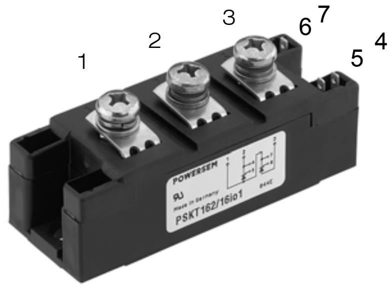
Thyristor Modules PSKT 161
Thyristor/Diode Modules PSKH 161

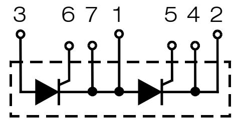
I_{TRMS} = 2x 300 A
I_{TAVM} = 2x 165 A
V_{RRM} = 2000-2200 V

Preliminary Data Sheet

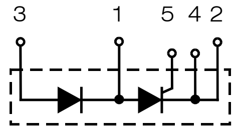
V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type Version 1	Version 1
2100	2000	PSKT 161/20io1	PSKH 161/20io1
2300	2200	PSKT 161/22io1	PSKH 161/22io1



PSKT



PSKH



Symbol	Test Conditions		Maximum Ratings	
I_{TRMS}	$T_{VJ} = T_{VJM}$		300	A
I_{TAVM}	T_C = 85°C; 180° sine		165	A
I_{TSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz)	6000	A
	V_R = 0	t = 8.3 ms (60 Hz)	6400	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	5250	A
	V_R = 0	t = 8.3 ms (60 Hz)	5600	A
∫i²dt	T_{VJ} = 45°C	t = 10 ms (50 Hz)	180000	A²s
	V_R = 0	t = 8.3 ms (60 Hz)	170000	A²s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	137000	A²s
	V_R = 0	t = 8.3 ms (60 Hz)	128000	A²s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ f = 50 Hz, t_P = 200 µs	repetitive, I_T = 500 A	150	A/µs
	V_D = 2/3 V_{DRM} I_G = 0.5 A, di_G/dt = 0.5 A/µs	non repetitive, $I_T = I_{TAVM}$	500	A/µs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; V_{DR} = 2/3 V_{DRM} R_{GK} = ∞; method 1 (linear voltage rise)		1000	V/µs
P_{GM}	$T_{VJ} = T_{VJM}$	t_P = 30 µs	120	W
	$I_T = I_{TAVM}$	t_P = 500 µs	60	W
P_{GAV}			8	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} ≤ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque (M6)		2.25-2.75/20-25	Nm/lb.in.
	Terminal connection torque (M6)		4.5-5.5/40-48	Nm/lb.in.
Weight	Typical including screws		125	g

Features

- International standard package
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 148688
- Keyed gate/cathode twin pins

Applications

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

Advantages

- Space and weight savings
- Simple mounting with two screws
- Improved temperature and power cycling capability
- Reduced protection circuits

Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.

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Symbol	Test Conditions	Characteristic Values	
I_{RRM}, I_{DRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$	40	mA
V_T	I_T = 300 A; T_{VJ} = 25°C	1.36	V
V_{T0}	For power-loss calculations only ($T_{VJ} = T_{VJM}$)	0.8	V
r_T		1.6	mΩ
V_{GT}	V_D = 6 V; T_{VJ} = 25°C	2	V
	T_{VJ} = -40°C	2.6	V
I_{GT}	V_D = 6 V; T_{VJ} = 25°C	150	mA
	T_{VJ} = -40°C	200	mA
V_{GD}	$T_{VJ} = T_{VJM}$; V_D = 2/3 V_{DRM}	0.25	V
I_{GD}	$T_{VJ} = T_{VJM}$; V_D = 2/3 V_{DRM}	10	mA
I_L	T_{VJ} = 25°C; V_D = 6 V; t_P = 30 µs di_G/dt = 0.45A/µs; I_G = 0.45 A	200	mA
I_H	T_{VJ} = 25°C; V_D = 6 V; $R_{GK} = \infty$	150	mA
t_{gd}	T_{VJ} = 25°C; V_D = 1/2 V_{DRM} di_G/dt = 0.5 A/µs; I_G = 0.5 A	2	µs
t_q	$T_{VJ} = T_{VJM}$; V_R = 100 V; V_D = 2/3 V_{DRM}; t_P = 200 µs typ. dv/dt = 20 V/µs; I_T = 160 A; -di/dt = 10A/µs	150	µs
Q_S	$T_{VJ} = T_{VJM}$	550	µC
I_{RM}	-di/dt = 50 A/µs; I_T = 300 A	235	A
R_{thJC}	per thyristor; DC current	0.155	K/W
	per module	0.078	K/W
R_{thJK}	per thyristor; DC current	0.225	K/W
	per module	0.113	K/W
d_S	Creeping distance on surface	12.7	mm
d_A	Creepage distance in air	9.6	mm
a	Maximum allowable acceleration	50	m/s²

Optional accessories for modules
Keyed gate/cathode twin plugs with wire length = 350 mm, gate = yellow, cathode = red
Type **ZY 180L** (L = Left for pin pair 4/5) } UL 758, style 1385,
Type **ZY 180R** (R = right for pin pair 6/7) } CSA class 5851, guide 460-1-1

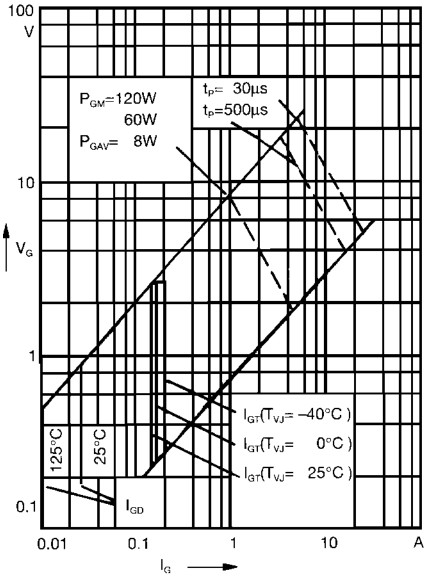


Fig. 1 Gate trigger characteristics

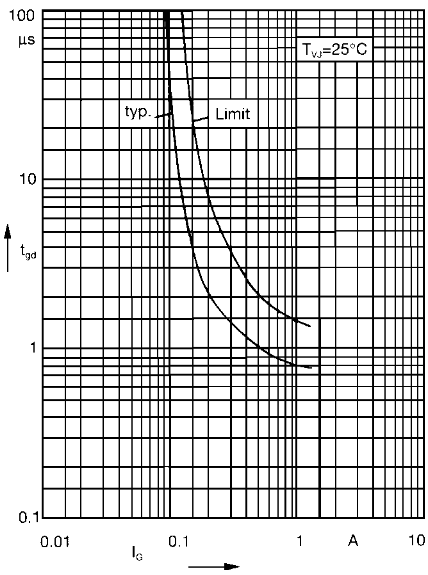
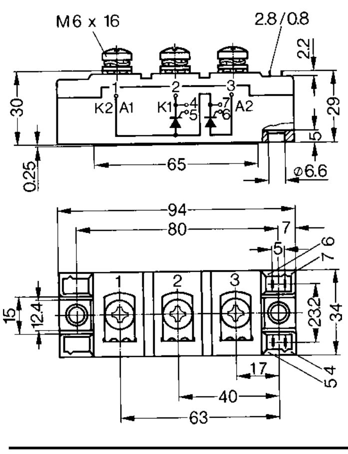


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")



R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.155
180°	0.167
120°	0.175
60°	0.197
30°	0.226

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0072	0.001
2	0.0188	0.08
3	0.129	0.2

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.225
180°	0.237
120°	0.245
60°	0.262
30°	0.296

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0072	0.001
2	0.0188	0.08
3	0.129	0.2
4	0.07	1.0

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