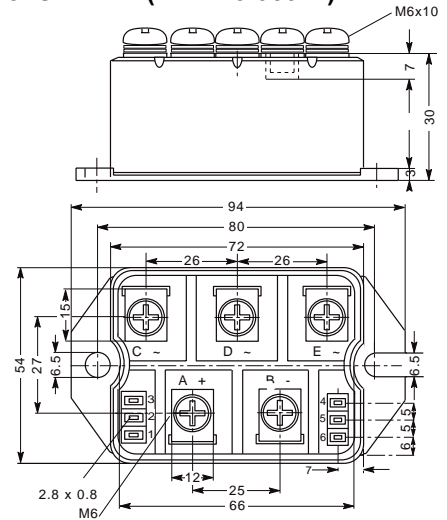
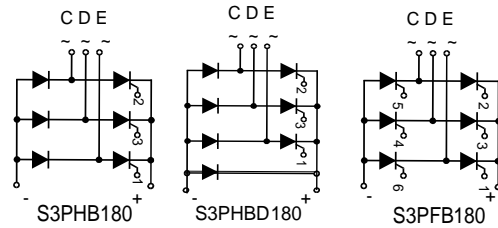
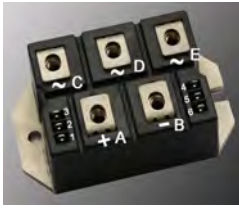


S3PHB180, S3PHBD180, S3PFB180

Three Phase Half Controlled Bridge Modules/Full Controlled Bridge

Dimensions in mm (1mm=0.0394")



Type	V_{RSM}	V_{RRM}
	V	V
S3PHB180G08B S3PHBD180G08B S3PFB180G08B	900	800
S3PHB180G12B S3PHBD180G12B S3PFB180G12B	1300	1200
S3PHB180G16B S3PHBD180G16B S3PFB180G16B	1700	1600
S3PHB180G18B S3PHBD180G18B S3PFB180G18B	1900	1800

Symbol	Test Conditions	Maximum Ratings	Unit
I_{dAV} I_{dAVM} I_{FRMS}, I_{TRMS}	$T_C=85^{\circ}C$, module module per leg	180 180 89	A
I_{FSM}, I_{TSM}	$T_{VJ}=45^{\circ}C$ $V_R=0$ $t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	1500 1600	A
	$T_{VJ}=T_{VJM}$ $V_R=0$ $t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	1350 1450	
I^2t	$T_{VJ}=45^{\circ}C$ $V_R=0$ $t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	11200 10750	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$ $t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	9100 8830	
$(di/dt)_{cr}$	$T_{VJ}=125^{\circ}C$ $f=50Hz, t_p=200\mu s$ $V_D=2/3V_{DRM}$ $I_G=0.3A$ $di_g/dt=0.3A/\mu s$	repetitive, $I_T=50A$ 150	A/ μs
	non repetitive, $I_T=1/2 \cdot I_{dAV}$	500	
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$; $R_{GK}=\infty$; method 1 (linear voltage rise)	$V_{DR}=2/3V_{DRM}$ 1000	V/ μs
P_{GM}	$T_{VJ}=T_{VJM}$ $I_T=I_{TAVM}$	$t_p=30\mu s$ $t_p=500\mu s$ $t_p=10ms$	10 5 1 W
T_{VJ} T_{VJM} T_{stg}		-40...+125 125 -40...+125	$^{\circ}C$
V_{ISOL}	50/60Hz, RMS $I_{ISOL} \leq 1mA$	$t=1min$ $t=1s$	2500 3000 V~
M_d	Mounting torque (M6) (10-32 UNF)		5 \pm 15 % 44 \pm 15 % Nm/lb.in.
Weight	typical		305 g



S3PHB180, S3PHBD180, S3PFB180

Three Phase Half Controlled Bridge Modules/Full Controlled Bridge

Symbol	Test Conditions	Characteristic Values	Unit
$I_{D,IR}$	$T_{VJ}=T_{VJM}; V_R=V_{RRM}; V_D=V_{DRM}$	5	mA
V_{TM}/V_{FM}	$I_{TM}, I_{FM}=180A; T_{VJ}=25^{\circ}C$ for every chip	1.64	V
V_{TO}	For power-loss calculations only	0.85	V
r_T		3.5	$m\Omega$
V_{GT}	$V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$	1.5 1.6	V
I_{GT}	$V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$	100 200	mA
V_{GD}	$T_{VJ}=T_{VJM}; V_D=2/3V_{DRM}$	0.2	V
I_{GD}		5	mA
I_L	$T_{VJ}=25^{\circ}C; t_p=10\mu s$ $I_G=0.45A; di_G/dt=0.45A/\mu s$	450	mA
I_H	$T_{VJ}=25^{\circ}C; V_D=6V; R_{GK}=\infty$	200	mA
t_{gd}	$T_{VJ}=25^{\circ}C; V_D=1/2V_{DRM}$ $I_G=0.45A; di_G/dt=0.45A/\mu s$	2	μs
t_q	$T_{VJ}=T_{VJM}; I_T=20A; t_p=200\mu s; -di/dt=10A/\mu s$ $V_R=100V; dv/dt=15V/\mu s; V_D=2/3V_{DRM}$ typ.	250	μs
I_{RM}		45	A
R_{thJC}	per thyristor/diode; DC current per module	0.46 0.077	K/W
R_{thJH}	per thyristor/diode; DC current per module	0.55 0.092	K/W
d_s	Creeping distance on surface	10	mm
d_A	Strike distance through air	9.4	mm
a	Maximum allowable acceleration	50	m/s^2

FEATURES

- * Low forward voltage drop
- * Package with copper base plate
- * Glass passivated chips
- * Isolation voltage 3000 V~
- * UL File NO.E310749
- * RoHS compliant

APPLICATIONS

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

ADVANTAGES

- * Space and weight savings
- * Easy to mount with two screws
- * Improved temperature and power cycling capability
- * Small and light weight



S3PHB180, S3PHBD180, S3PFB180

Three Phase Half Controlled Bridge Modules/Full Controlled Bridge

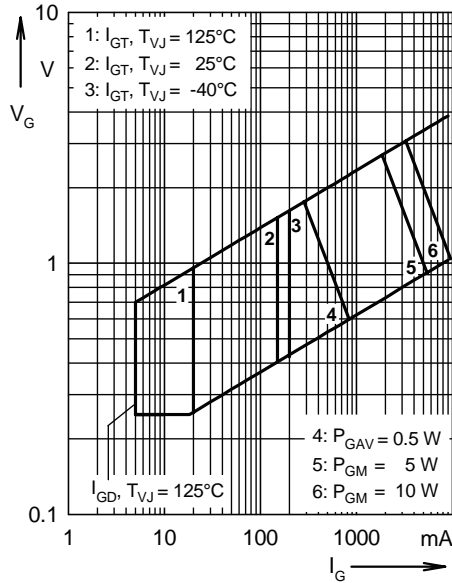


Fig. 1 Gate trigger characteristics

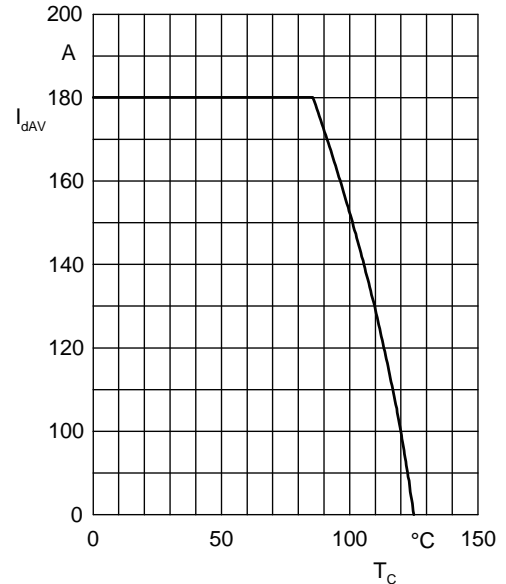


Fig. 2 DC output current at case temperature

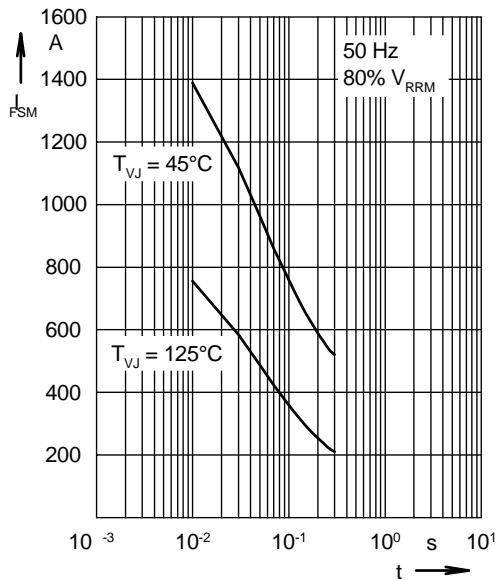


Fig. 3 Surge overload current
 I_{FSM} : Crest value, t : duration

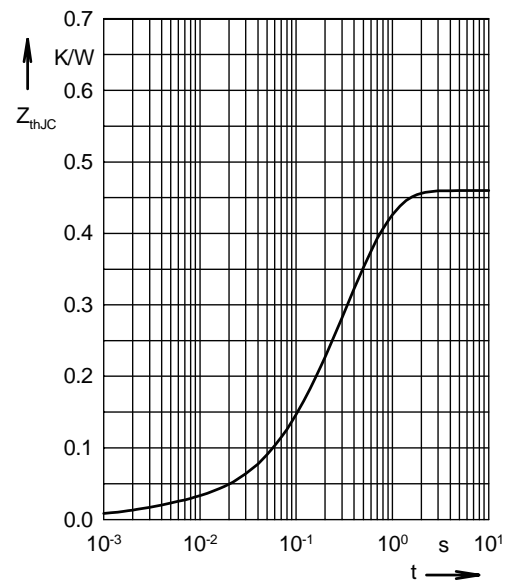


Fig. 4 Transient thermal impedance junction to case (per leg)

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