

Single Phase Full Controlled Bridges

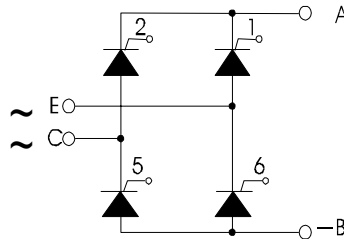
PSBT 85

I_{dAV} = 82 A
 V_{RRM} = 400-1600 V

Preliminary Data Sheet

V_{RSM} V_{DSM}	V_{RRM} V_{DRM}	Type
500	400	PSBT 85/04
900	800	PSBT 85/08
1300	1200	PSBT 85/12
1500	1400	PSBT 85/14
*1700	*1600	PSBT 85/16

* Delivery on request



Symbol	Test Conditions			Maximum Ratings	
I_{dAV}	$T_C = 85^{\circ}C$	per module		82	A
I_{TSM}	$T_{VJ} = 45^{\circ}C$	$t = 10\text{ ms}$	(50 Hz), sine	1150	A
	$V_R = 0$	$t = 8.3\text{ ms}$	(60 Hz), sine	1230	A
	$T_{VJ} = T_{VJM}$	$t = 10\text{ ms}$	(50 Hz), sine	1000	A
	$V_R = 0$	$t = 8.3\text{ ms}$	(60 Hz), sine	1070	A
$\int i^2 dt$	$T_{VJ} = 45^{\circ}C$	$t = 10\text{ ms}$	(50 Hz), sine	6600	$A^2 s$
	$V_R = 0$	$t = 8.3\text{ ms}$	(60 Hz), sine	6280	$A^2 s$
	$T_{VJ} = T_{VJM}$	$t = 10\text{ ms}$	(50 Hz), sine	5000	$A^2 s$
	$V_R = 0$	$t = 8.3\text{ ms}$	(60 Hz), sine	4750	$A^2 s$
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$	repetitive, $I_T = 50\text{ A}$		150	$A/\mu s$
	$f = 400\text{Hz}$, $t_p = 200\mu s$				
	$V_D = 2/3 V_{DRM}$				
	$I_G = 0.3\text{ A}$	non repetitive, $I_T = 1/3 \cdot I_{dAV}$		500	$A/\mu s$
$(dv/dt)_{cr}$	$di_G/dt = 0.3\text{ A}/\mu s$				
	$T_{VJ} = T_{VJM}$	$V_{DR} = 2/3 V_{DRM}$		1000	$V/\mu s$
P_{GM}	$R_{GK} = \infty$, method 1 (linear voltage rise)				
	$T_{VJ} = T_{VJM}$	$t_p = 30\mu s$		≤ 10	W
P_{GAVM}	$I_T = I_{TAVM}$	$t_p = 500\mu s$		≤ 5	W
				0.5	W
V_{RGM}				10	V
T_{VJ}				-40 ... + 125	$^{\circ}C$
T_{VJM}				125	$^{\circ}C$
T_{stg}				-40 ... + 125	$^{\circ}C$
V_{ISOL}	50/60 HZ, RMS	$t = 1\text{ min}$		2500	$V \sim$
	$I_{ISOL} \leq 1\text{ mA}$	$t = 1\text{ s}$		3000	$V \sim$
M_d	Mounting torque		(M6)	5	Nm
	Terminal connection torque		(M6)	5	Nm
Weight	typ.			270	g

Features

- Package with screw terminals
- Isolation voltage 3000 V~
- Planar glasspassivated chips
- Low forward voltage drop
- UL released, E 148688

Applications

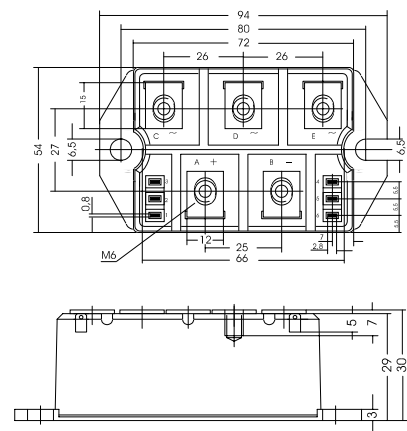
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Motor control
- Power converter

Advantages

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

Package, style and outline

Dimensions in mm (1mm = 0.0394")



Symbol	Test Conditions	Characteristic Value
I_D, I_R	$T_{VJ} = T_{VJM}, V_R = V_{RRM}, V_D = V_{DRM}$	≤ 5 mA
V_T	$I_T = 200A, T_{VJ} = 25^\circ C$	≤ 1.75 V
V_{TO}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)	0.85 V
r_T		6 m Ω
V_{GT}	$V_D = 6V$ $T_{VJ} = 25^\circ C$ $T_{VJ} = -40^\circ C$	≤ 1.5 V ≤ 1.6 V
I_{GT}	$V_D = 6V$ $T_{VJ} = 25^\circ C$ $T_{VJ} = -40^\circ C$	≤ 100 mA ≤ 200 mA
V_{GD}	$T_{VJ} = T_{VJM}$ $V_D = 2/3 V_{DRM}$	≤ 0.2 V
I_{GD}	$T_{VJ} = T_{VJM}$ $V_D = 2/3 V_{DRM}$	≤ 5 mA
I_L	$T_{VJ} = 25^\circ C, t_p = 30\mu s$ $I_G = 0.3A, di_G/dt = 0.3A/\mu s$	≤ 450 mA
I_H	$T_{VJ} = 25^\circ C, V_D = 6V, R_{GK} = \infty$	≤ 200 mA
t_{gd}	$T_{VJ} = 25^\circ C, V_D = 1/2 V_{DRM}$ $I_G = 0.3A, di_G/dt = 0.3A/\mu s$	≤ 2 μs
t_q	$T_{VJ} = T_{VJM}, I_T = 20A, t_p = 200\mu s, V_R = 100V$ $-di/dt = 10A/\mu s, dv/dt = 15V/\mu s, V_D = 2/3 V_{DRM}$	150 μs
R_{thJC}	per thyristor; sine 180°el per module	0.65 K/W 0.1625 K/W
R_{thJK}	per thyristor; sine 180° el per module	0.8 K/W 0.2 K/W
d_s	Creeping distance on surface	10.0 mm
d_A	Creeping distance in air	9.4 mm
a	Max. allowable acceleration	50 m/s ²

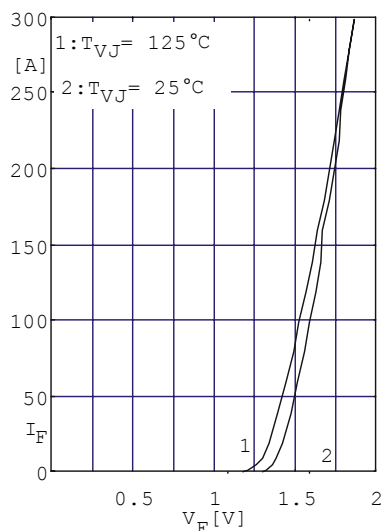


Fig. 1 Forward current vs. voltage drop per diode or thyristor

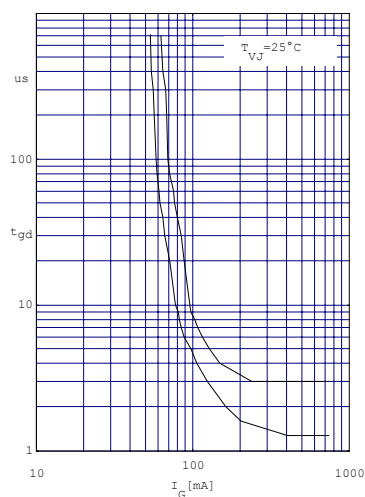


Fig. 2 Gate trigger delay time

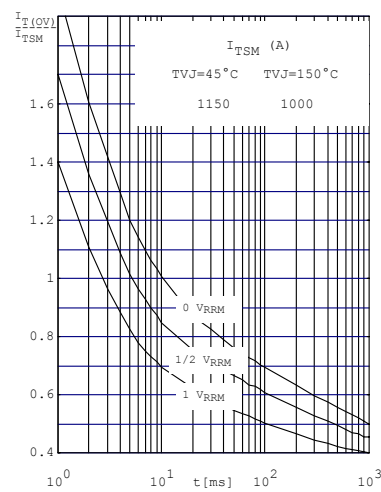


Fig. 3 Surge overload current per diode (or thyristor) I_{FSM} , I_{TSM} : Crest value t : duration

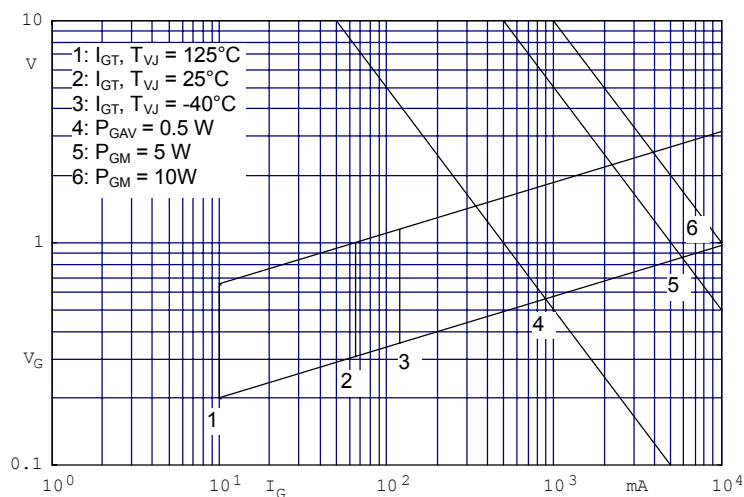


Fig.4 Gate trigger characteristic

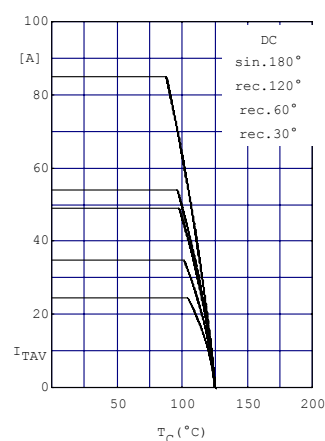


Fig.5 Maximum forward current at case temperature

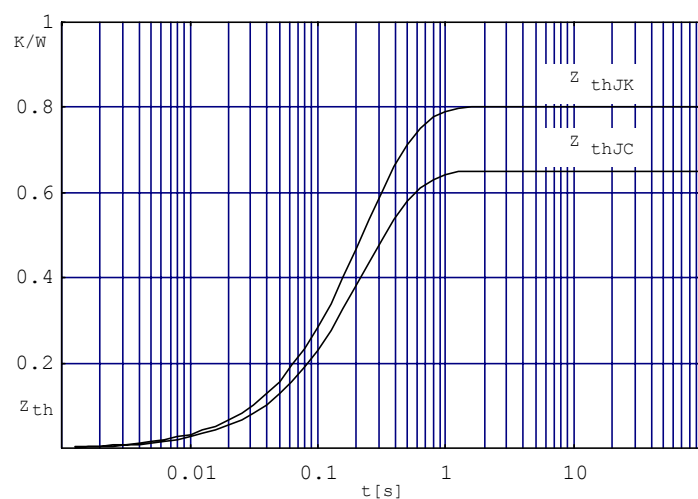


Fig.6 Transient thermal impedance per thyristor or diode (calculated)

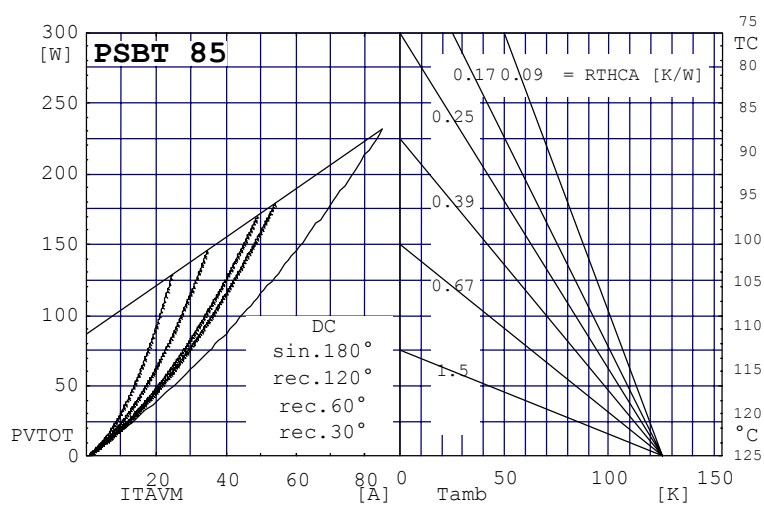


Fig. 7 Power dissipation vs. direct output current and ambient temperature