

PST MDF60

FAST RECOVERY DIODE MODULE

Features:

- Heat transfer through aluminum nitride ceramic isolated metal baseplate
- Hard soldered joints for high reliability

Typical applications:

- Industrial applications
- DC choppers
- Inductive heating

ELECTRICAL CHARACTERISTICS AND RATINGS

Max Reverse blocking voltage

Device Type	V_{RRM} (1)	V_{RSM} (1)
PST MDF60	1700 V	1800 V

V_{RRM} = Repetitive peak reverse voltage

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

Notes:

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

(1) All voltage ratings are specified for an applied 50Hz/60Hz sinusoidal waveform over the temperature range -40 to $+150\text{ }^\circ\text{C}$.

(2) 10 ms max. pulse width

(3) Maximum value for $T_j = 150\text{ }^\circ\text{C}$.

Repetitive peak reverse leakage current	I_{RRM}	40 mA (3)
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Conducting

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Average value of forward current	$I_{F(AV)}$		60		A	50 Hz sinewave, 180° conduction, $T_c = 83\text{ }^\circ\text{C}$
RMS value of forward current	$I_{F(RMS)}$		110		A	For continuous operation
Peak one cycle surge (non repetitive) current	I_{FSM}		0.9		kA	50 Hz sinewave, 180° conduction, $T_j = T_{jmax}$, $V_R = 0$
I square t	$I^2 t$		4.1		kA^2s	$T_j = T_{jmax}$
Peak forward voltage	V_{FM}		2.4		V	Forward current 100 A, $T_j = T_{jmax}$
Threshold voltage	$V_{F(TO)}$		1.5		V	$T_j = T_{jmax}$
Forward slope resistance	r_F		9.0		$\text{m}\Omega$	$T_j = T_{jmax}$
RMS isolation voltage	V_{INS}		4000		V	AC 50 Hz, 60 s

Switching

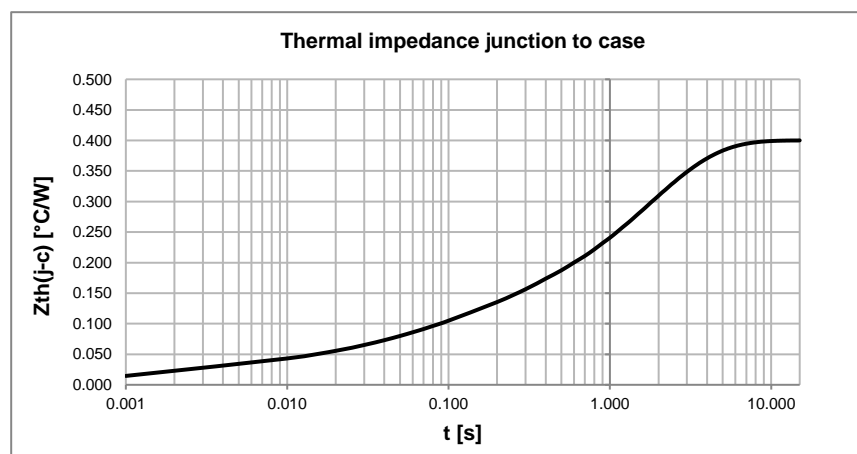
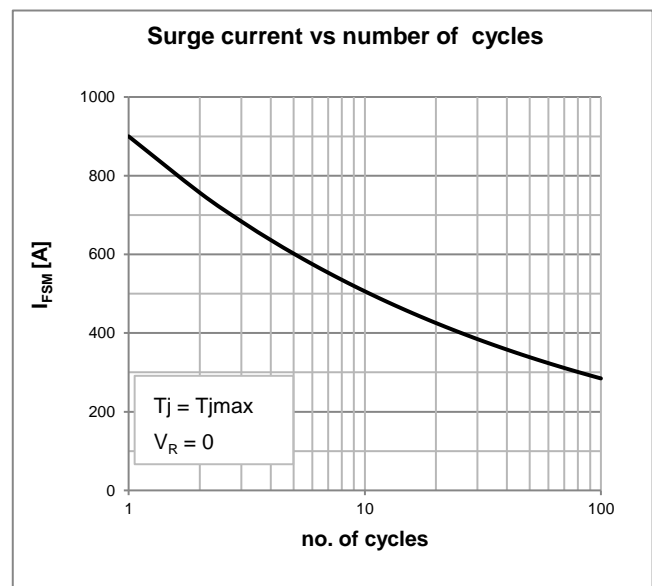
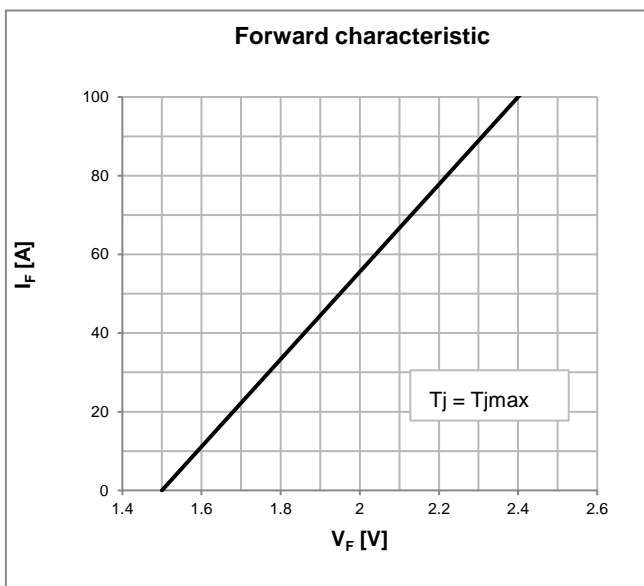
Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Reverse recovery charge	Q_{rr}		18		μC	$I_F = 60\text{ A}$, $di_F / dt = 500\text{ A}/\mu\text{s}$, $V_R = 1200\text{ V}$, $T_j = 125\text{ }^\circ\text{C}$
Reverse recovery current	I_{rr}		60		A	
Reverse recovery time	t_{rr}		0.8		μs	

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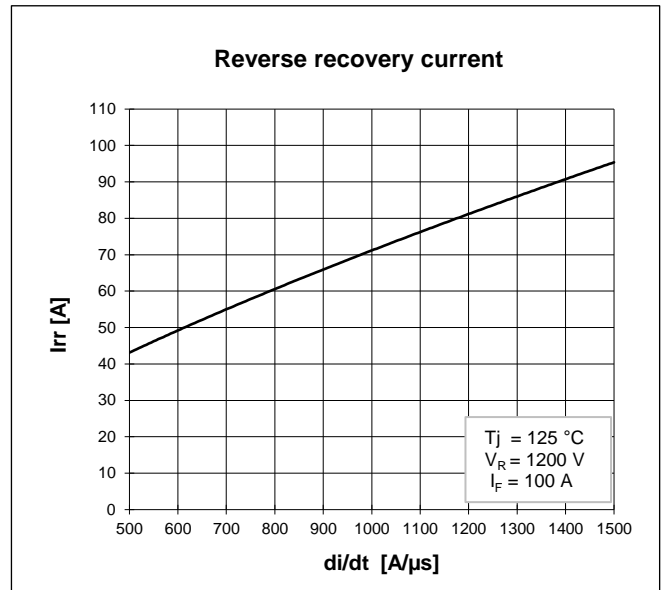
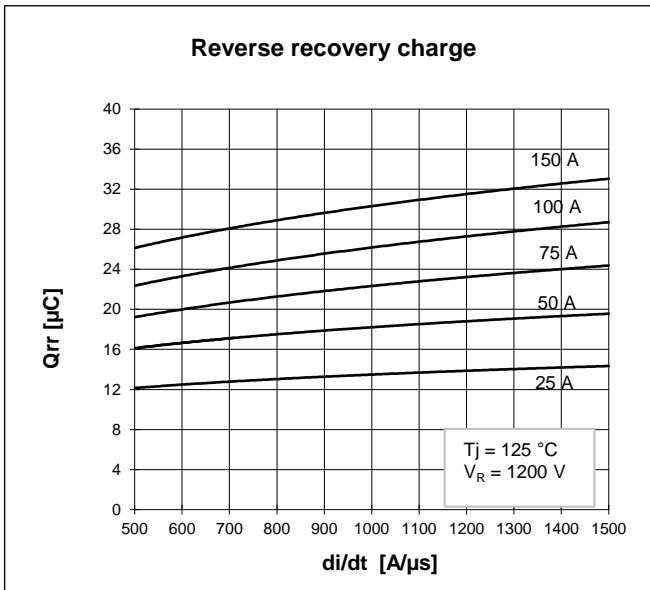
Thermal and mechanical characteristics and ratings

Parameter	Symbol	Min	Max	Typ	Unit	Conditions
Operating temperature	T_j	-40	150		°C	
Storage temperature	T_{stg}	-40	125		°C	
Thermal resistance junction to case (per diode)	$R_{th(j-c)}$		0.400		°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	4.5	5.5		N·m	
Mounting torque busbar-terminals	T	4.5	5.5		N·m	
Weight	W			170	g	

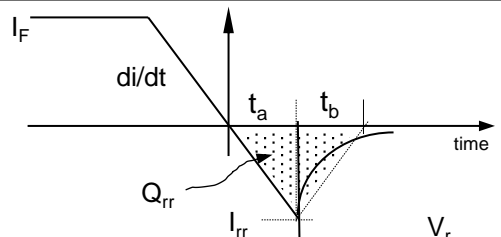


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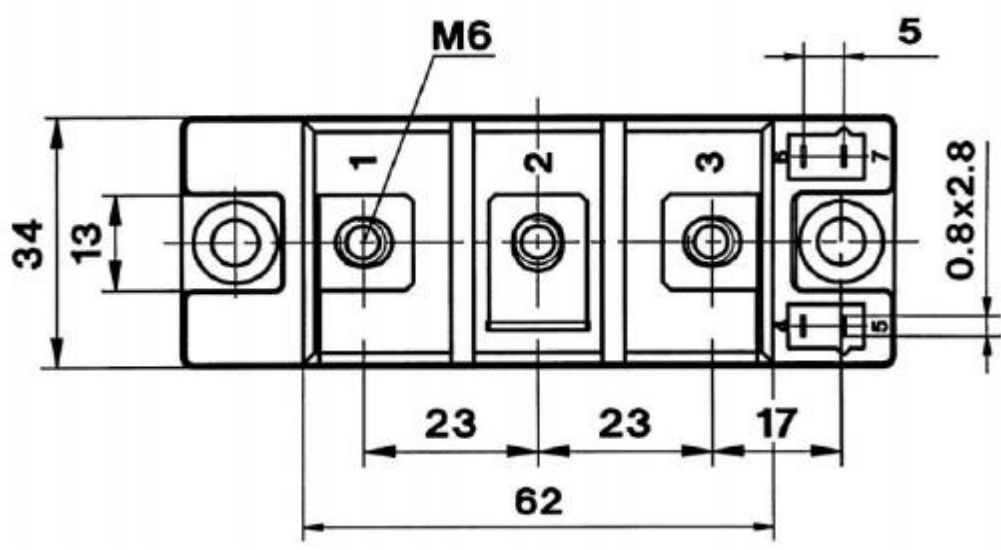
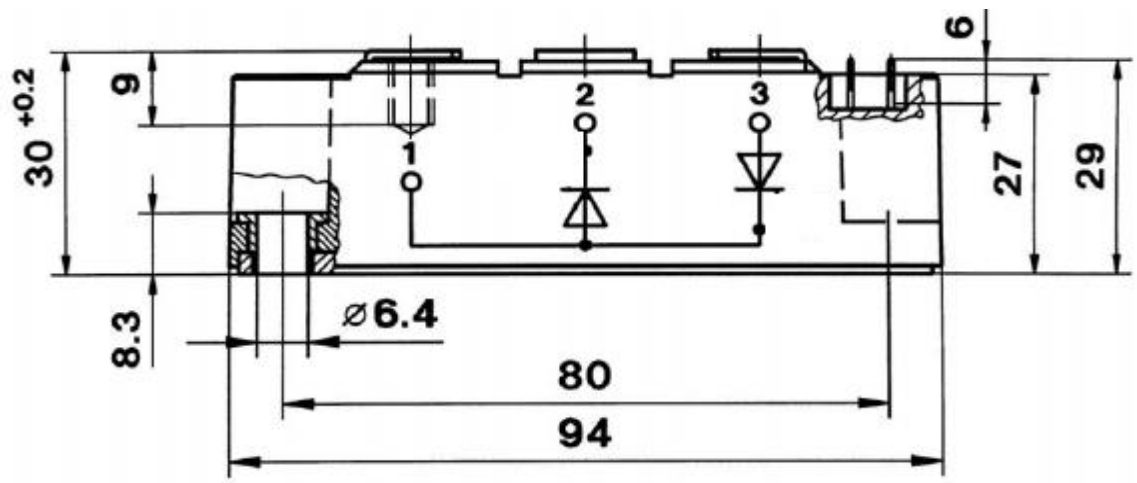
$t_a = I_{rr} / (di/dt)$ $t_b = t_{rr} - t_a$
 Softness (s factor) $s = t_b / t_a$
 Energy dissipated at recovery $E_r = V_r \cdot (Q_{rr} - I_{rr} \cdot t_a / 2)$



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OUTLINE AND DIMENSIONS



(all dimensions in mm)