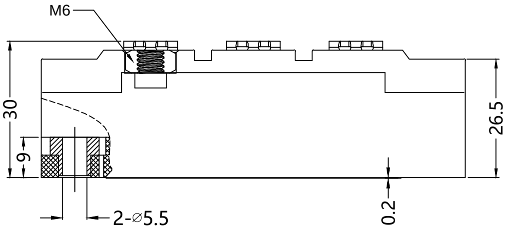
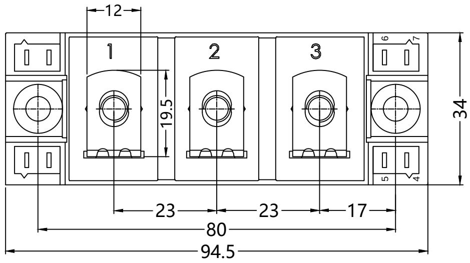
SDD165N18

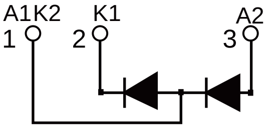
Diode-Diode Modules

Type	V_{RSM} V	V_{RRM} V
SDD165N08	900	800
SDD165N12	1300	1200
SDD165N14	1500	1400
SDD165N16	1700	1600
SDD165N18	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°C; 180° sine	260 165	A
I_{FSM}	T_{VJ}=45°C t=10ms (50Hz), sine V_R=0 t=8.3ms (60Hz), sine	4700 5000	A
	$T_{VJ}=T_{VJM}$ t=10ms(50Hz), sine V_R=0 t=8.3ms(60Hz), sine	4100 4300	
$\int i^2dt$	T_{VJ}=45°C t=10ms (50Hz), sine V_R=0 t=8.3ms (60Hz), sine	110000 104000	A^2s
	$T_{VJ}=T_{VJM}$ t=10ms(50Hz), sine V_R=0 t=8.3ms(60Hz), sine	84000 77000	
T_{VJ} T_{VJM} T_{stg}		-40...+150 150 -40...+125	°C
V_{ISOL}	50/60Hz, RMS t=1min I_{ISOL}≤1mA t=1s	3000 3600	V~
M_d	Mounting torque (M6) Terminal connection torque (M6)	2.25-2.75/20-25 4.5-5.5/40-48	Nm/lb.in.
Weight	Typical	118	g

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Diode-Diode Modules

Symbol	Test Conditions	Characteristic Values	Unit
I_R	$T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$	20	mA
V_F	$I_F=495A$; $T_{VJ}=25°C$	1.25	V
V_{TO}	For power-loss calculations only	0.8	V
r_T	$T_{VJ}=T_{VJM}$	1.3	mΩ
Q_S	$T_{VJ}=125\,°C$; $I_F=300A$; $-di/dt=50A/us$	550	uC
I_{RM}		235	A
R_{thJC}	per diode; DC current per module	0.21 0.105	K/W
R_{thJK}	per diode; DC current per module	0.31 0.155	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
* DCB base plate
* Glass passivated chips
* Isolation voltage 3600 V~
* UL File NO.E310749
* 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

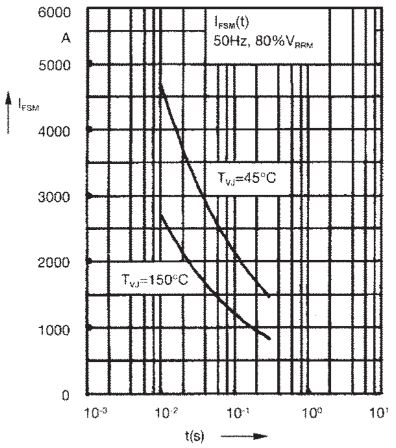

Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

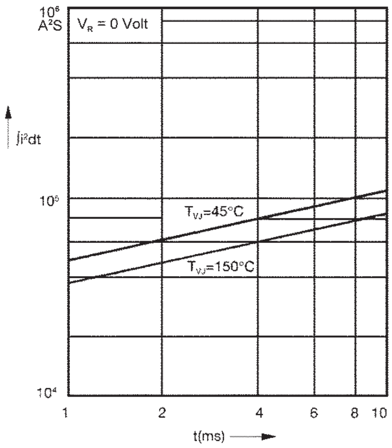

Fig. 2 ∫i²dt versus time (1-10 ms)

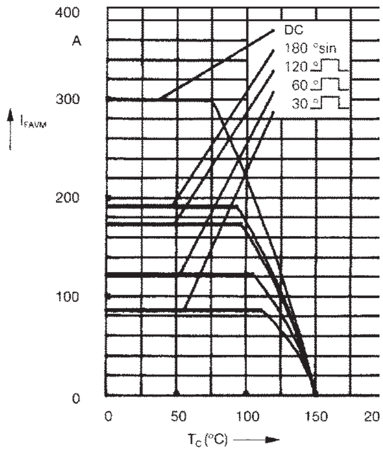

Fig. 2a Maximum forward current
at case temperature

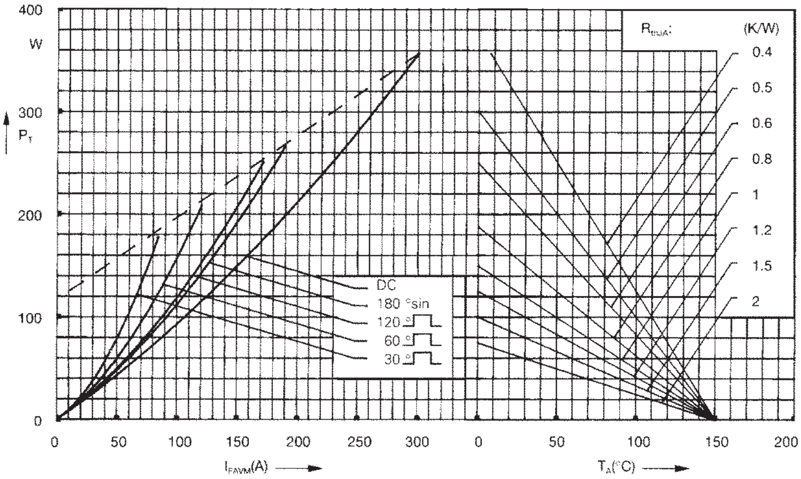

Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

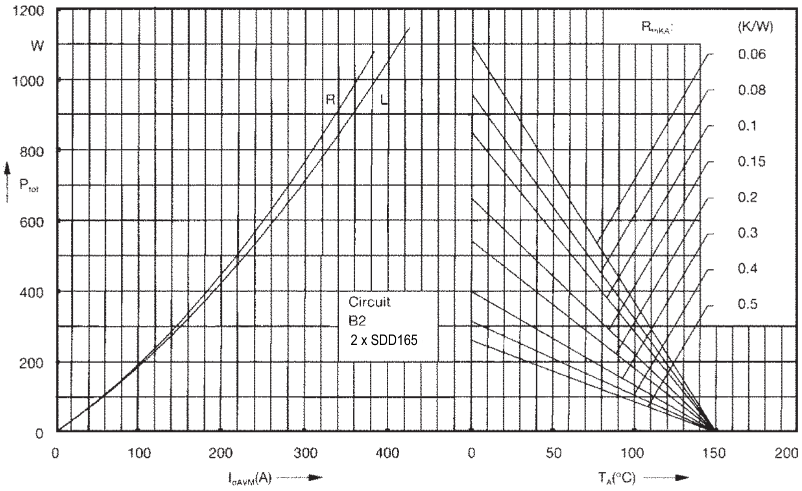

Fig. 4 Single phase rectifier bridge:
Power dissipation versus direct output current and ambient temperature
R = resistive load
L = inductive load

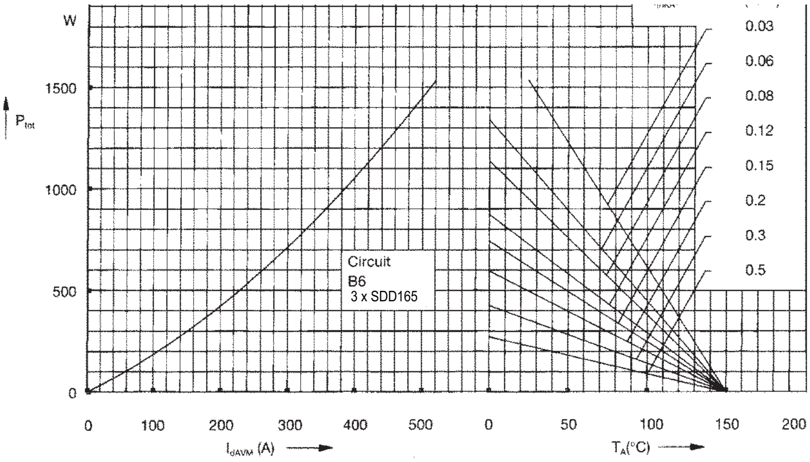

Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

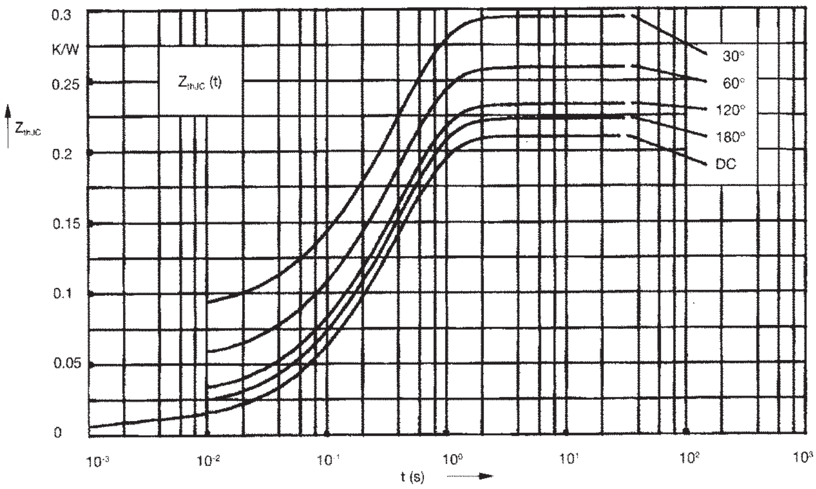

Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.210
180°C	0.223
120°C	0.233
60°C	0.260
30°C	0.295

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0087	0.001
2	0.0163	0.065
3	0.185	0.4

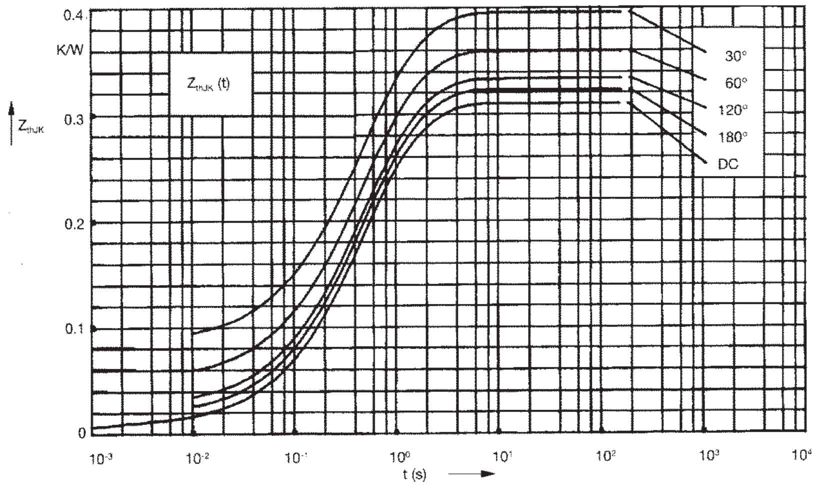

Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.31
180°C	0.323
120°C	0.333
60°C	0.360
30°C	0.395

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0087	0.001
2	0.0163	0.065
3	0.185	0.4
4	0.1	1.29