

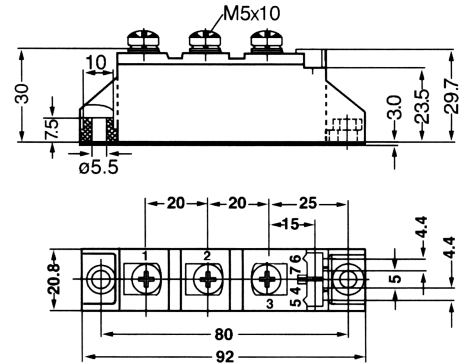
# SDD60

## Diode-Diode Modules



Type	V <sub>RSM</sub> V	V <sub>RRM</sub> V
SDD60N08	900	800
SDD60N12	1300	1200
SDD60N14	1500	1400
SDD60N16	1700	1600
SDD60N18	1900	1800

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions	Maximum Ratings	Unit
I <sub>FRMS</sub>	T <sub>VJ</sub> =T <sub>VJM</sub>	100	A
I <sub>FAVM</sub>	T <sub>C</sub> =100°C; 180° sine	60	
I <sub>FSM</sub>	T <sub>VJ</sub> =45°C V <sub>R</sub> =0 t=10ms (50Hz), sine t=8.3ms (60Hz), sine	1150 1300	A
	T <sub>VJ</sub> =T <sub>VJM</sub> V <sub>R</sub> =0 t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1000 1200	
∫i <sup>2</sup> dt	T <sub>VJ</sub> =45°C V <sub>R</sub> =0 t=10ms (50Hz), sine t=8.3ms (60Hz), sine	6600 7000	A <sup>2</sup> s
	T <sub>VJ</sub> =T <sub>VJM</sub> V <sub>R</sub> =0 t=10ms(50Hz), sine t=8.3ms(60Hz), sine	5000 5950	
T <sub>VJ</sub> T <sub>VJM</sub> T <sub>stg</sub>		-40...+150 150 -40...+125	°C
V <sub>ISOL</sub>	50/60Hz, RMS I <sub>ISOL</sub> ≤1mA t=1min t=1s	3000 3600	V~
M <sub>d</sub>	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
<b>I<sub>R</sub></b>	$T_{VJ}=T_{VJM}; V_R=V_{RRM}$	10	mA
<b>V<sub>F</sub></b>	$I_F=200A; T_{VJ}=25^{\circ}C$	1.60	V
<b>V<sub>To</sub></b>	For power-loss calculations only	0.8	V
<b>r<sub>T</sub></b>	$T_{VJ}=T_{VJM}$	4.3	mΩ
<b>Q<sub>s</sub></b>	$T_{VJ}=125^{\circ}C; I_F=50A; -di/dt=0.64A/us$	90	uC
<b>I<sub>RM</sub></b>		11	A
<b>R<sub>thJC</sub></b>	per diode; DC current per module	0.59 0.295	K/W
<b>R<sub>thJK</sub></b>	per diode; DC current per module	0.79 0.395	K/W
<b>d<sub>s</sub></b>	Creepage distance on surface	12.7	mm
<b>d<sub>A</sub></b>	Strike distance through air	9.6	mm
<b>a</b>	Maximum allowable acceleration	50	m/s <sup>2</sup>

### 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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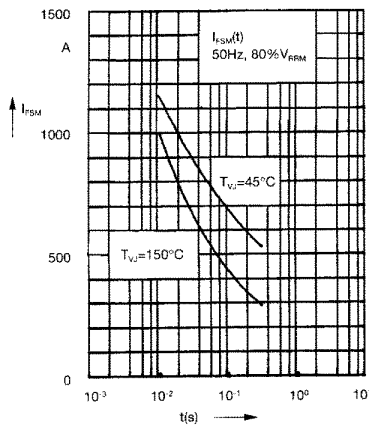


Fig. 1 Surge overload current  
 $I_{FSM}$ : Crest value,  $t$ : duration

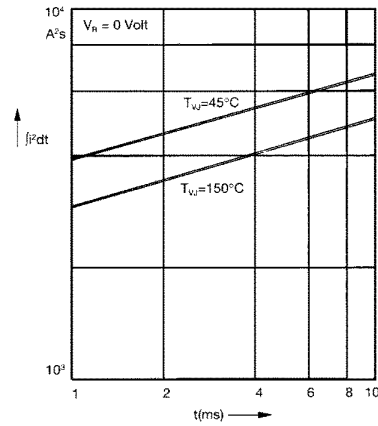


Fig. 2  $\int i^2 dt$  versus time (1-10 ms)

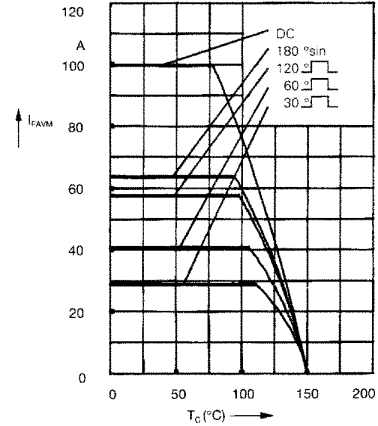


Fig. 2a Maximum forward current at case temperature

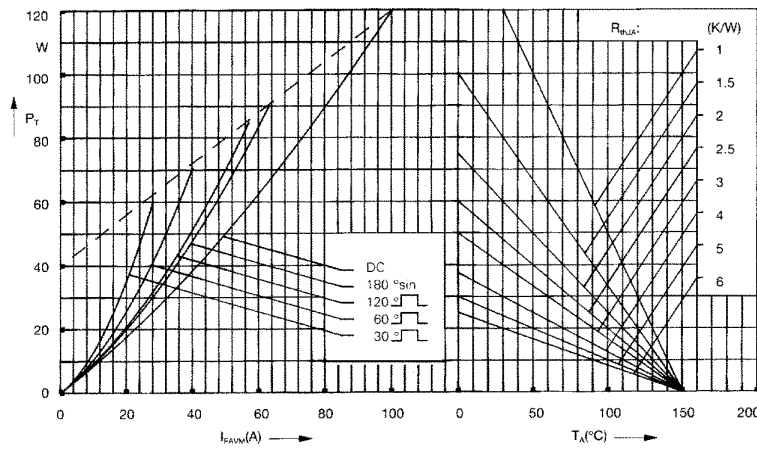


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

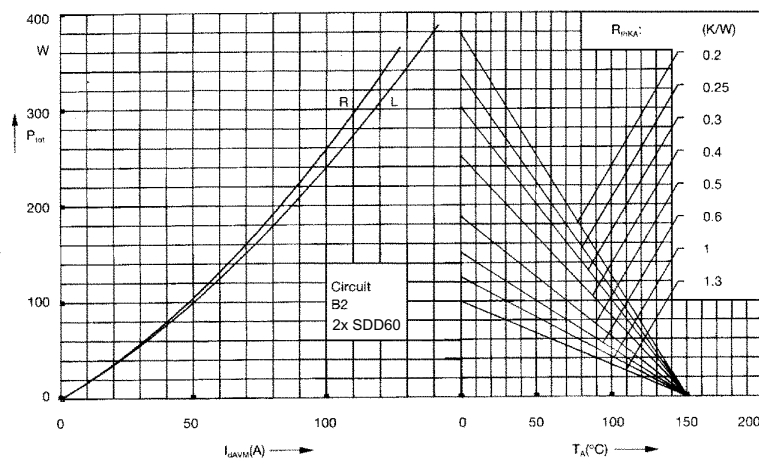


Fig. 4 Single phase rectifier bridge:  
Power dissipation versus direct output current and ambient temperature  
R = resistive load  
L = inductive load

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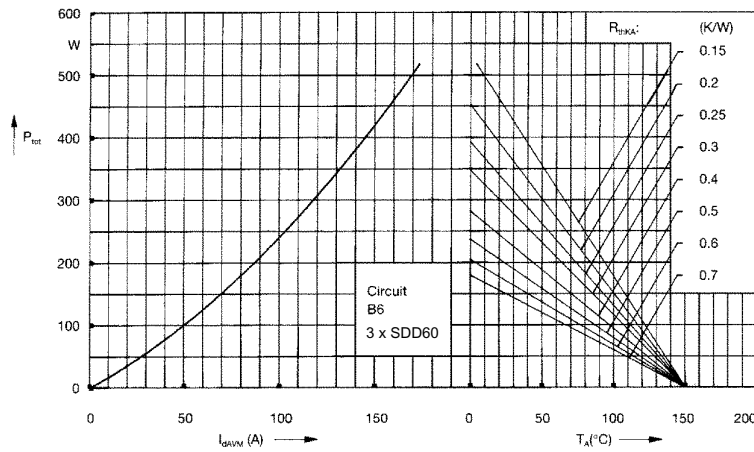


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

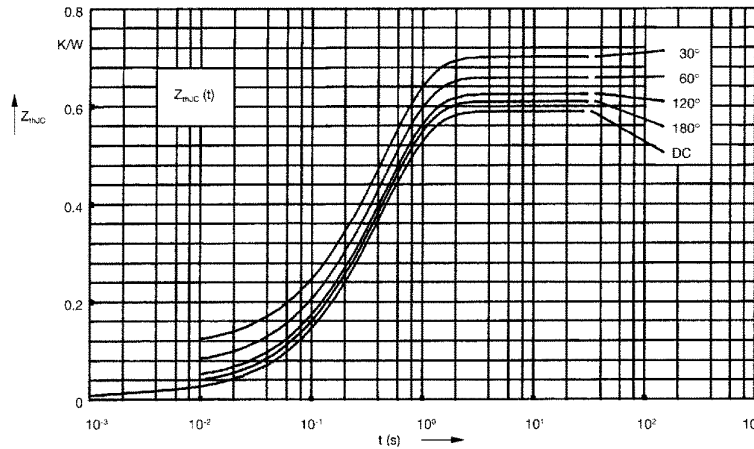


Fig. 6 Transient thermal impedance junction to case (per diode)

$R_{thJC}$  for various conduction angles  $d$ :

$d$	$R_{thJC}$ (K/W)
DC	0.59
180°	0.61
120°	0.63
60°	0.66
30°	0.70

Constants for  $Z_{thJC}$  calculation:

$i$	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455

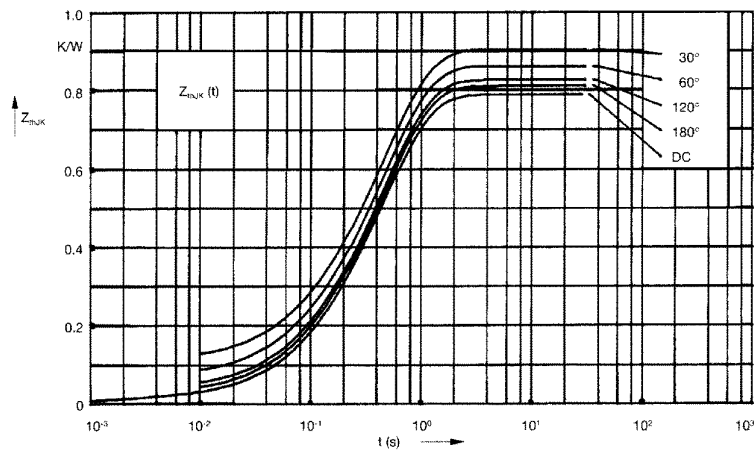


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

$R_{thJK}$  for various conduction angles  $d$ :

$d$	$R_{thJK}$ (K/W)
DC	0.79
180°	0.81
120°	0.83
60°	0.86
30°	0.90

Constants for  $Z_{thJK}$  calculation:

$i$	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.012	0.0012
2	0.045	0.095
3	0.533	0.455
4	0.2	0.495

