POWERSEM
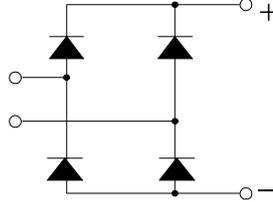
Single Phase Rectifier Bridges   PSB 125

I_{dAVM} = 125A
V_{RRM} = 800-1800 V

Preliminary Data Sheet

V_{RSM} V	V_{RRM} V	Type
800	800	PSB 125/08
1200	1200	PSB 125/12
1400	1400	PSB 125/14
1600	1600	PSB 125/16
1800	1800	PSB 125/18

Symbol	Test Conditions				Maximum Ratings	
I_{dAVM}	T_C = 85°C, module				125	A
I_{FSM}	T_{VJ} = 45°C	t = 10 ms	(50 Hz), sine		1800	A
	V_R = 0	t = 8.3 ms	(60 Hz), sine		1950	A
	T_{VJ} = T_{VJM}	t = 10 ms	(50 Hz), sine		1600	A
	V_R = 0	t = 8.3 ms	(60 Hz), sine		1800	A
∫ i^2 dt	T_{VJ} = 45°C	t = 10 ms	(50 Hz), sine		16200	A^2 s
	V_R = 0	t = 8.3 ms	(60 Hz), sine		16000	A^2 s
	T_{VJ} = T_{VJM}	t = 10 ms	(50 Hz), sine		12800	A^2 s
	V_R = 0	t = 8.3 ms	(60 Hz), sine		13600	A^2 s
T_{VJ}					-40 ... + 150	°C
T_{VJM}					150	°C
T_{stg}					-40 ... + 150	°C
V_{ISOL}	50/60 HZ, RMS	t = 1 min			2500	V ~
	I_{ISOL} ≤ 1 mA	t = 1 s			3000	V ~
M_d	Mounting torque		(M5)		5 ± 15%	Nm
	Terminal connection torque		(M5)		5 ± 15%	Nm
Weight	typ.				225	g

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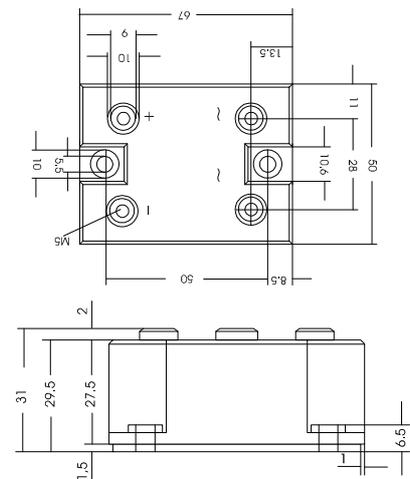- UL registered E 148688

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°C	≤	0.3	mA
	V_R = V_{RRM}	T_{VJ} = T_{VJM}	≤	8.0	mA
V_F	I_F = 150 A	T_{VJ} = 25°C	≤	1.3	V
V_{TO}	For power-loss calculations only			0.8	V
r_T	T_{VJ} = T_{VJM}			3	mΩ
R_{thJC}	per Diode; DC current			0.9	K/W
	per module			0.225	K/W
R_{thJK}	per Diode; DC current			1.1	K/W
	per module			0.275	K/W
d_S	Creeping distance on surface			17.6	mm
d_A	Creeping distance in air			17.6	mm
a	Max. allowable acceleration			50	m/s^2
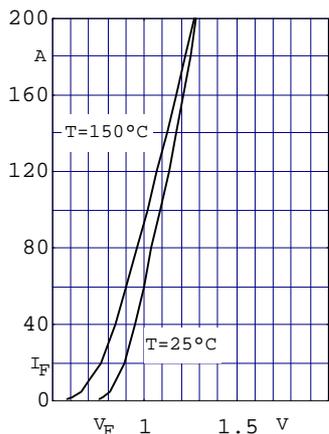
Fig. 1 Forward current versus voltage drop per diode

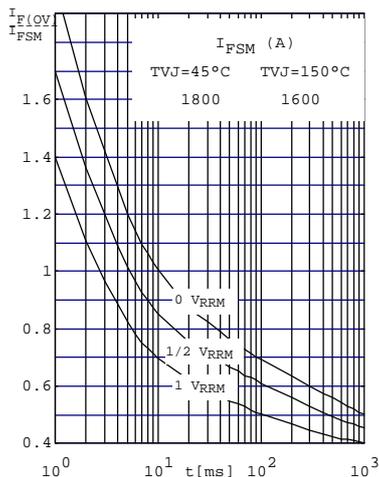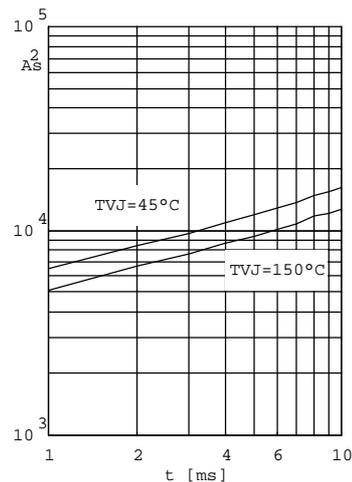Fig. 2 Surge overload current per diode I_{FSM}: Crest value. t: duration

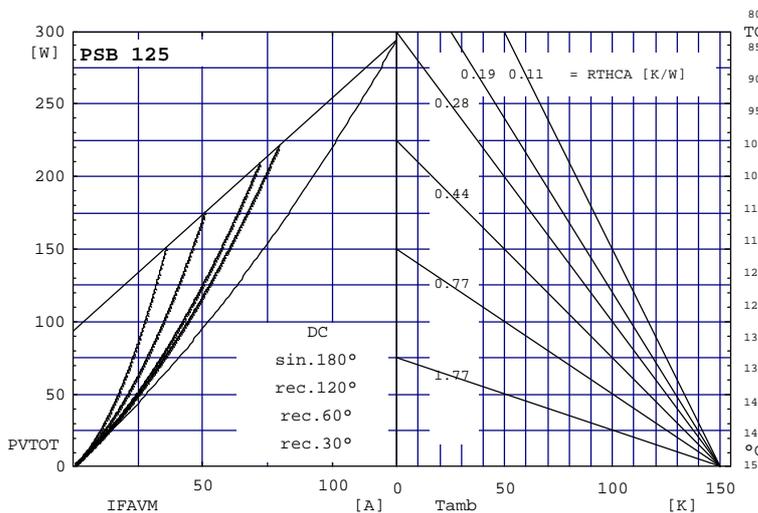Fig. 3 $\int i^2 dt$ versus time (1-10ms) per diode (or thyristor)

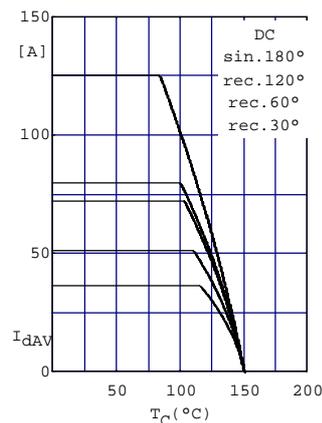Fig. 4 Power dissipation versus direct output current and ambient temperature
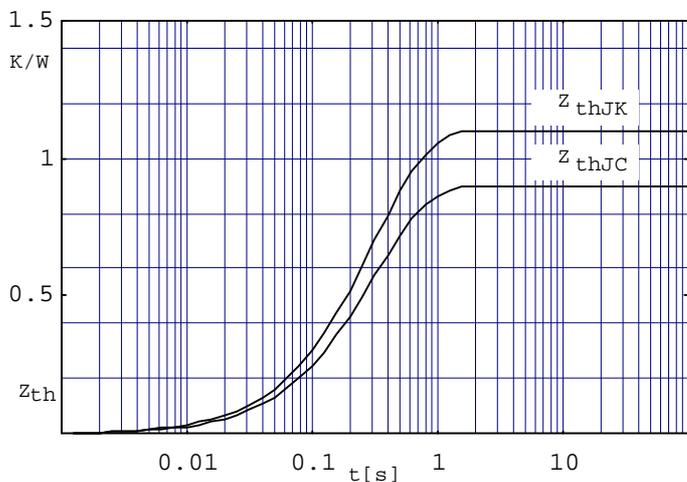
Fig.5 Maximum forward current at case temperature

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