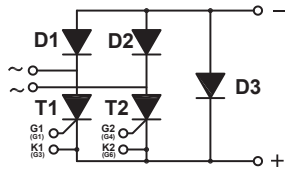


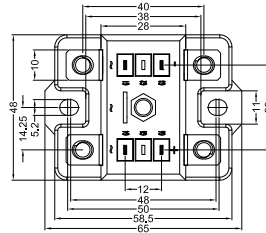
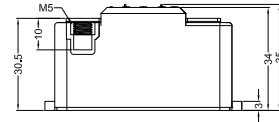
S1PHB75GK**B

Single Phase Half Controlled Bridge Modules With Free Wheeling Diode



Type	V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V
S1PHB75GK08B	900	800
S1PHB75GK12B	1300	1200
S1PHB75GK14B	1500	1400
S1PHB75GK16B	1700	1600
S1PHB75GK18B	1900	1800

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions		Maximum Ratings	Unit
I_{dAV} I_{dAVM} I_{FRMS}, I_{TRMS}	$T_K=85^{\circ}C$, module module per leg		75 75 59	A
I_{TSM}, I_{FSM}	$T_{VJ}=45^{\circ}C$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	810 970	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	720 860	
I^2t	$T_{VJ}=45^{\circ}C$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	2200 2200	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	$t=10ms$ (50Hz), sine $t=8.3ms$ (60Hz), sine	1800 1800	
$(di/dt)_{cr}$	$T_{VJ}=125^{\circ}C$ $f=50Hz, t_p=200\mu s$ $V_D=2/3V_{DRM}$ $I_G=0.3A$ $di_G/dt=0.3A/\mu s$	repetitive, $I_T=50A$	150	A/ μs
		non repetitive, $I_T=1/2I_{dAV}$	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}	$T_{VJ}=T_{VJM}$ $I_T=I_{TAVM}$	$t_p=30\mu s$	10	W
		$t_p=500\mu s$	5	
P_{GAVM}			0.5	W
V_{RGM}			10	V
T_{VJ} T_{VJM} T_{stg}			-40...+125 125 -40...+125	$^{\circ}C$
V_{ISOL}	50/60Hz, RMS $I_{ISOL}\leq 1mA$	$t=1min$	2500	V~
		$t=1s$	3000	
M_d	Mounting torque (M5) Terminal connection torque (M5)		$5\pm 15\%$ $5+15\%$	Nm Nm
Weight	typical		165	g

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Single Phase Half Controlled Bridge Modules With Free Wheeling Diode

Symbol	Test Conditions	Characteristic Values	Unit
I_R, I_D	$T_{VJ}=T_{VJM}; V_R=V_{RRM}; V_D=V_{DRM}$	8	mA
V_T	$I_T=118A; T_{VJ}=25^{\circ}C$	1.64	V
V_{TO}	For power-loss calculations only	0.83	V
r_T		10.5	mΩ
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	$t_p=10\mu s; I_G=0.45A; T_{VJ}=25^{\circ}C$ $di_G/dt=0.45A/\mu s$	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	us
t_q	$T_{VJ}=T_{VJM}; I_T=20A; t_p=200\mu s; V_R=100V$ $V_D=2/3V_{DRM}; dv/dt=15V/\mu s; di/dt=-10A/\mu s$ typ.	250	us
R_{thJC}	per thyristor/Diode; DC per module	0.85 0.17	K/W
R_{thJK}	per thyristor/Diode; DC per module	1.10 0.22	K/W
ds	Creeping distance on surface	16.1	mm
da	Creepage distance in air	7.1	mm
a	Maximum allowable acceleration	50	m/s ²



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Single Phase Half Controlled Bridge Modules With Free Wheeling Diode

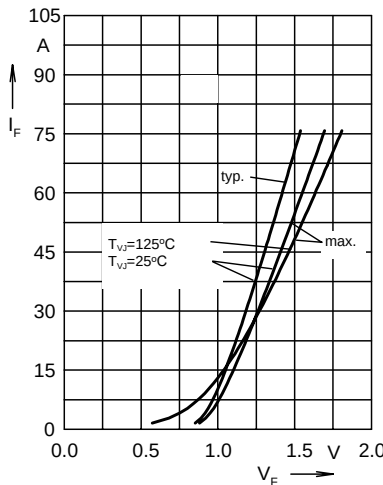


Fig. 3 Forward current versus voltage drop per diode

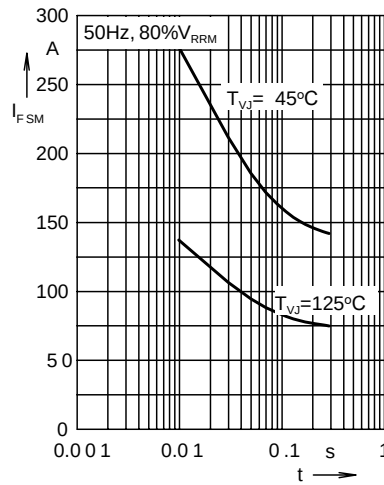


Fig. 4 Surge overload current

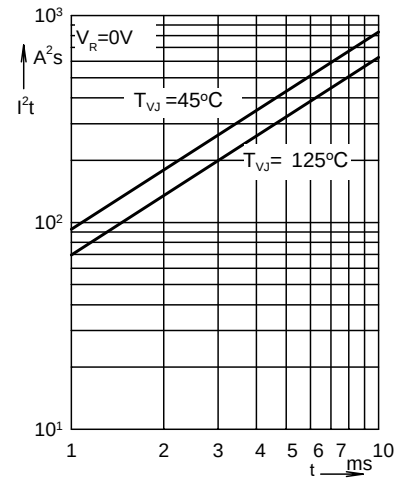


Fig. 5 I^2t versus time per diode

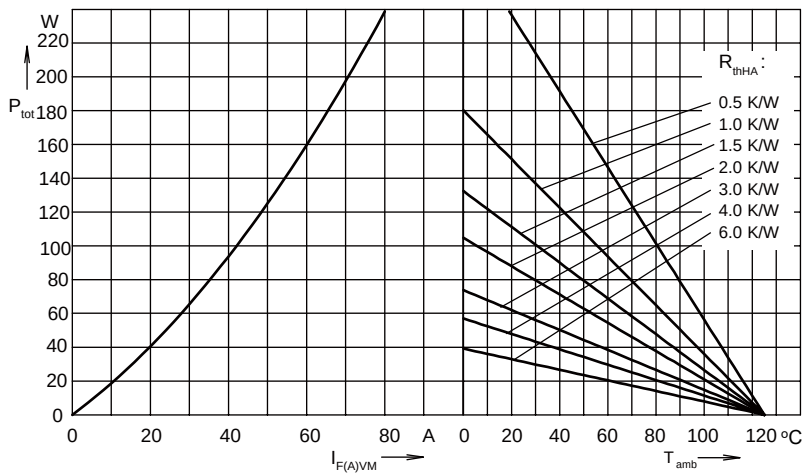


Fig. 6 Power dissipation versus direct output current and ambient temperature

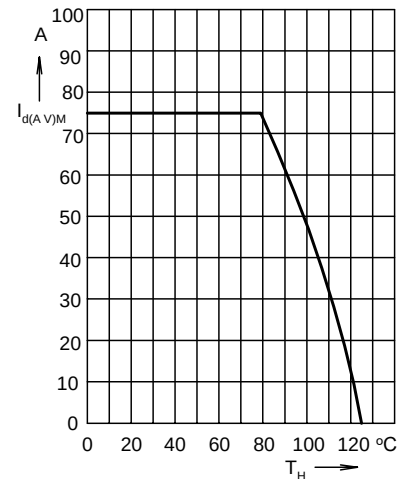


Fig. 7 Max. forward current versus heatsink temperature

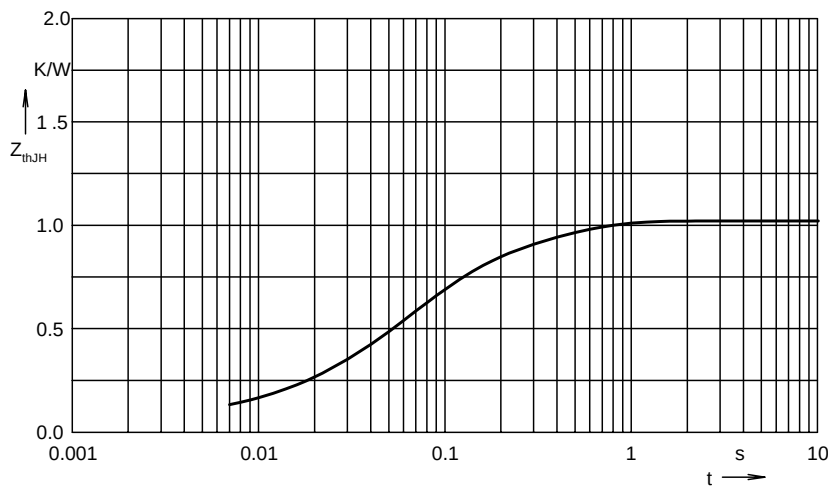


Fig. 8 Transient thermal impedance junction to heatsink

Constants for Z_{thJH} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.005	0.008
2	0.2	0.05
3	0.875	0.06
4	0.47	0.25