

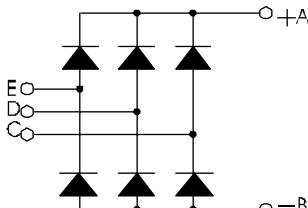
## Three Phase Rectifier Bridges

### PSD 51

$I_{dAVM} = 85 \text{ A}$   
 $V_{RRM} = 800-1800 \text{ V}$

#### Preliminary Data Sheet

$V_{RSM}$ V	$V_{RRM}$ V	Type
800	800	PSD 51/08
1200	1200	PSD 51/12
1400	1400	PSD 51/14
1600	1600	PSD 51/16
1800	1800	PSD 51/18



Symbol	Test Conditions			Maximum Ratings	
$I_{dAVM}$	$T_C = 100^\circ\text{C}$ , module			85	A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}$	$t = 10 \text{ ms}$	(50 Hz), sine	750	A
	$V_R = 0$	$t = 8.3 \text{ ms}$	(60 Hz), sine	820	A
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms}$	(50 Hz), sine	600	A
	$V_R = 0$	$t = 8.3 \text{ ms}$	(60 Hz), sine	700	A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$	$t = 10 \text{ ms}$	(50 Hz), sine	2800	$\text{A}^2 \text{ s}$
	$V_R = 0$	$t = 8.3 \text{ ms}$	(60 Hz), sine	2820	$\text{A}^2 \text{ s}$
	$T_{VJ} = T_{VJM}$	$t = 10 \text{ ms}$	(50 Hz), sine	2200	$\text{A}^2 \text{ s}$
	$V_R = 0$	$t = 8.3 \text{ ms}$	(60 Hz), sine	2250	$\text{A}^2 \text{ s}$
$T_{VJ}$				-40 ... + 150	$^\circ\text{C}$
$T_{VJM}$				150	$^\circ\text{C}$
$T_{stg}$				-40 ... + 125	$^\circ\text{C}$
$V_{ISOL}$	50/60 HZ, RMS	$t = 1 \text{ min}$		2500	V ~
	$I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ s}$		3000	V ~
$M_d$	Mounting torque	(M5)		5±15 %	Nm
<b>Weight</b>	typ.			110	g

#### Features

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

#### Applications

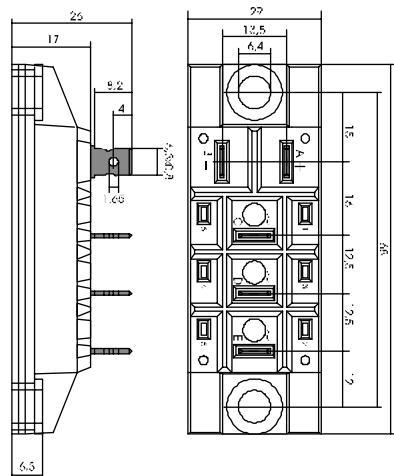
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

#### 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	
$I_R$	$V_R = V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$	$\leq$	0.5	mA
	$V_R = V_{RRM}$	$T_{VJ} = T_{VJM}$	$\leq$	10	mA
$V_F$	$I_F = 150 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$	$\leq$	1.6	V
$V_{TO}$	For power-loss calculations only			0.8	V
$r_T$	$T_{VJ} = T_{VJM}$			6	$\text{m}\Omega$
$R_{thJC}$	per Diode; DC current			1.3	K/W
	per module			0.22	K/W
$R_{thJK}$	per Diode; DC current			1.6	K/W
	per module			0.27	K/W
$d_s$	Creeping distance on surface			16.1	mm
$d_A$	Creeping distance in air			7.5	mm
$a$	Max. allowable acceleration			50	$\text{m/s}^2$

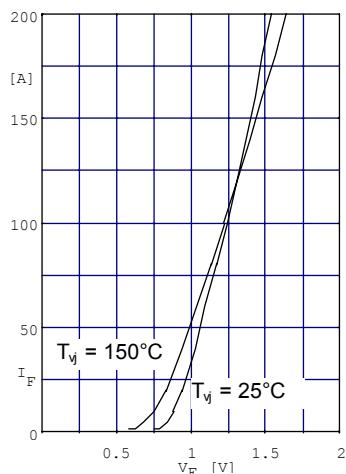


Fig. 1 Forward current versus voltage drop per diode

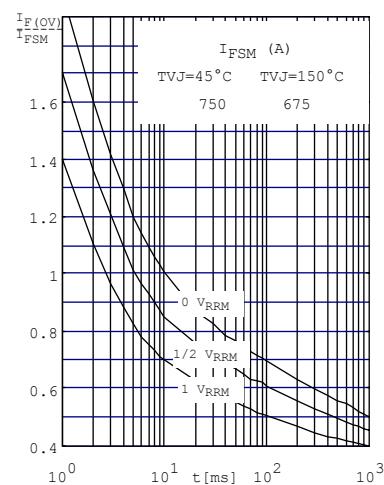


Fig. 2 Surge overload current per diode  $I_{FSM}$ : Crest value.  $t$ : duration

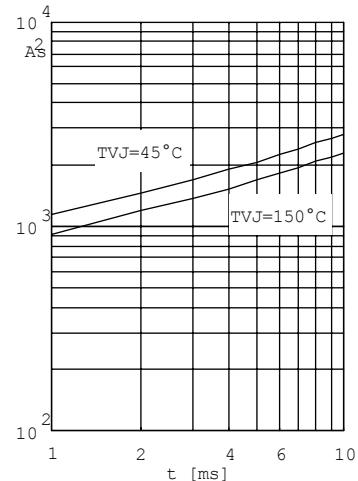


Fig. 3  $\int I^2 dt$  versus time (1-10ms) per diode (or thyristor)

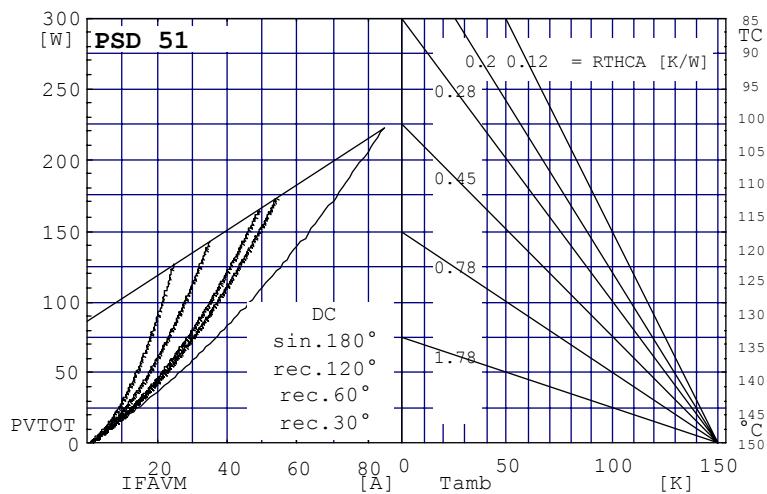


Fig. 4 Power dissipation versus direct output current and ambient temperature

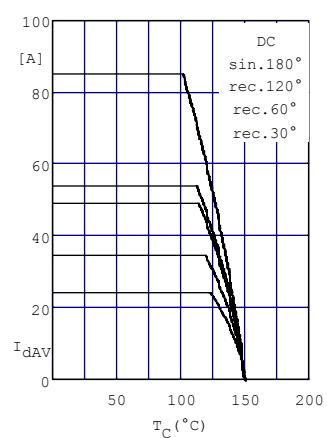


Fig. 5 Maximum forward current at case temperature

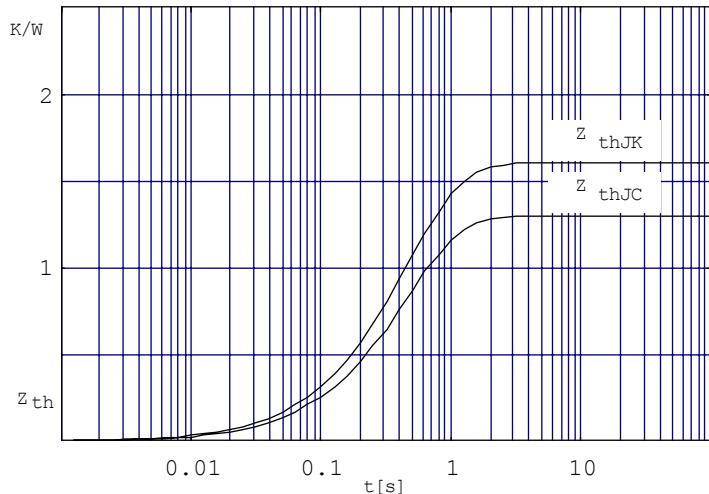


Fig. 6 Transient thermal impedance per diode (or Thyristor), calculated