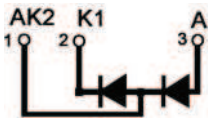
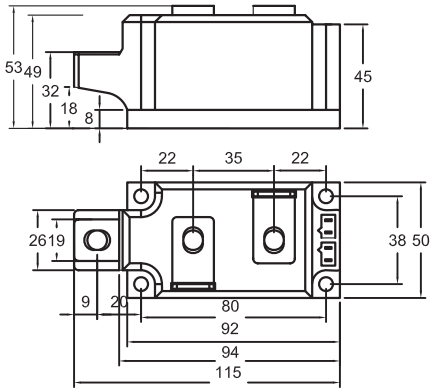
SDD320NxxBT

Diode-Diode Modules



Type	V_{RSM} V	V_{RRM} V
SDD320N08BT	900	800
SDD320N12BT	1300	1200
SDD320N14BT	1500	1400
SDD320N16BT	1700	1600
SDD320N18BT	1900	1800

Colerance:±0.5mm
Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions		Maximum Ratings	Unit
I_{FRMS} I_{FAVM}	$T_{VJ}=T_{VJM}$ $T_C=100^oC$; 180° sine		480 320	A
I_{FSM}	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	11500 12200	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	9600 10200	
$\int i^2dt$	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	662000 620000	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	460000 430000	
T_{VJ} T_{VJM} T_{stg}			-40...+150 150 -40...+125	°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 (M8)		2.5-5/22-24 12-15/106-132	Nm/lb.in.
Weight	Typ.		600	g

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Symbol	Test Conditions	Characteristic Values	Unit
I_{RRM}	$T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$	40	mA
V_F	I_F=960A; T_{VJ}=25°C	1.3	V
V_{TO}	For power-loss calculations only	0.75	V
r_T	$T_{VJ}=T_{VJM}$	0.63	mΩ
Q_S	T_{VJ}=125°C; I_F=400A; -di/dt=50A/us	760	uC
I_{RM}		275	A
R_{thJC}	per diode; DC current per module	0.160 0.08	K/W
R_{thJK}	per diode; DC current per module	0.18 0.09	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
* Isolation voltage 3600 V~
* RoHs compliant

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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Diode-Diode Modules

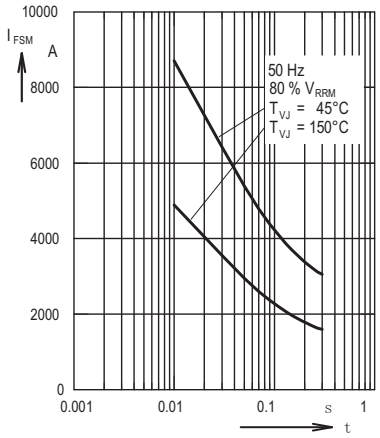

Fig. 1 Surge overload current
I_{FSM} : Crest value, t: duration

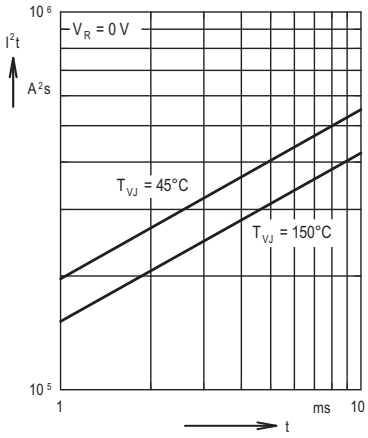

Fig. 2 I^2t versus time (1-10 ms)

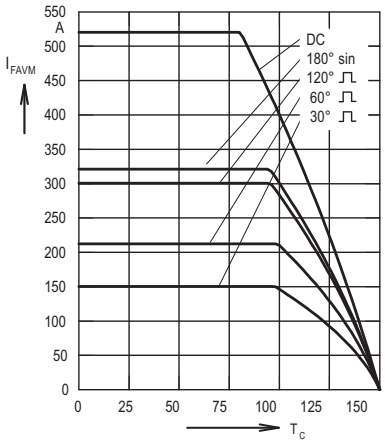

Fig. 3 Maximum forward current at case temperature

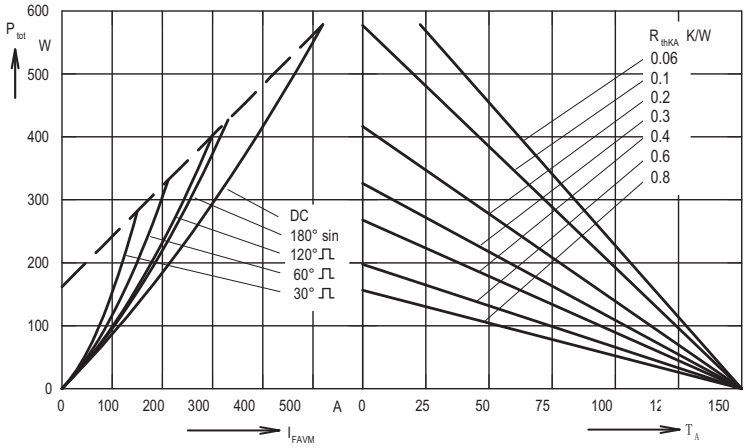

Fig. 4 Power dissipation vs. forward current and ambient temperature (per diode)

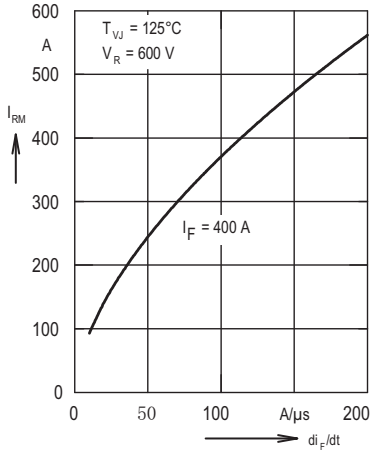

Fig. 5 Typ. peak reverse current
I_{RM} versus -di $_F$/dt

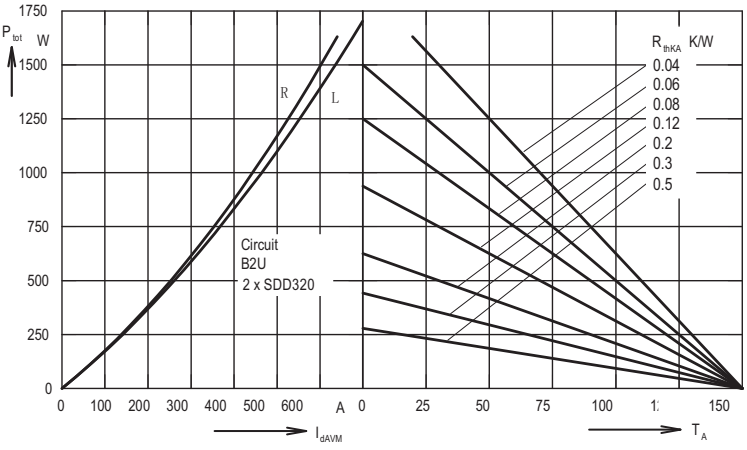

Fig. 6 Single phase rectifier bridge: Power dissipation vs. direct output current and ambient temperature R = resistive load, L = inductive load

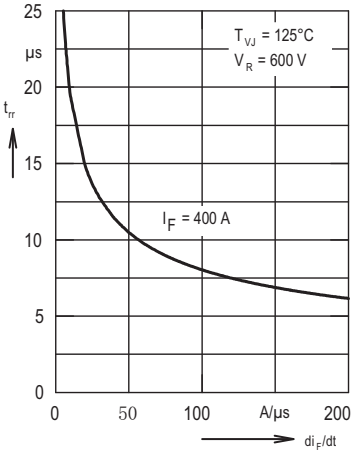

Fig. 7 Typ. recovery time t_{rr} versus -di $_F$/dt

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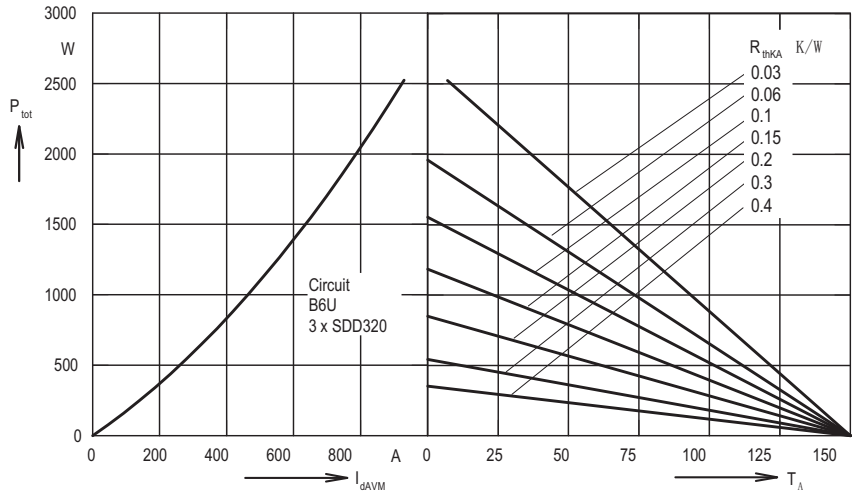

Fig. 8 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

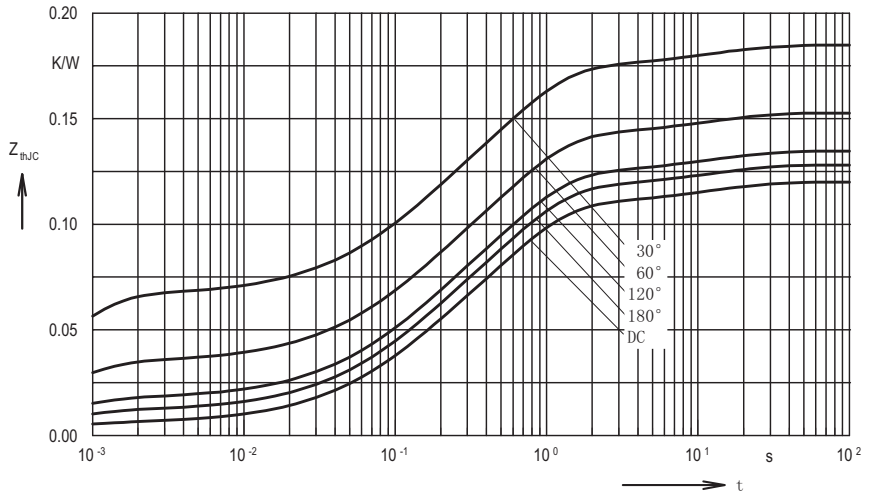

Fig. 9 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.120
180 °C	0.128
120 °C	0.135
60 °C	0.153
30 °C	0.185

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0058	0.00054
2	0.031	0.098
3	0.072	0.54
4	0.0112	12

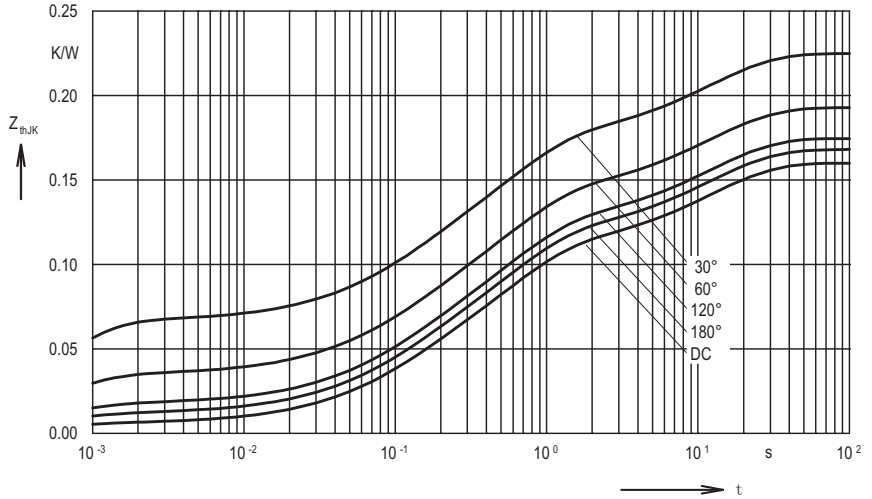

Fig. 10 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.160
180 °C	0.168
120 °C	0.175
60 °C	0.193
30 °C	0.225

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0058	0.00054
2	0.031	0.098
3	0.072	0.54
4	0.0112	12
5	0.04	12