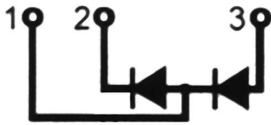
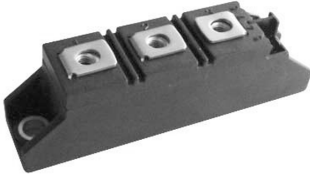


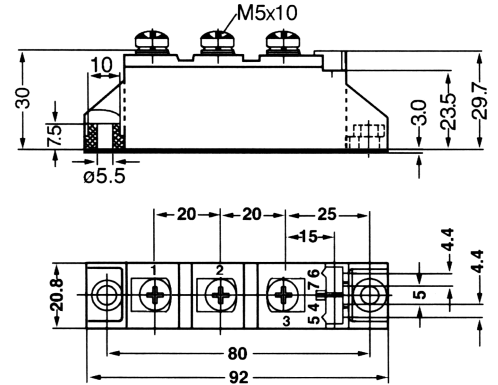
SDD70

Diode-Diode Modules



| Type | V_{RSM} V | V_{RRM} V |
|----------|----------------|----------------|
| SDD70N08 | 900 | 800 |
| SDD70N12 | 1300 | 1200 |
| SDD70N14 | 1500 | 1400 |
| SDD70N16 | 1700 | 1600 |
| SDD70N18 | 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 | 150 70 | A |
| I_{FSM} | $T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine | 1400 1650 | A |
| | $T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine | 1200 1400 | |
| $\int i^2 dt$ | $T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine | 9800 11300 | A^2s |
| | $T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine | 7200 8100 | |
| 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 |

SDD70

Diode-Diode Modules

| Symbol | Test Conditions | Characteristic Values | Unit |
|-------------------------|--|-----------------------|------------------|
| I_R | $T_{VJ}=T_{VJM}; V_R=V_{RRM}$ | 10 | mA |
| V_F | $I_F=200A; T_{VJ}=25^{\circ}C$ | 1.48 | V |
| V_{TO} | For power-loss calculations only | 0.8 | V |
| r_T | $T_{VJ}=T_{VJM}$ | 3 | m Ω |
| Q_s | $T_{VJ}=125^{\circ}C; I_F=50A; -di/dt=3A/us$ | 100 | μC |
| I_{RM} | | 24 | A |
| R_{thJC} | per diode; DC current per module | 0.51 0.255 | K/W |
| R_{thJK} | per diode; DC current per module | 0.71 0.355 | K/W |
| ds | Creepage distance on surface | 12.7 | mm |
| da | 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

SDD70

Diode-Diode Modules

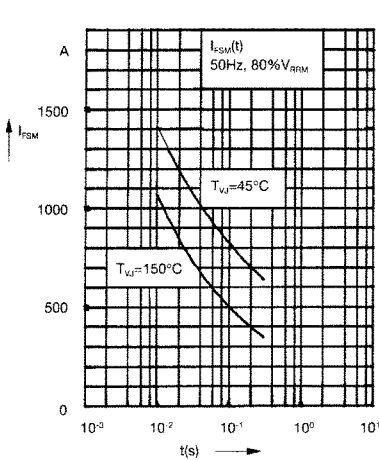


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

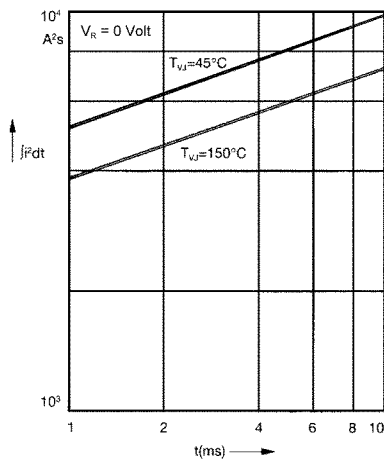


Fig. 2 $\int i^2 dt$ versus time (1-10 ms)

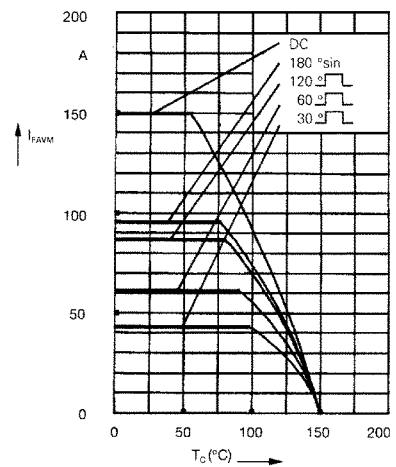


Fig. 2a Maximum forward current at case temperature

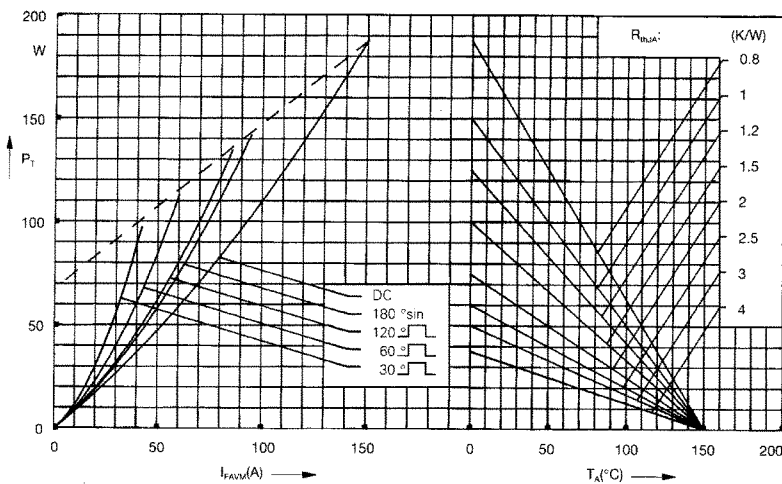


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

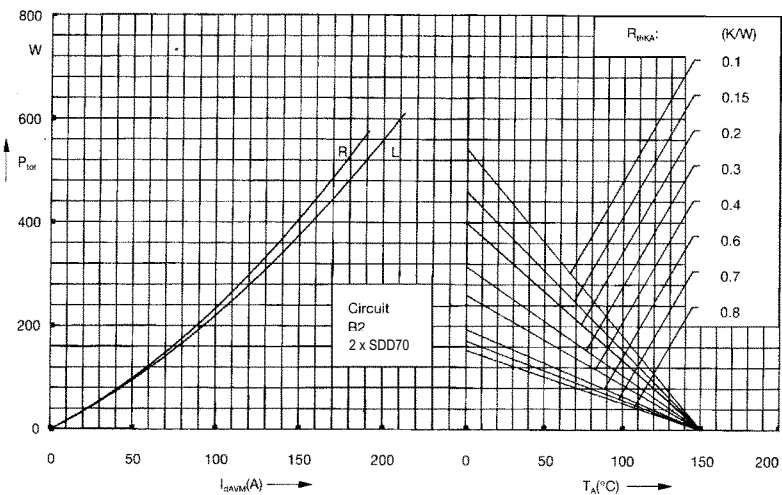


Fig. 4 Single phase rectifier bridge:
 Power dissipation versus direct output current and ambient temperature
 R = resistive load
 L = inductive load

SDD70

Diode-Diode Modules

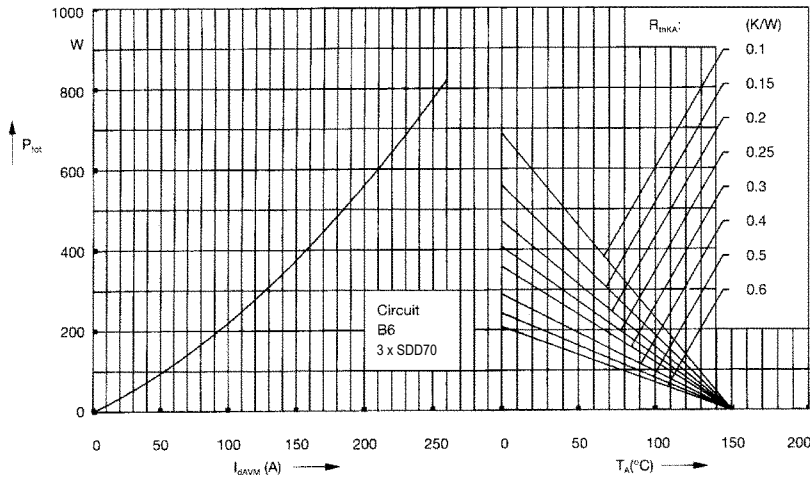


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

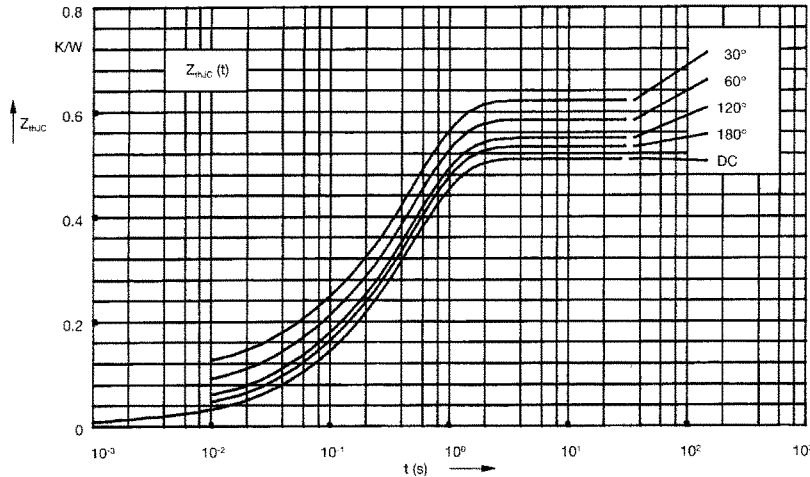


Fig. 6 Transient thermal impedance junction to case (per diode)

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

| d | $R_{\theta JC}$ (K/W) |
|-------|-----------------------|
| DC | 0.51 |
| 180°C | 0.53 |
| 120°C | 0.55 |
| 60°C | 0.58 |
| 30°C | 0.62 |

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

| i | $R_{\theta i}$ (K/W) | t_i (s) |
|---|----------------------|-----------|
| 1 | 0.013 | 0.0015 |
| 2 | 0.055 | 0.045 |
| 3 | 0.442 | 0.485 |

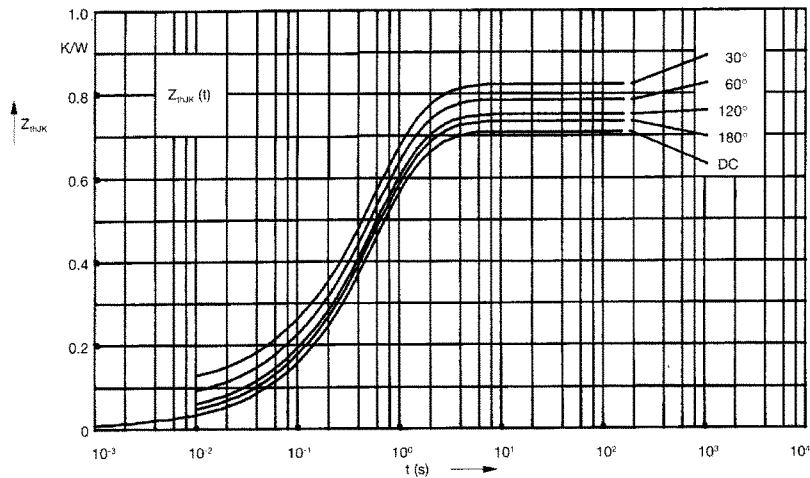


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

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

| d | $R_{\theta JK}$ (K/W) |
|-------|-----------------------|
| DC | 0.71 |
| 180°C | 0.73 |
| 120°C | 0.75 |
| 60°C | 0.78 |
| 30°C | 0.82 |

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

| i | $R_{\theta i}$ (K/W) | t_i (s) |
|---|----------------------|-----------|
| 1 | 0.013 | 0.0015 |
| 2 | 0.055 | 0.045 |
| 3 | 0.442 | 0.485 |
| 4 | 0.2 | 1.25 |