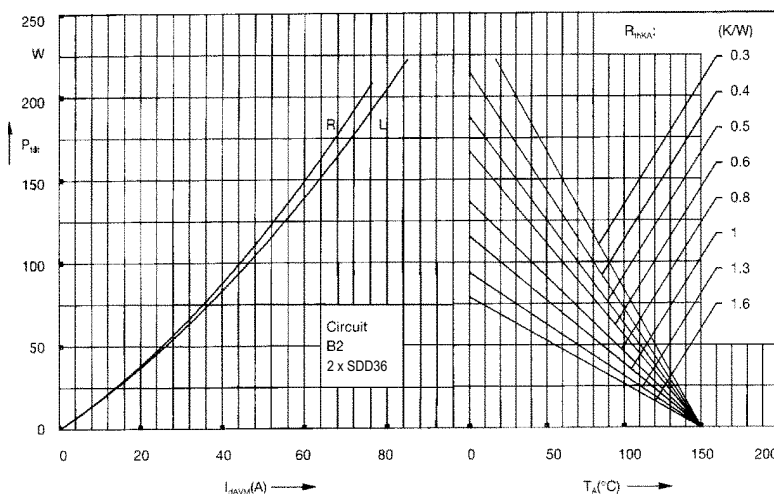


Fig. 4 Single phase rectifier bridge:
Power dissipation versus direct
output current and ambient
temperature
R = resistive load
L = inductive load

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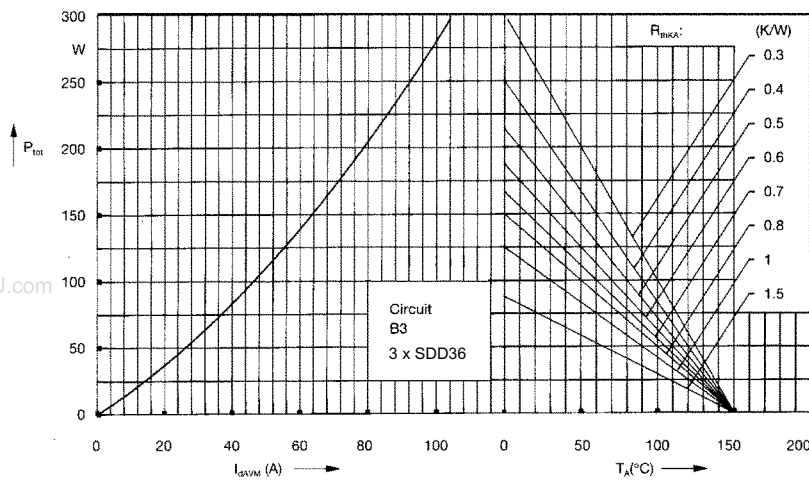


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

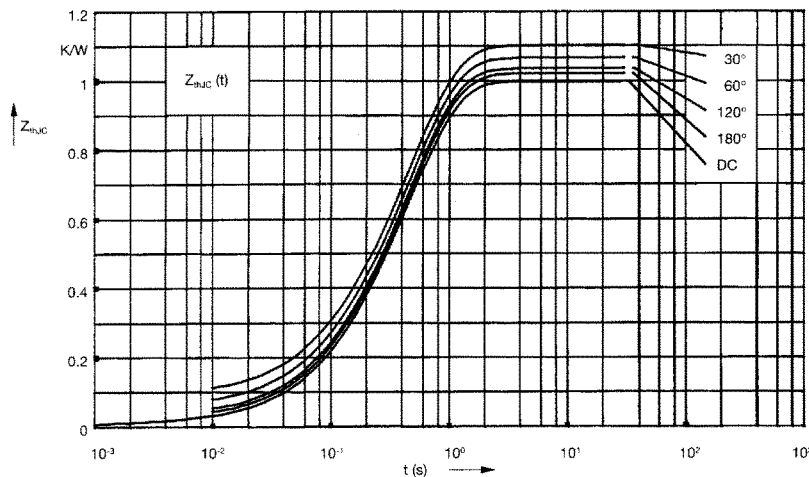


Fig. 6 Transient thermal impedance junction to case (per diode)

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

d	$R_{\theta JC}$ (K/W)
DC	1.00
180°	1.02
120°	1.04
60°	1.07
30°	1.10

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

i	$R_{\theta i}$ (K/W)	t_i (s)
1	0.01	0.0012
2	0.03	0.095
3	0.96	0.455

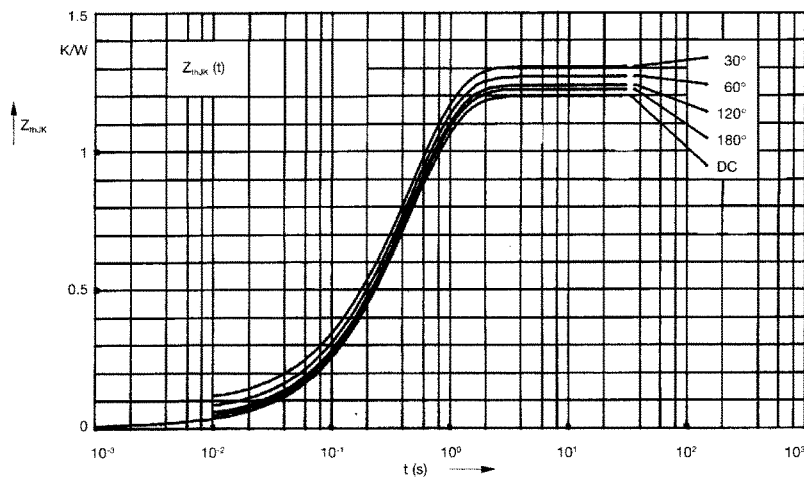


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

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

d	$R_{\theta JK}$ (K/W)
DC	1.20
180°	1.22
120°	1.24
60°	1.27
30°	1.30

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

i	$R_{\theta i}$ (K/W)	t_i (s)
1	0.01	0.0012
2	0.03	0.095
3	0.96	0.455
4	0.2	0.495