

Single Phase Half Controlled Rectifier Bridge

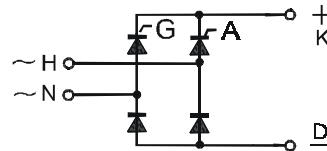
PSBH 25

$$I_{dAV} = 32 \text{ A}$$

$$V_{RRM} = 600-1200 \text{ V}$$

Preliminary Data Sheet

V_{RSM} V_{DSM} (V)	V_{RRM} V_{DRM} (V)	Type
700	600	PSBH 25/06
900	800	PSBH 25/08
1300	1200	PSBH 25/12



Symbol	Test Conditions	Maximum Ratings
I_{dAV}^*	$T_C = 85 \text{ }^\circ\text{C}$, (per module)	32 A
I_{TRMS}	$T_{VJ} = T_{VJM}$	- A
I_{TAVM}	$T_C = 85 \text{ }^\circ\text{C}$, 180° sine, per thyristor	16 A
I_{TSM}	$T_{VJ} = 45 \text{ }^\circ\text{C}$ t = 10 ms (50 Hz), sine	200 A
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	210 A
	$T_{VJ} = T_{VJM}$ t = 10 ms (50 Hz), sine	180 A
$\int i^2 dt$	$V_R = 0$ t = 8.3 ms (60 Hz), sine	190 A
	$T_{VJ} = 45 \text{ }^\circ\text{C}$ t = 10 ms (50 Hz), sine	200 A ² s
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	150 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ t = 10 ms (50 Hz), sine	160 A ² s
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	150 A ² s
	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 20 \text{ A}$	100 A/ μs
$(dv/dt)_{cr}$	$f=50\text{Hz}$, $t_p=200\mu\text{s}$	
	$V_D=2/3V_{DRM}$	
	$I_G=0.15 \text{ A}$ non repetitive, $I_T = I_{TAVM}$	500 A/ μs
P_{GM}	$di_G/dt=0.15\text{A}/\mu\text{s}$	
	$T_{VJ} = T_{VJM}$ $V_D=2/3V_{DRM}$	500 V/ μs
P_{GAVM}	$R_{GK} = \infty$, method 1 (linear voltage rise)	
	$T_{VJ} = T_{VJM}$ $t_p=30\mu\text{s}$	$\leq 5 \text{ W}$
V_{RGM}	$I_T = I_{TAVM}$ $t_p=300\mu\text{s}$	$\leq 2.5 \text{ W}$
		0.5 W
T_{VJ}		10 V
T_{VJM}		-40... + 125 °C
T_{stg}		125 °C
V_{ISOL}	-40... + 125 °C	
	50/60 Hz, RMS t = 1 min	2500 V~
M_d	$I_{ISOL} \leq 1 \text{ mA}$ t = 1 s	3000 V~
	Mounting torque (M4)	1.5 - 1.8 Nm
Weight		14 - 16 lb.in.
	typ.	16 g

Features

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- Package with DCB ceramic base plate
- Isolation voltage 3600 V~
- Planar glass passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering
- UL registered, E 148688

Applications

- Supplies for DC power equipment
- Input rectifier 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 capability
- High power density
- Small and light weight

Data according to IEC 60747 refer to a single thyristor unless otherwise stated
*for resistive load at bridge output

Symbol	Test Conditions	Characteristic Value
$I_{D,R}$	$T_{VJ} = T_{VJM}, V_R = V_{RRM}, V_D = V_{DRM}$	≤ 5 mA
V_T	$I_T = 20$ A, $T_{VJ} = 25$ °C	≤ 1.6 V
V_{TO}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)	0.8 V
r_T		27 mΩ
V_{GT}	$V_D = 6$ V, $T_{VJ} = 25$ °C	≤ 1.5 V
	$T_{VJ} = -40$ °C	≤ 2.5 V
I_{GT}	$V_D = 6$ V, $T_{VJ} = 25$ °C	≤ 25 mA
	$T_{VJ} = -40$ °C	≤ 50 mA
V_{GD}	$T_{VJ} = 125$ °C, $V_D = 2/3 V_{DRM}$	≤ 0.2 V
I_{GD}	$T_{VJ} = 125$ °C, $V_D = 2/3 V_{DRM}$	≤ 3 mA
I_L	$T_{VJ} = 25$ °C, $t_p = 10$ μs	≤ 75 mA
	$I_G = 0.1$ A, $di_G/dt = 0.1$ A/μs	
I_H	$T_{VJ} = 25$ °C, $V_D = 6$ V, $R_{GK} = \infty$	≤ 50 mA
t_{gd}	$T_{VJ} = 25$ °C, $V_D = 1/2 V_{DRM}$	≤ 2 μs
	$I_G = 0.1$ A, $di_G/dt = 0.1$ A/μs	
R_{thJC}	per thyristor; DC	1.3 K/W
	per module	0.33 K/W
R_{thJK}	per thyristor; DC	1.8 K/W
	per module	0.45 K/W
d_s	Creeping distance on surface	11.2 mm
d_A	Creeping distance in air	9.5 mm
a	Max. allowable acceleration	50 m/s ²

Package style and outline

Dimensions in mm (1mm = 0.0394")

