

Single Phase Half Controlled Bridges

PSBH 85

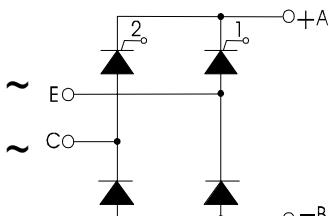
I_{dAV}
V_{RRM}

= 82 A
= 400-1600 V

Preliminary Data Sheet

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

* Delivery on request



Symbol	Test Conditions			Maximum Ratings	
I _{dAV}	T _C = 85 °C	per module		82	A
I _{FSM} , I _{TSM}	T _{VJ} = 45 °C	t = 10 ms	(50 Hz), sine	1150	A
	V _R = 0	t = 8.3 ms	(60 Hz), sine	1230	A
	T _{VJ} = T _{VJM}	t = 10 ms	(50 Hz), sine	1000	A
	V _R = 0	t = 8.3 ms	(60 Hz), sine	1070	A
∫ i ² dt	T _{VJ} = 45°C	t = 10 ms	(50 Hz), sine	6600	A ² s
	V _R = 0	t = 8.3 ms	(60 Hz), sine	6280	A ² s
	T _{VJ} = T _{VJM}	t = 10 ms	(50 Hz), sine	5000	A ² s
	V _R = 0	t = 8.3 ms	(60 Hz), sine	4750	A ² s
(di/dt) _{cr}	T _{VJ} = T _{VJM}	repetitive, I _T = 50 A		150	A/μs
	f = 400Hz, t _P = 200μs				
	V _D = 2/3 V _{DRM}				
	I _G = 0.3 A	non repetitive, I _T = 1/3 · I _{dAV}		500	A/μs
	di _G /dt = 0.3 A/μs				
(dv/dt) _{cr}	T _{VJ} = T _{VJM}	V _{DR} = 2/3 V _{DRM}		1000	V/μs
		R _{GK} = ∞, method 1 (linear voltage rise)			
P _{GM}	T _{VJ} = T _{VJM}	t _P = 30μs		≤ 10	W
	I _T = I _{TAVM}	t _P = 500μs		≤ 5	W
P _{GAVM}				0.5	W
V _{RGM}				10	V
T _{VJ}			-40 ... + 125		°C
T _{VJM}			125		°C
T _{stg}			-40 ... + 125		°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	(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

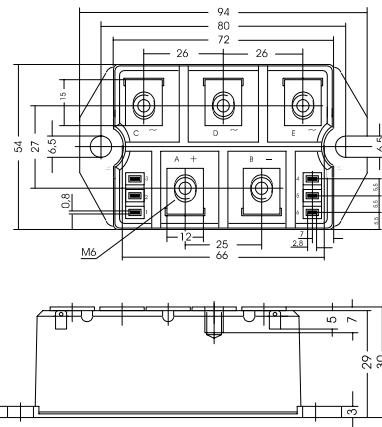
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Motor control
- Power converter

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	$T_{VJ} = T_{VJM}$, $V_R = V_{RRM}$, $V_D = V_{DRM}$		\leq	5	mA
V_T	$I_T = 200A$, $T_{VJ} = 25^\circ C$		\leq	1.75	V
V_{TO}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)			0.85	V
r_T				6	$m\Omega$
V_{GT}	$V_D = 6V$	$T_{VJ} = 25^\circ C$	\leq	1.5	V
		$T_{VJ} = -40^\circ C$	\leq	1.6	V
I_{GT}	$V_D = 6V$	$T_{VJ} = 25^\circ C$	\leq	100	mA
		$T_{VJ} = -40^\circ C$	\leq	200	mA
V_{GD}	$T_{VJ} = T_{VJM}$	$V_D = 2/3 V_{DRM}$	\leq	0.2	V
I_{GD}	$T_{VJ} = T_{VJM}$	$V_D = 2/3 V_{DRM}$	\leq	5	mA
I_L	$T_{VJ} = 25^\circ C$, $t_P = 30\mu s$		\leq	450	mA
	$I_G = 0.3A$, $dI_G/dt = 0.3A/\mu s$				
I_H	$T_{VJ} = 25^\circ C$, $V_D = 6V$, $R_{GK} = \infty$		\leq	200	mA
t_{gd}	$T_{VJ} = 25^\circ C$, $V_D = 1/2 V_{DRM}$		\leq	2	μs
	$I_G = 0.3A$, $dI_G/dt = 0.3A/\mu s$				
t_q	$T_{VJ} = T_{VJM}$, $I_T = 20A$, $t_P = 200\mu s$, $V_R = 100V$			150	μs
	$-dI/dt = 10A/\mu s$, $dv/dt = 15V/\mu s$, $V_D = 2/3 V_{DRM}$				
R_{thJC}	per thyristor; sine 180°el			0.65	K/W
	per module			0.1625	K/W
R_{thJK}	per thyristor; sine 180° el			0.8	K/W
	per module			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

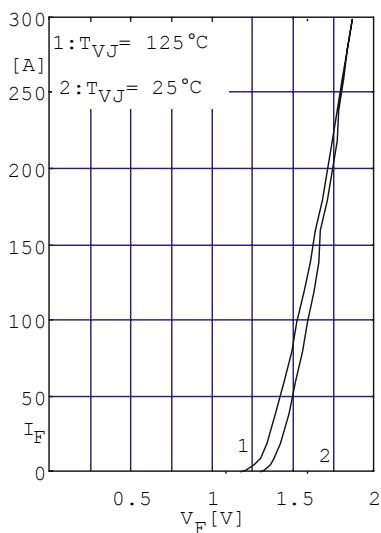


Fig. 1 Forward current vs. voltage drop per diode or thyristor

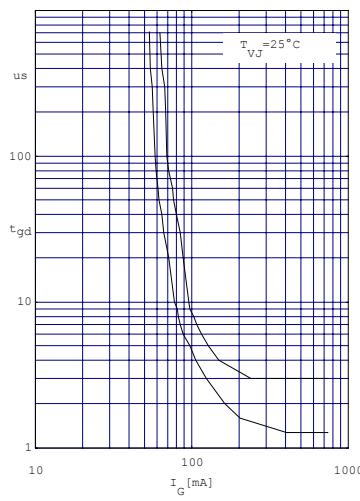


Fig. 2 Gate trigger delay time

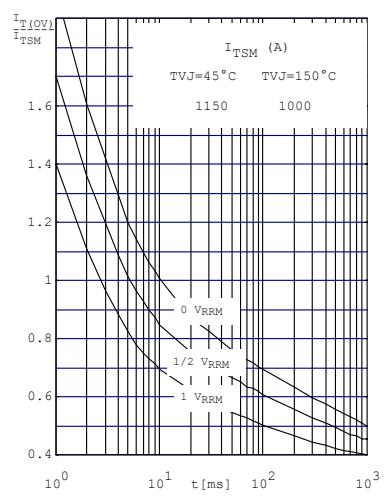


Fig. 3 Surge overload current per diode (or thyristor) I_{FSM} , I_{TSM} : Crest value t: duration

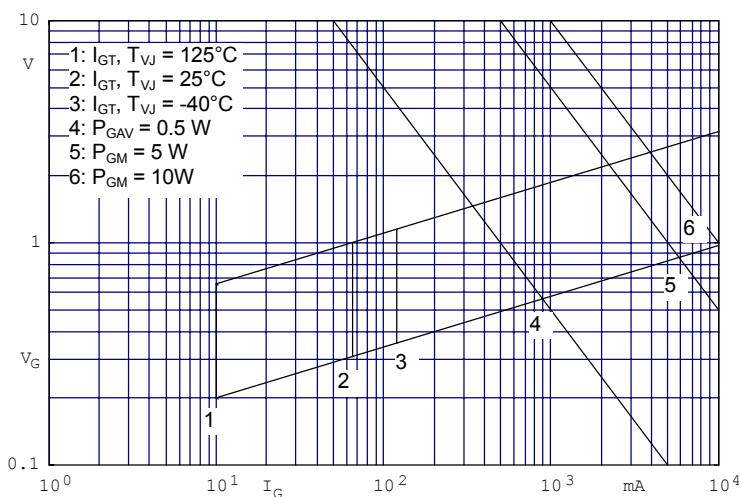


Fig.4 Gate trigger characteristic

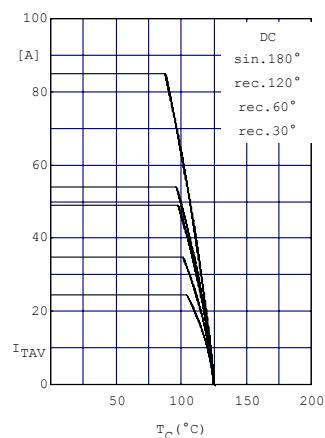


Fig.5 Maximum forward current at case temperature

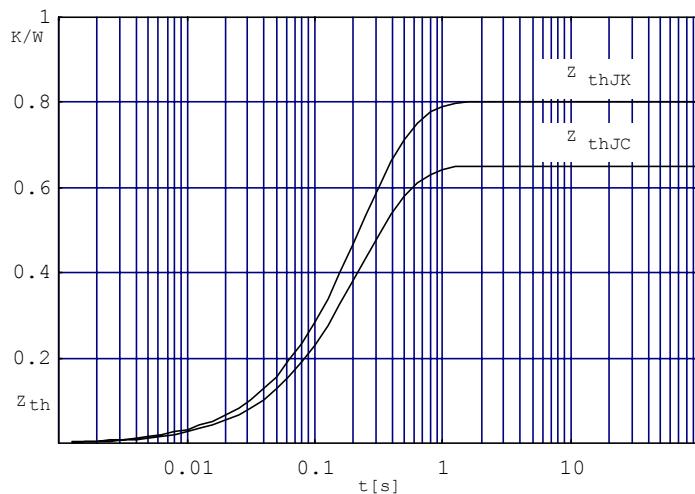


Fig.6 Transient thermal impedance per thyristor or diode (calculated)

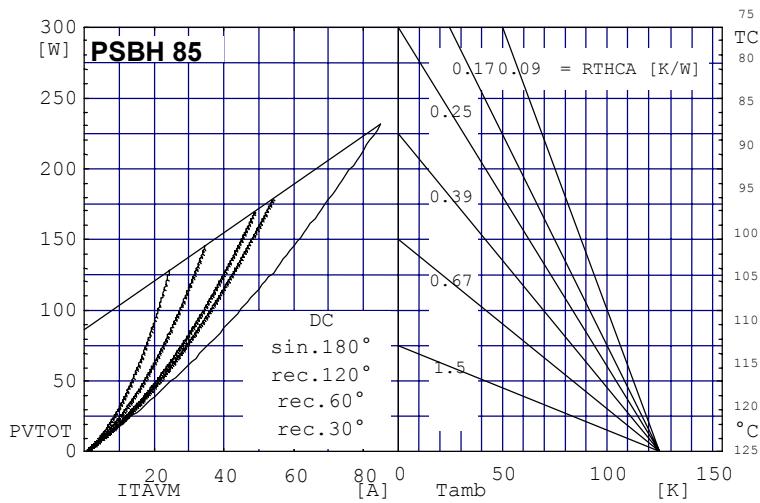


Fig. 7 Power dissipation vs. direct output current and ambient temperature