

## 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  | 2200 V        | 2300 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 50 Hz / 60 Hz 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 | $I_{RRM}$ | 50 mA (3) |
|---|-----------|-----------|

#### Conducting

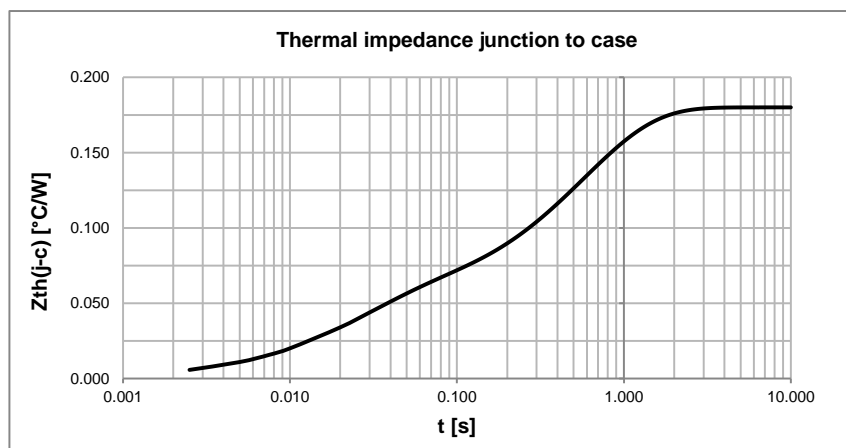
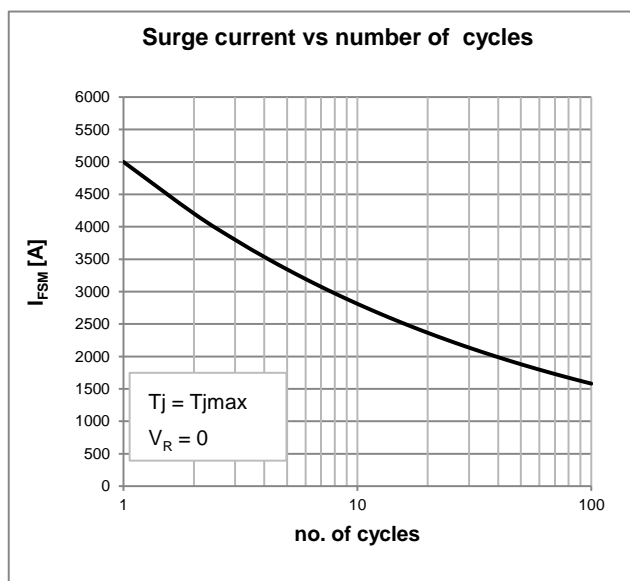
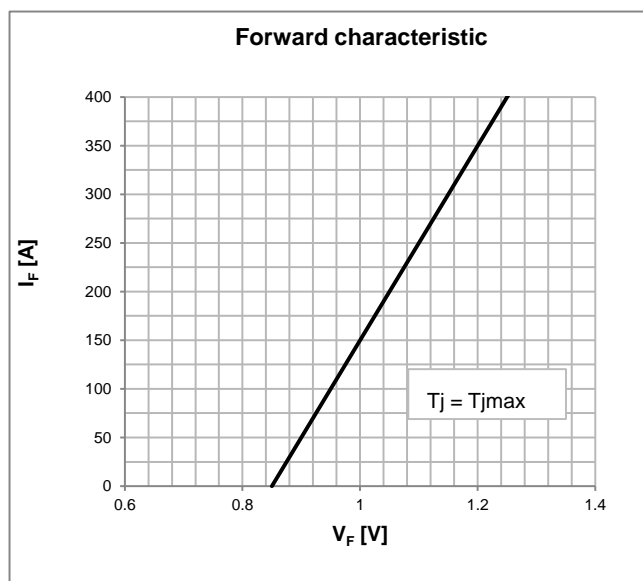
| Parameter                                     | Symbol       | Min | Max  | Typ | Unit       | Conditions  |
|---|--------------|-----|------|-----|------------|---|
| Average value of forward current              | $I_{F(AV)}$  |     | 195  |     | A          | 50 Hz sinewave, 180 $^\circ$ conduction, $T_c = 85\text{ }^\circ\text{C}$ |
| RMS value of forward current                  | $I_{F(RMS)}$ |     | 300  |     | A          | 50 Hz sinewave, 180 $^\circ$ conduction, $T_c = 85\text{ }^\circ\text{C}$ |
| Peak one cycle surge (non repetitive) current | $I_{FSM}$    |     | 5    |     | kA         | 50 Hz sinewave, 180 $^\circ$ conduction, $T_j = T_{jmax}$ , $V_R = 0$     |
| I squared t                                   | $I^2 t$      |     | 125  |     | kA $^2$ s  | $T_j = T_{jmax}$  |
| 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 $\Omega$ | $T_j = T_{jmax}$  |
| RMS isolation voltage                         | $V_{INS}$    |     | 3000 |     | V          | AC 50 Hz, 60 s  |

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### Thermal and mechanical characteristics and ratings

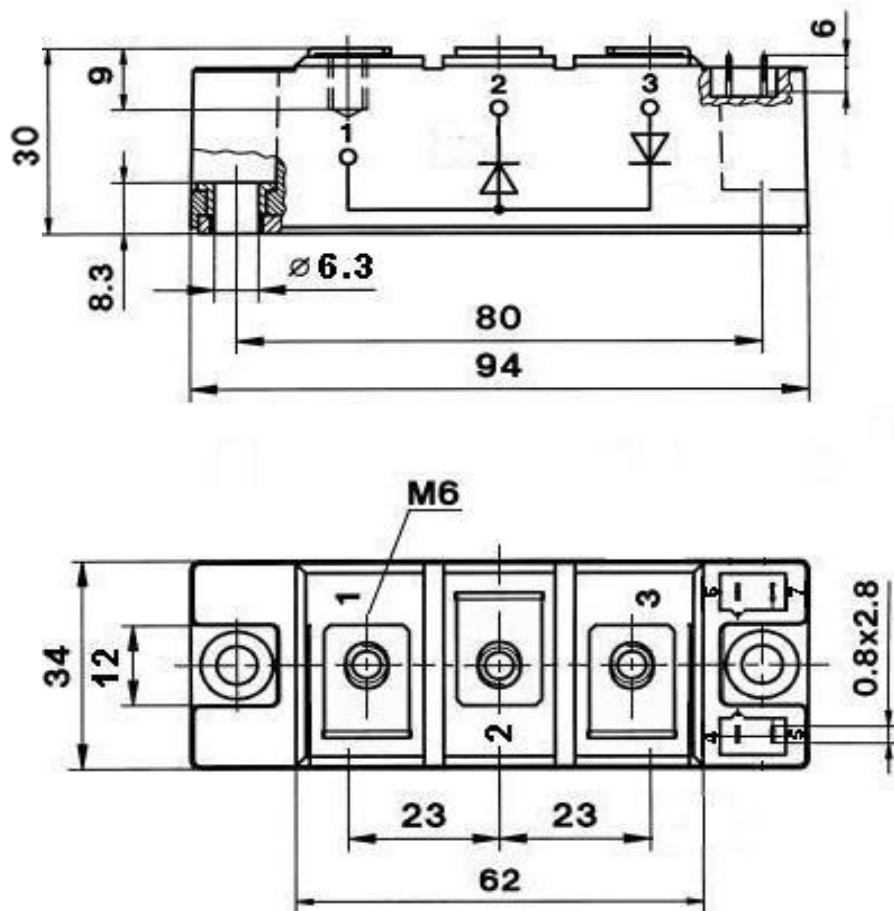
| Parameter                                       | Symbol        | Min | Max   | Typ | Unit | Conditions   |
|---|---------------|-----|-------|-----|------|--|
| Operating junction temperature                  | $T_j$         | -40 | 135   |     | °C   |  |
| Storage temperature                             | $T_{stg}$     | -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    |  |



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### OUTLINE AND DIMENSIONS



(all dimensions in mm)