

Three Phase Full Controlled Bridges

PSDT 175

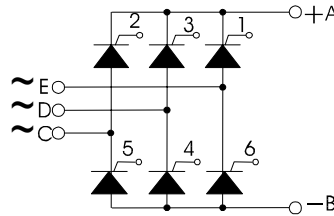
**I_{dAV}
 V_{RRM}**

**= 167 A
= 600-1600 V**

Preliminary Data Sheet

V_{RSM} V_{DSM}	V_{RRM} V_{DRM}	Type
700	600	PSDT 175/06
900	800	PSDT 175/08
1300	1200	PSDT 175/12
1500	1400	PSDT 175/14
*1700	*1600	PSDT 175/16

* Delivery on request



Symbol	Test Conditions	Maximum Ratings
I_{dAV}	$T_C = 85^\circ\text{C}$, module	167 A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ $t = 10\text{ ms}$ (50 Hz), sine	1500 A
	$t = 8.3\text{ ms}$ (60 Hz), sine	1600 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10\text{ ms}$ (50 Hz), sine	1350 A
	$t = 8.3\text{ ms}$ (60 Hz), sine	1450 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ $t = 10\text{ ms}$ (50 Hz), sine	11 200 A^2s
	$t = 8.3\text{ ms}$ (60 Hz), sine	10 750 A^2s
	$T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10\text{ ms}$ (50 Hz), sine	9100 A^2s
	$t = 8.3\text{ ms}$ (60 Hz), sine	8830 A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 50\text{ A}$	150 $\text{A}/\mu\text{s}$
	$f = 400\text{ Hz}$, $t_p = 200\mu\text{s}$ $V_D = 2/3 V_{DRM}$	
	$I_G = 0.3\text{ A}$ non repetitive, $I_T = 1/3 \cdot I_{dAV}$	500 $\text{A}/\mu\text{s}$
	$di_G/dt = 0.3\text{ A}/\mu\text{s}$	
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$, method 1 (linear voltage rise)	1000 $\text{V}/\mu\text{s}$
P_{GM}	$T_{VJ} = T_{VJM}$ $t_p = 30\mu\text{s}$	$\leq 10\text{ W}$
	$I_T = I_{TAVM}$ $t_p = 500\mu\text{s}$	$\leq 5\text{ W}$
P_{GAVM}		$\leq 0.5\text{ W}$
V_{RGM}		10 V
T_{VJ}		-40 ... + 125 $^\circ\text{C}$
T_{VJM}		125 $^\circ\text{C}$
T_{stg}		-40 ... + 125 $^\circ\text{C}$
V_{ISOL}	50/60 HZ, RMS $t = 1\text{ min}$	2500 V ~
	$I_{ISOL} \leq 1\text{ mA}$ $t = 1\text{ s}$	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 registered, E 148688

Applications

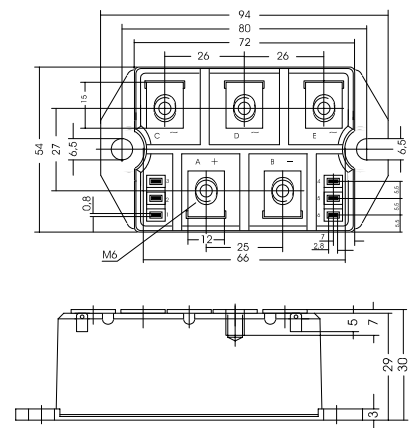
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Motor control
- Power converter

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°C	≤	1.57	V	
V _{TO}	For power-loss calculations only (T _{VJ} = T _{VJM})		0.85	V	
r _T			3.5	mΩ	
V _{GT}	V _D = 6V	T _{VJ} = 25°C	≤	1.5	V
		T _{VJ} = -40°C	≤	1.6	V
I _{GT}	V _D = 6V	T _{VJ} = 25°C	≤	100	mA
		T _{VJ} = -40°C	≤	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°C, t _p = 30μs		≤	450	mA
	I _G = 0.3A, di _G /dt = 0.3A/μs				
I _H	T _{VJ} = 25°C, V _D = 6V, R _{GK} = ∞	≤	200	mA	
t _{gd}	T _{VJ} = 25°C, V _D = ½ V _{DRM}	≤	2	μs	
	I _G = 0.3A, di _G /dt = 0.3A/μs				
t _q	T _{VJ} = T _{VJM} , I _T = 20A, t _p = 200μs, V _R = 100V		150	μs	
	-di/dt = 10A/μs, dv/dt = 15V/μs, V _D = 2/3 V _{DRM}				
R _{thJC}	per thyristor; sine 180°el		0.46	K/W	
	per module		0.077	K/W	
R _{thJK}	per thyristor; sine 180° el		0.55	K/W	
	per module		0.092	K/W	
d _S	Creeping distance on surface		10	mm	
d _A	Creeping distance in air		9.4	mm	
a	Max. allowable acceleration		50	m/s ²	

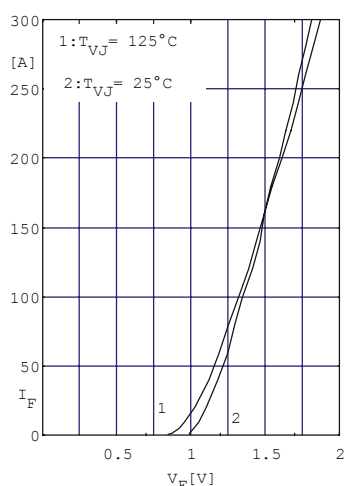


Fig. 1 Forward current vs. voltage drop per diode or thyristor

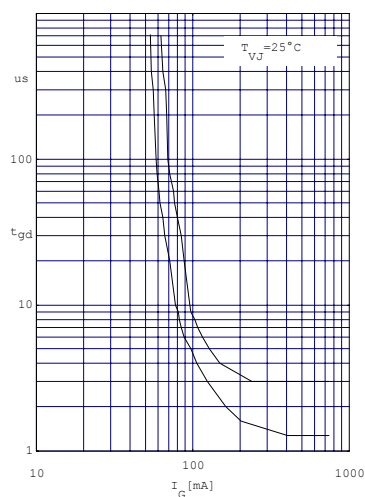


Fig. 2 Gate trigger delay time

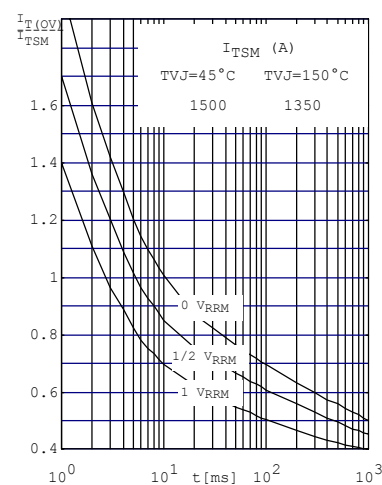


Fig. 3 Surge overload current per diode (or thyristor) I_{FSM} , I_{TSM} : Crest value t : duration

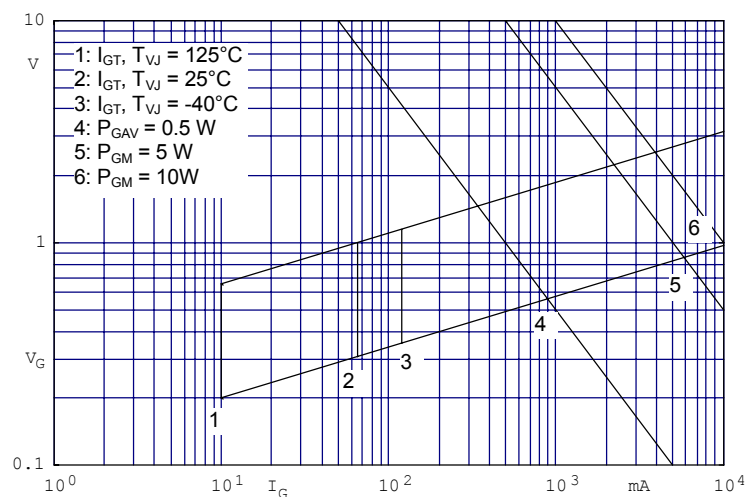


Fig.4 Gate trigger characteristic

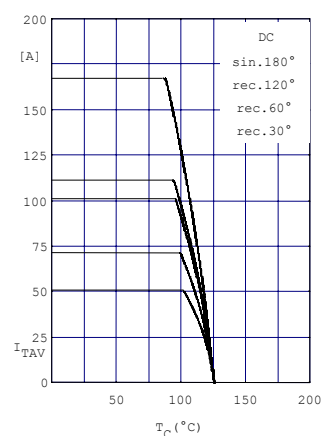


Fig.5 Maximum forward current at case temperature

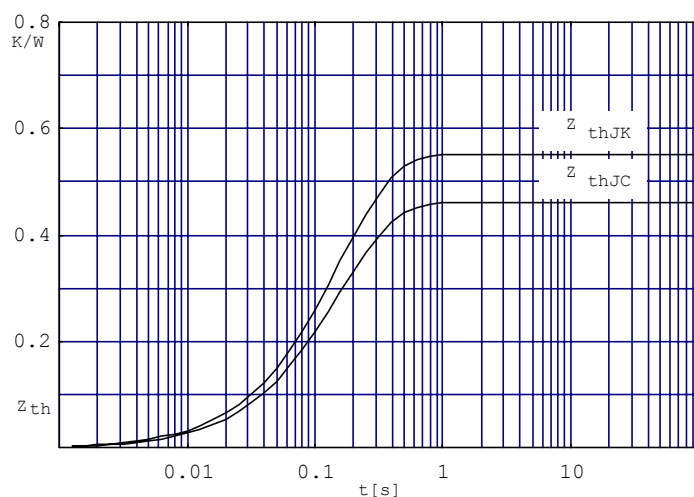


Fig.6 Transient thermal impedance per thyristor or diode (calculated)

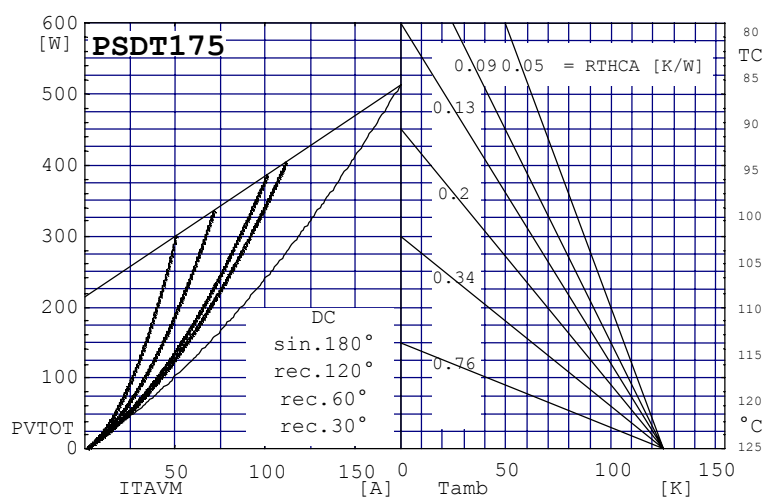


Fig. 7 Power dissipation vs. direct output current and ambient temperature