Technical Data

PST MFC501

THYRISTOR - DIODE MODULE

Features:

- Electrically isolated base plate
- High surge capability
- Precious metal pressure contacts for high reliability

Typical applications:

- AC motor soft starters
- DC motor control (e.g. for machine tools)
- Temperature control (e.g. for ovens, chemical processes)

ELECTRICAL CHARACTERISTICS AND RATINGS

Reverse blocking - Off-state

Device Type	V_{RRM} (1)	V_{DRM} (1)	V_{RSM} (1)
PST MFC501	1600 V	1600 V	1700 V

V_{RRM} = Repetitive peak reverse voltage
V_{DRM} = Repetitive peak off state voltage
V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive reverse and off-state peak leakage current	**I_{RRM}, I_{DRM}**	70 mA (3)
Critical rate of rise of off-state voltage	**dv/dt**	1000 V/µs (4)

Notes:

All ratings are specified for Tj = 25 °C unless otherwise stated.

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to +125 °C.

(2) 10 ms max. pulse width

(3) Maximum value for Tj = Tjmax

4) Min. value for linear and exponential wave shape to 80% rated V_{DRM}.

Gate open. Tj = Tjmax

Conducting

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Average value of on-state current	**$I_{T(AV)}$**		500		A	50 Hz sine wave,180° conduction, T_c = 85 °C
RMS value of on-state current	**$I_{T(RMS)}$**		800		A	50 Hz sine wave,180° conduction, T_c = 85 °C
Surge non repetitive current	**I_{TSM}**		16.5		kA	50 Hz sine wave Half cycle
I square t	**I^2t**		1361		kA^2s	V_R = 0 Tj = Tjmax
Peak on-state voltage	**V_{TM}**		1.41		V	On-state current 1700 A, Tj = Tjmax
Threshold voltage	**$V_{T(TO)}$**		0.9		V	Tj = Tjmax
On-state slope resistance	**r_T**		0.30		mΩ	Tj = Tjmax
Holding current	**I_H**			300	mA	Tj = 25 °C
Latching current	**I_L**			1000	mA	Tj = 25 °C
Critical rate of rise of on-state current	**di/dt**		200		A/µs	I_G = 5 I_{GT}, t_r = 1 µs, Tj = Tjmax
RMS isolation voltage	**V_{INS}**		3000		V	AC 50 Hz, 60 s

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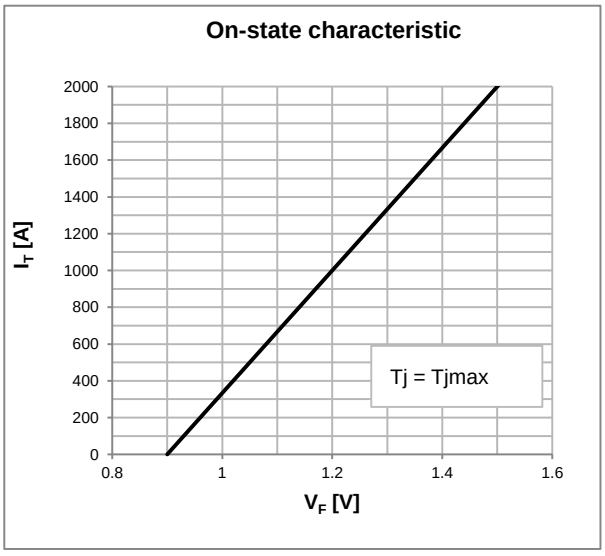
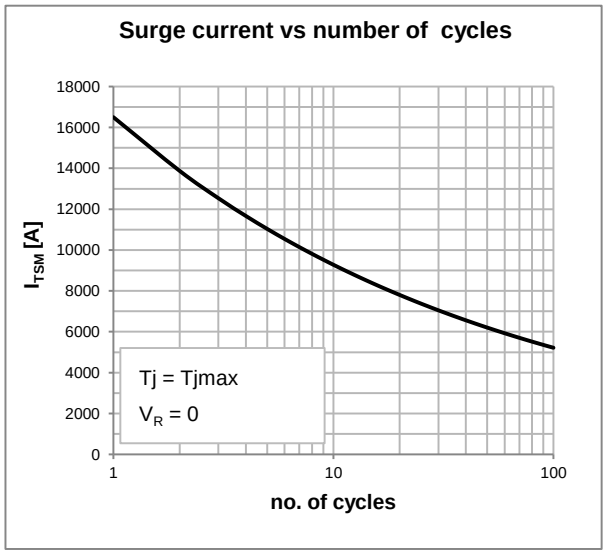
Triggering

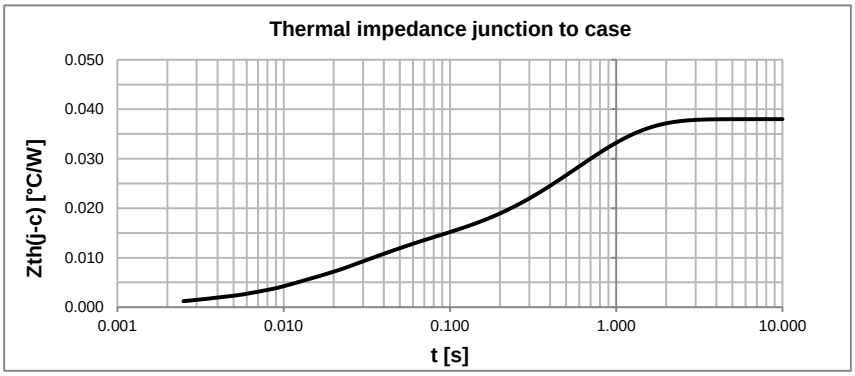
Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Gate current	I_{GT}		250		mA	V_D = 6 V; R_L = 3 Ω; Tj = 25 °C
Gate voltage	V_{GT}		3		V	V_D = 6 V; R_L = 3 Ω; Tj = 25 °C

Thermal and mechanical characteristics and ratings

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Operating junction temperature	T_j	-40	125		°C	
Storage temperature	T_{stg}	-40	125		°C	
Thermal resistance junction to case (per module)	$R_{th(j-c)}$		0.038		°C/W	SIN 180° conduction mounting surfaces smooth, flat and greased
Thermal resistance case to sink (per module)	$R_{th(c-s)}$		0.010		°C/W	
Mounting torque case-heatsink	T	4	6		N·m	
Mounting torque busbar-terminals	T	12	18		N·m	
Weight	W			1500	g	







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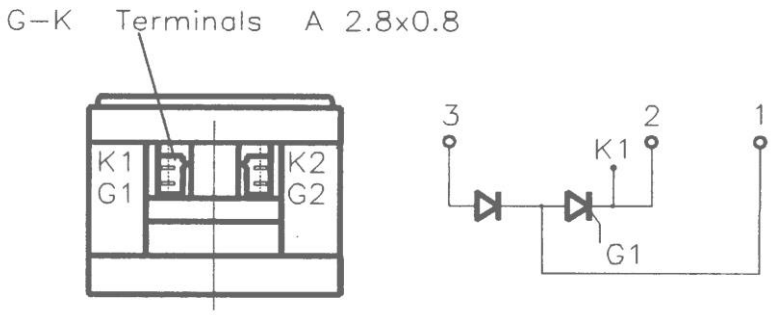
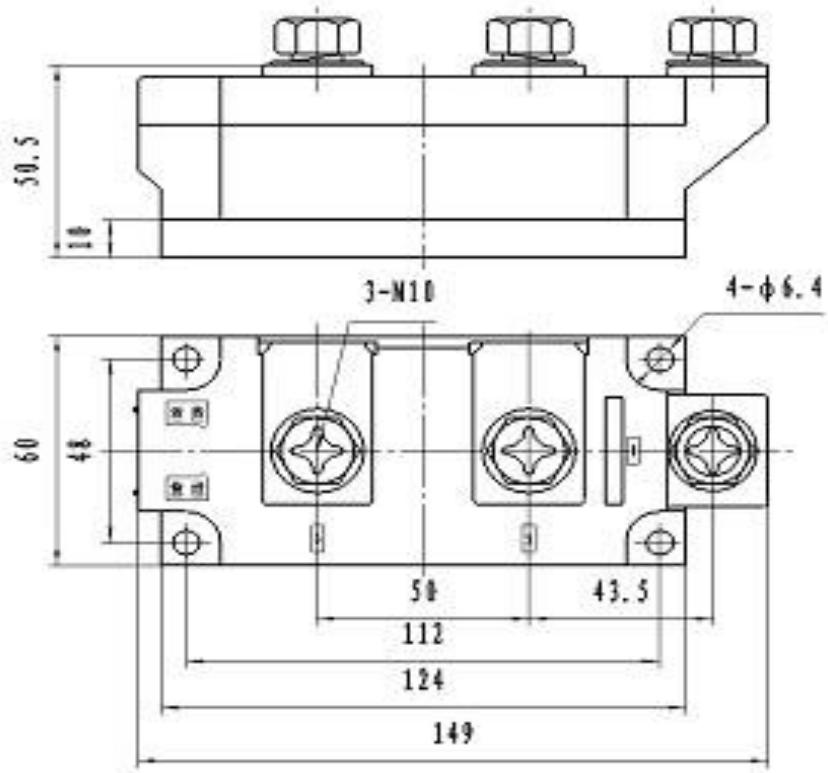
OUTLINE AND DIMENSIONS





(all dimensions in mm)