

Technical Data

PST MDC160

RECTIFIER DIODE MODULE

Features:

- Electrically isolated base plate
- High surge capability
- Hard soldered joints for high reliability

Typical applications:

- Uncontrolled rectifiers for AC/DC converters
- Line rectifier for transistorized AC motor controllers
- Field supply for DC motors

ELECTRICAL CHARACTERISTICS AND RATINGS

Reverse blocking

Device Type	$V_{RRM}^{(1)}$	$V_{RSM}^{(1)}$
PST MDC160	1600 V	1700 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 $+135^\circ\text{C}$.

(2) 10 ms max. pulse width

(3) Maximum value for $T_j = T_{jmax}$

Repetitive peak reverse leakage current	I_{RRM}	20 mA (3)
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Conducting

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Average value of forward current	$I_{F(AV)}$		195		A	50 Hz sinewave, 180° conduction, $T_c = 85^\circ\text{C}$
RMS value of forward current	$I_{F(RMS)}$		300		A	50 Hz sinewave, 180° conduction, $T_c = 85^\circ\text{C}$
Peak one cycle surge (non repetitive) current	I_{FSM}		5		kA	50 Hz sinewave, 180° conduction, $T_j = T_{jmax}$, $V_R = 0$
I squared t	$I^2 t$		125		kA^2s	$T_j = T_{jmax}$
Peak forward voltage	V_{FM}		1.35		V	Forward current 500 A, $T_j = T_{jmax}$
Threshold voltage	$V_{F(TO)}$		0.85		V	$T_j = T_{jmax}$
Forward slope resistance	r_F		1		m Ω	$T_j = T_{jmax}$
RMS isolation voltage	V_{INS}		3000		V	AC 50 Hz, 60 s

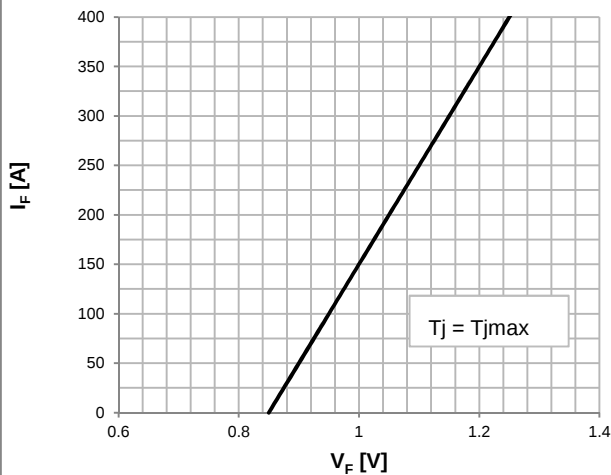
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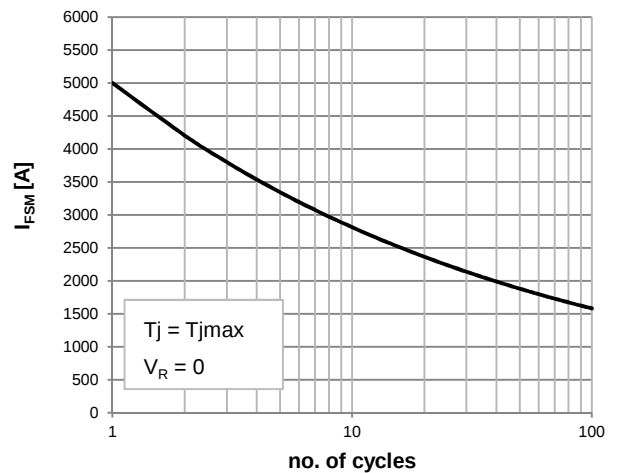
Thermal and mechanical characteristics and ratings

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Operating junction temperature	T_j	-40	135		°C	
Storage temperature	T_{stg}	-40	125		°C	
Thermal resistance junction to case (per diode)	$R_{th(j-c)}$		0.180		°C/W	SIN 180° conduction mounting surfaces smooth, flat and greased
Thermal resistance case to sink (per module)	$R_{th(c-s)}$		0.050		°C/W	
Mounting torque case-heatsink	T	2.5	3.5		N·m	
Mounting torque busbar-terminals	T	4	6		N·m	
Weight	W			200	g	

Forward characteristic



Surge current vs number of cycles



Thermal impedance junction to case

