

PST MDF300

FAST RECOVERY DIODE MODULE

Features:

- Heat transfer through aluminum nitride ceramic isolated metal baseplate
- Precious metal pressure contacts for high reliability

Typical applications:

- DC motor control (e.g. for machine tools)
- Temperature control (e.g. for ovens, chemical processes)
- Professional light dimming (studios, theaters)

ELECTRICAL CHARACTERISTICS AND RATINGS

Max Reverse blocking voltage

Device Type	V_{RRM} (1)	V_{RSM} (1)
PST MDF300	2600 V	2700 V

V_{RRM} = Repetitive peak reverse voltage

V_{RSM} = Non repetitive peak reverse voltage (2)

Notes:

All ratings are specified for $T_j = 25^\circ\text{C}$ unless otherwise stated.

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to $+125^\circ\text{C}$.

(2) 10 ms max. pulse width

(3) Maximum value for $T_j = 125^\circ\text{C}$.

Repetitive peak reverse leakage current	I_{RRM}	50 mA (3)
---	-----------	-----------

Conducting

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Average value of forward current	$I_{F(AV)}$		300		A	50 Hz sinewave, 180° conduction, $T_c = 70^\circ\text{C}$
RMS value of forward current	$I_{F(RMS)}$		470		A	50 Hz sinewave, 180° conduction, $T_c = 70^\circ\text{C}$
Peak one cycle surge (non repetitive) current	I_{FSM}		5		kA	50 Hz sinewave, 180° conduction, $T_j = T_{jmax}$, $V_R = 0$
I square t	$I^2 t$		125		kA^2s	$T_j = T_{jmax}$
Peak forward voltage	V_{FM}		1.56		V	Forward current 600 A, $T_j = T_{jmax}$
Threshold voltage	$V_{F(TO)}$		1.15		V	$T_j = T_{jmax}$
Forward slope resistance	r_F		0.685		$\text{m}\Omega$	$T_j = T_{jmax}$
RMS isolation voltage	V_{INS}		4500		V	AC 50 Hz, 60 s, $T_j = 25^\circ\text{C}$

Switching

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Reverse recovery charge	Q_{rr}		120		μC	$I_F = 200\text{ A}$, $di_F / dt = 100\text{ A}/\mu\text{s}$, $V_R = 50\text{ V}$, $T_j = T_{jmax}$

PST MDF300

FAST RECOVERY DIODE MODULE

Thermal and mechanical characteristics and ratings

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Operating temperature	T_j	-40	125		°C	
Storage temperature	T_{stg}	-40	125		°C	
Thermal resistance junction to case (per diode)	$R_{th(j-c)}$		0.105		°C/W	SIN 180° conduction mounting surfaces smooth, flat and greased
Thermal resistance case to sink (per module)	$R_{th(c-s)}$		0.020		°C/W	
Mounting torque case-heatsink	T	6	8		N·m	
Mounting torque busbar-terminals	T	12	15		N·m	
Weight	W			1500	g	



