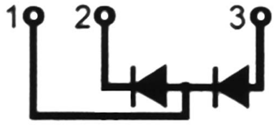
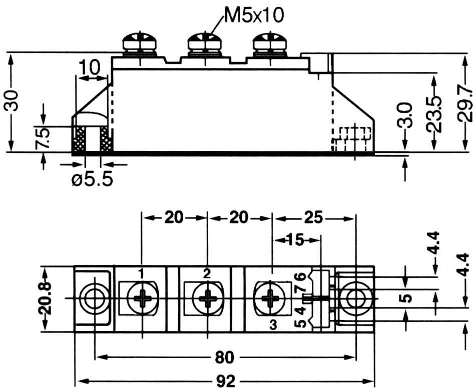
SDD120

Diode-Diode Modules



Type	V_{RSM} V	V_{RRM} V
SDD120N08	900	800
SDD120N12	1300	1200
SDD120N14	1500	1400
SDD120N16	1700	1600
SDD120N18	1900	1800

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	$T_{VJ}=T_{VJM}$ $T_C=105^oC$; 180^o sine		180 120	A
I_{FSM}	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	2800 3300	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	2500 2750	
$\int i^2dt$	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	39200 45000	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	31200 31300	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+125	^oC
V_{ISOL}	50/60Hz, RMS $I_{ISOL}\leq1mA$	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

Sirectifier®

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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°C	1.43	V
V_{TO}	For power-loss calculations only	0.75	V
r_T	$T_{VJ}=T_{VJM}$	1.95	mΩ
Q_S	T_{VJ}=125°C; I_F=50A; -di/dt=6A/us	170	uC
I_{RM}		45	A
R_{thJC}	per diode; DC current per module	0.26 0.13	K/W
R_{thJK}	per diode; DC current per module	0.46 0.23	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

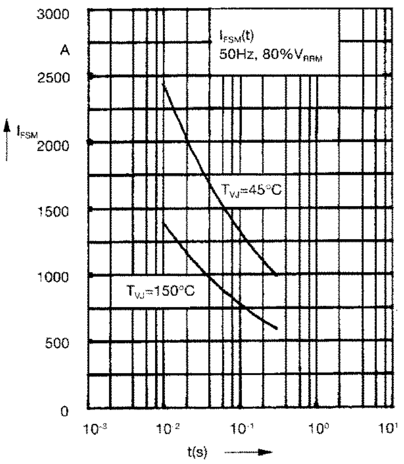

Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

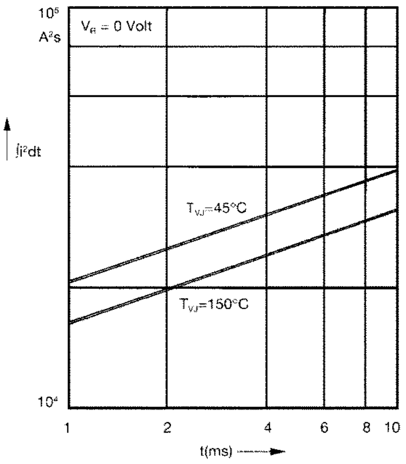

Fig. 2 $\int i^2dt$ versus time (1-10 ms)

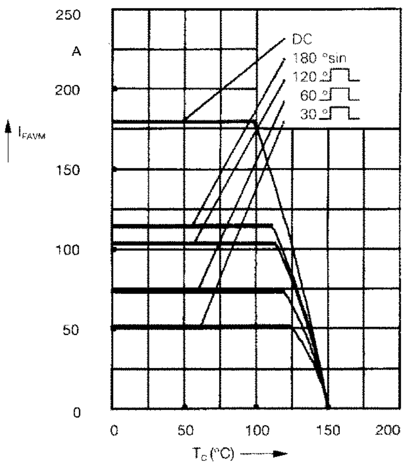

Fig. 2a Maximum forward current
at case temperature

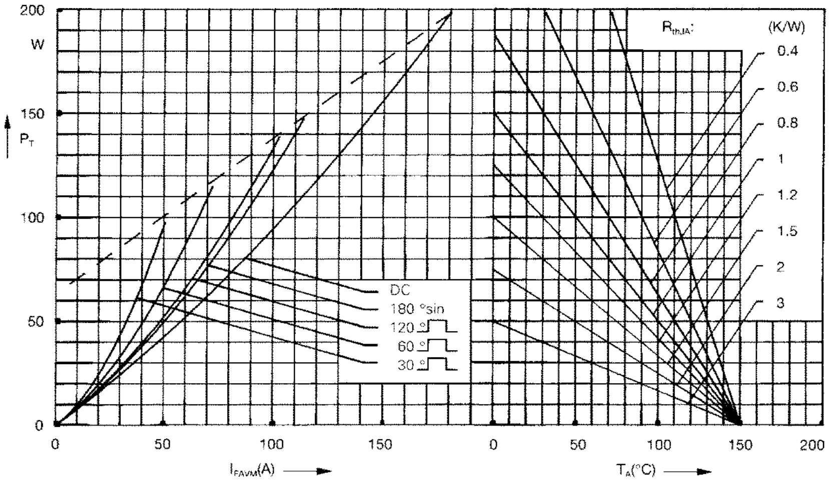

Fig. 3 Power dissipation versus
forward current and ambient
temperature (per diode)

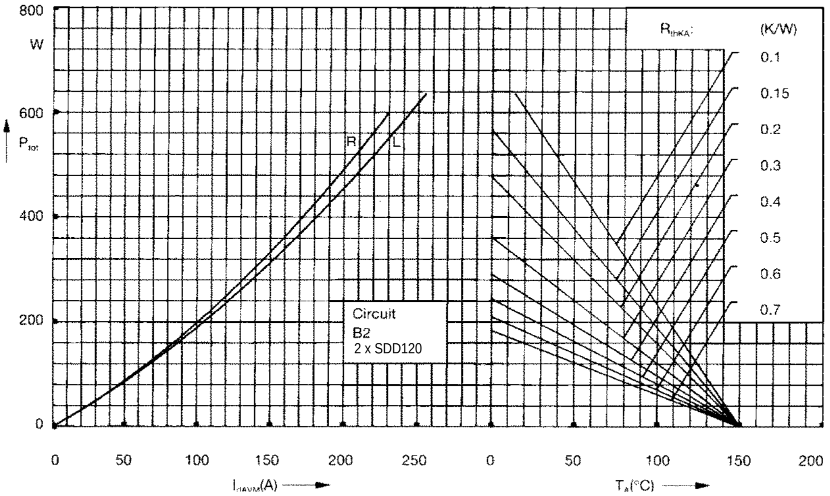

Fig. 4 Single phase rectifier bridge:
Power dissipation versus direct
output current and ambient
temperature
R = resistive load
L = inductive load

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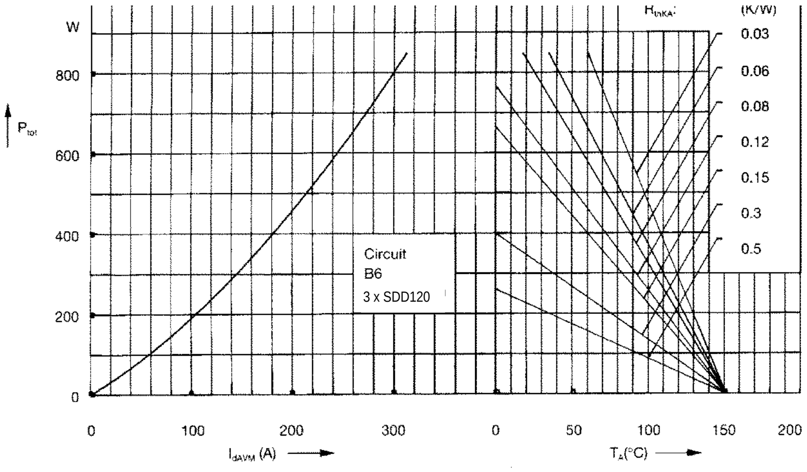

Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

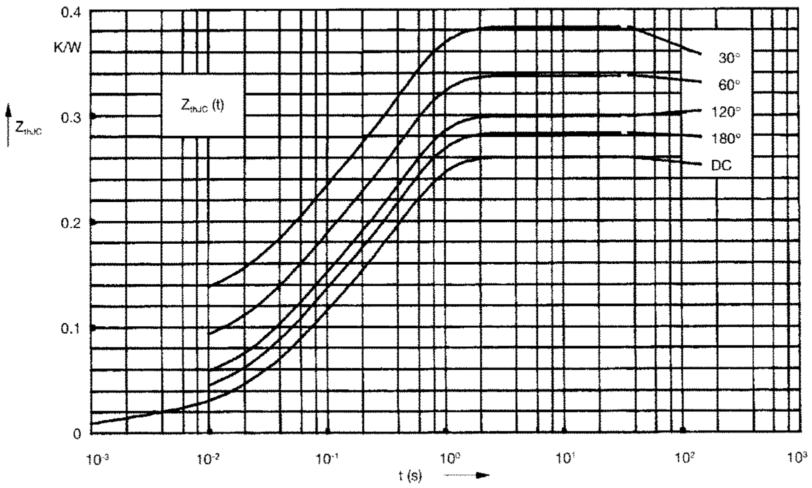

Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.26
180°C	0.28
120°C	0.30
60°C	0.34
30°C	0.38

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0012
2	0.072	0.047
3	0.175	0.394

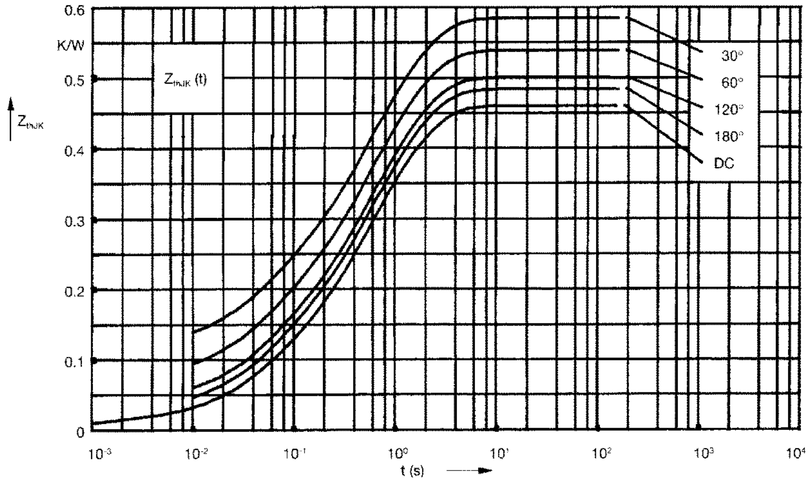

Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.46
180°C	0.48
120°C	0.50
60°C	0.54
30°C	0.58

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0012
2	0.072	0.047
3	0.175	0.394
4	0.2	1.32