

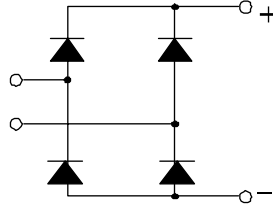
## Single Phase Rectifier Bridge

### PSB 55

$I_{dAVM} = 50 \text{ A}$   
 $V_{RRM} = 800-1800 \text{ V}$

Preliminary Data Sheet

| $V_{RSM}$<br>V | $V_{RRM}$<br>V | Type      |
|----------------|----------------|-----------|
| 800            | 800            | PSB 55/08 |
| 1200           | 1200           | PSB 55/12 |
| 1400           | 1400           | PSB 55/14 |
| 1600           | 1600           | PSB 55/16 |
| 1800           | 1800           | PSB 55/18 |



| Symbol        | Test Conditions   | Maximum Ratings                |
|---------------|---|--------------------------------|
| $I_{dAVM}$    | $T_C = 64^\circ\text{C}$ , module   | 50 A                           |
| $I_{FSM}$     | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine | 750 A                          |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 820 A                          |
|               | $T_{VJ} = T_{VJM}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine          | 670 A                          |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 740 A                          |
| $\int i^2 dt$ | $T_{VJ} = 45^\circ\text{C}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine | 2800 $\text{A}^2 \text{ s}$    |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 2820 $\text{A}^2 \text{ s}$    |
|               | $T_{VJ} = T_{VJM}$<br>$V_R = 0$<br>$t = 10 \text{ ms}$ (50 Hz), sine          | 2250 $\text{A}^2 \text{ s}$    |
|               | $t = 8.3 \text{ ms}$ (60 Hz), sine  | 2300 $\text{A}^2 \text{ s}$    |
| $T_{VJ}$      |   | -40 ... + 150 $^\circ\text{C}$ |
| $T_{VJM}$     |   | 150 $^\circ\text{C}$           |
| $T_{stg}$     |   | -40 ... + 150 $^\circ\text{C}$ |
| $V_{ISOL}$    | 50/60 HZ, RMS<br>$t = 1 \text{ min}$  | 2500 V~                        |
|               | $I_{ISOL} \leq 1 \text{ mA}$<br>$t = 1 \text{ s}$                             | 3000 V~                        |
| $M_d$         | Mounting torque (M5)  | 5 Nm                           |
|               | Terminal connection torque (M5)   | 3 Nm                           |
| Weight        | typ.  | 260 g                          |

### Features

- Package with screw terminals
- Isolation voltage 3000 V~
- Planar glasspassivated chips
- Blocking voltage up to 1800 V
- Low forward voltage drop
- UL registered E 148688

### Applications

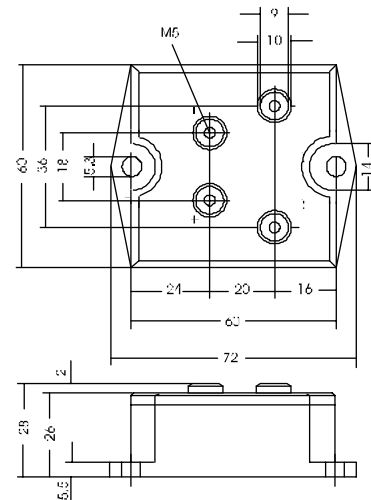
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

### Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling

### Package, style and outline

Dimensions in mm (1mm = 0.0394")



| Symbol     | Test Conditions                                   | Characteristic Value   |
|------------|---|------------------------|
| $I_R$      | $V_R = V_{RRM}$ $T_{VJ} = 25^\circ\text{C}$       | $\leq 0.3 \text{ mA}$  |
|            | $V_R = V_{RRM}$ $T_{VJ} = T_{VJM}$                | $\leq 10.0 \text{ mA}$ |
| $V_F$      | $I_F = 150 \text{ A}$ $T_{VJ} = 25^\circ\text{C}$ | $\leq 1.6 \text{ V}$   |
| $V_{TO}$   | For power-loss calculations only                  | 0.85 V                 |
| $r_T$      | $T_{VJ} = T_{VJM}$                                | 8 $\text{m}\Omega$     |
| $R_{thJC}$ | per Diode; DC current                             | 2.6 K/W                |
|            | per module  | 0.65 K/W               |
| $R_{thJK}$ | per Diode; DC current                             | 2.84 K/W               |
|            | per module  | 0.71 K/W               |
| $d_s$      | Creeping distance on surface                      | 7.8 mm                 |
| $d_A$      | Creeping distance in air                          | 7.8 mm                 |
| $a$        | Max. allowable acceleration                       | 50 $\text{m/s}^2$      |

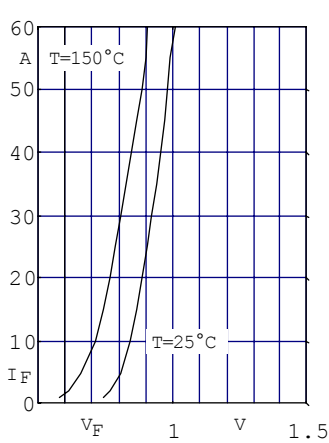


Fig. 1 Forward current versus voltage drop per diode

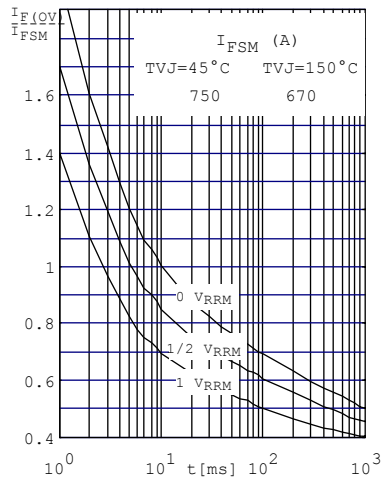


Fig. 2 Surge overload current per diode  $I_{FSM}$ : Crest value.  $t$ : duration

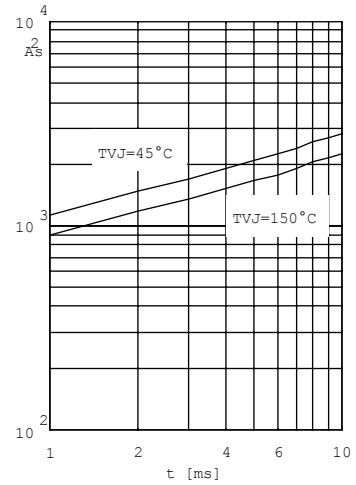


Fig. 3  $\int i^2 dt$  versus time (1-10ms) per diode (or thyristor)

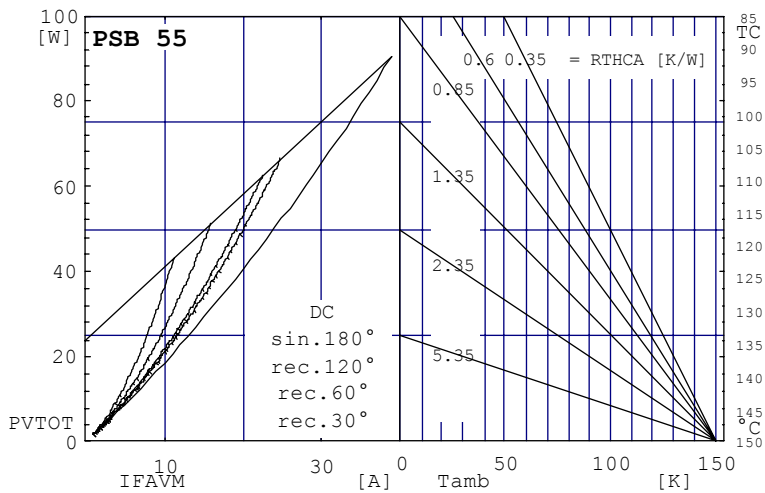


Fig. 4 Power dissipation versus direct output current and ambient temperature

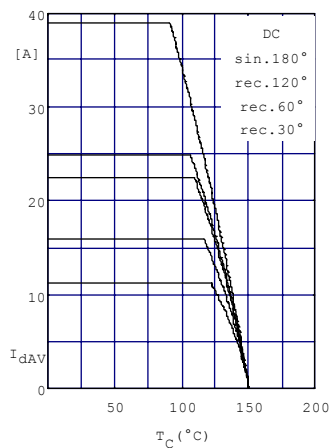


Fig.5 Maximum forward current at case temperature

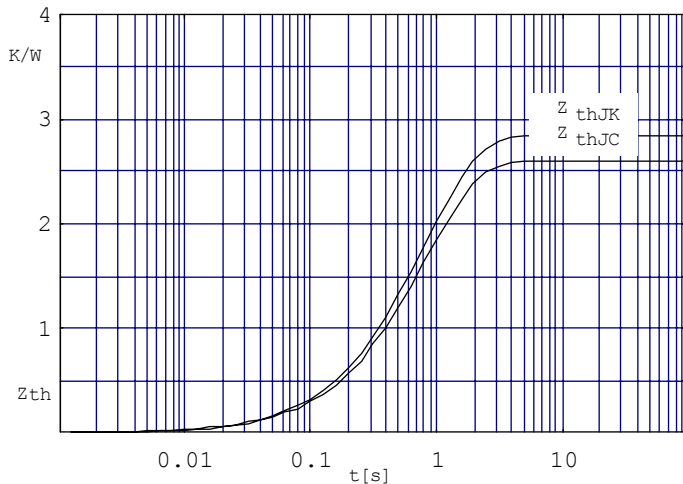


Fig. 6 Transient thermal impedance per diode (or Thyristor), calculated