

Thyristor/Diode Modules

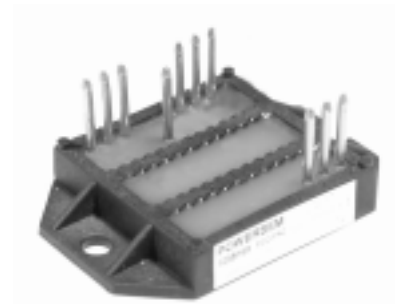
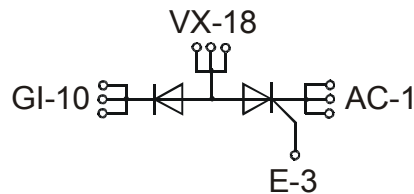
PSKH 80

I_{TAVM}
 V_{RRM}

= 80 A
= 600-1200V

Preliminary Data Sheet

V_{RSM} V_{DSM} (V)	V_{RRM} V_{DRM} (V)	Type
700	600	PSKH 80/06
900	800	PSKH 80/08
1300	1200	PSKH 80/12



Symbol	Test Conditions	Maximum Ratings
I_{TAVM}	$T_C = 85^\circ\text{C}$, 180° sine	80 A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}$ t = 10 ms (50 Hz), sine	550 A
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	600 A
	$T_{VJ} = 125^\circ\text{C}$ t = 10 ms (50 Hz), sine	500 A
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	550 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$ t = 10 ms (50 Hz), sine	1500 A ² s
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	1490 A ² s
	$T_{VJ} = 125^\circ\text{C}$ t = 10 ms (50 Hz), sine	1250 A ² s
	$V_R = 0$ t = 8.3 ms (60 Hz), sine	1250 A ² s
$(di/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}$ repetitive, $I_T = 250\text{ A}$ f=50Hz, $t_p=200\mu\text{s}$	150 A/ μs
	$V_D=2/3V_{DRM}$ $I_G=0.45\text{ A}$ non repetitive, $I_T = I_{TAVM}$ $di_G/dt=0.45\text{ A}/\mu\text{s}$	500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}$ $V_D=2/3V_{DRM}$ $R_{GK} = \infty$, method 1 (linear voltage rise)	1000 V/ μs
P_{GM}	$T_{VJ} = 125^\circ\text{C}$ $t_p=30\mu\text{s}$	≤ 10 W
	$I_T=I_{TAVM}$ $t_p=300\mu\text{s}$	≤ 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	3000 V~
	$I_{ISOL} \leq 1\text{ mA}$ t = 1 s	3600 V~
M_d	Mounting torque (M4)	1.5 - 2.0 Nm
		14 - 18 lb.in.
Weight	typ.	24 g

Features

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

Applications

- DC motor control
- Light and temperature control
- Softstart AC motor controller
- Solid state switches

Advantages

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

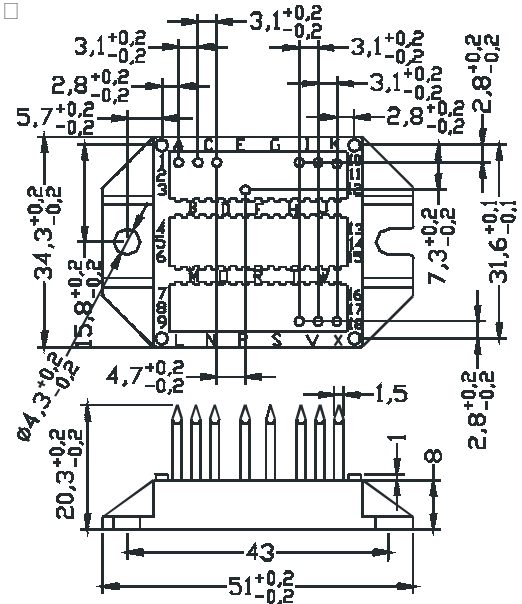
Data according to IEC 60747 refer to a single thyristor unless otherwise stated

Thyristor

Symbol	Test Conditions	Characteristic Value
$I_{D,R}$	$T_{VJ} = 125^{\circ}\text{C}$, $V_R = V_{RRM}$, $V_D = V_{DRM}$	≤ 5 mA
V_T	$I_T = 150$ A, $T_{VJ} = 25^{\circ}\text{C}$	≤ 1.45 V
V_{TO}	For power-loss calculations only	0.8 V
r_T		2.95 m Ω
V_{GT}	$V_D = 6$ V, $T_{VJ} = 25^{\circ}\text{C}$	≤ 1.5 V
	$T_{VJ} = -40^{\circ}\text{C}$	≤ 1.6 V
I_{GT}	$V_D = 6$ V, $T_{VJ} = 25^{\circ}\text{C}$	≤ 150 mA
	$T_{VJ} = -40^{\circ}\text{C}$	≤ 200 mA
V_{GD}	$T_{VJ} = 125^{\circ}\text{C}$, $V_D = 2/3 V_{DRM}$	≤ 0.2 V
I_{GD}	$T_{VJ} = 125^{\circ}\text{C}$, $V_D = 2/3 V_{DRM}$	≤ 10 mA
I_L	$T_{VJ} = 25^{\circ}\text{C}$, $t_p = 10\mu\text{s}$ $I_G = 0.45$ A, $di_G/dt = 0.45$ A/ μs	≤ 450 mA
I_H	$T_{VJ} = 25^{\circ}\text{C}$, $V_D = 6$ V, $R_{GK} = \infty$	≤ 200 mA
t_{gd}	$T_{VJ} = 25^{\circ}\text{C}$, $V_D = 1/2 V_{DRM}$ $I_G = 0.45$ A, $di_G/dt = 0.45$ A/ μs	≤ 2 μs
R_{thJC}	per thyristor; DC	0.36 K/W
	per module	0.18 K/W
R_{thJK}	per thyristor; sine 180° el	0.56 K/W
	per module	0.28 K/W
d_s	Creeping distance on surface	11.2 mm
d_A	Creeping distance in air	5.0 mm
a	Max. allowable acceleration	50 m/s ²

Package style and outline

Dimensions in mm (1mm = 0.0394")



Fast Recovery Epitaxial Diode (FRED)

Symbol	Conditions	Maximum Ratings
I_F	$T_C = 85^{\circ}\text{C}$	85 A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V_F	$I_F = 100$ A; $T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	2.3	2.7	V
		1.7		V
I_{RM}	$I_F = 75$ A; $di_F/dt = 750$ A/ μs ; $T_{VJ} = 125^{\circ}\text{C}$ $V_R = 600$ V; $V_{GE} = 0$ V	79		A
t_{rr}		220		ns
R_{thJC}	with heatsink compound (0.42 K/m.K; 50 μm)		0.45	K/W
R_{thJH}		0.9		K/W