

FEATURES

- | Low leakage current

- | High efficiency

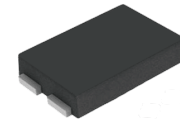
- | Heatsink design

- | Halogen-free according to IEC 61249-2-21 definition

- | Moisture sensitivity: level 1, per J-STD-020

- | High temperature soldering guaranteed: 260°C/10 seconds

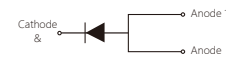
- | Low forward voltage drop



TO-277B



Marking



Schematic Symbol

MECHANICAL DATA

- | Case:TO-277B

- | Molding compound meets UL 94 V-0 flammability

- | Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

APPROVALS

| | |
|-------------|------------------------------------|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance with IEC61249-2-21:2003 |

MAXIMUM RATINGS (T_A = 25°C)

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|------------|------|
| Maximum Repetitive Peak Reverse Voltage | V _{RRM} | 60 | V |
| Maximum RMS voltage | V _{RMS} | 42 | V |
| Maximum DC Blocking Voltage | V _{DS} | 60 | V |
| Maximum Average Forward Rectified Current | I _{F(AV)} | 10 | A |
| | I _{F(AV)} ¹⁾ | 5 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I _{FSM} ²⁾ | 150 | A |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to 150 | °C |

ELECTRICAL CHARACTERISTICS($T_A=25^\circ\text{C}$)

| Parameter | Symbol | Test Conditions | | Min. | Typ. | Max. | Unit |
|---|-----------------|---------------------|-------------------------|------|------|------|---------------------------|
| Maximum instantaneous forward voltage | V_F | $I_F=10\text{A}$ | $T_A=25^\circ\text{C}$ | | | 0.55 | Volts |
| Maximum DC reverse current at rated DC blocking voltage | I_R | Rated V_R | $T_A=25^\circ\text{C}$ | | | 0.10 | mA |
| | | | $T_A=100^\circ\text{C}$ | | | 40 | |
| Typical thermal resistance ¹⁾ | $R_{\theta JA}$ | junction to ambient | | | | 80 | $^\circ\text{C}/\text{W}$ |
| | $R_{\theta JC}$ | junction to case | | | | 35 | |
| | $R_{\theta JM}$ | junction to mount | | | | 20 | |

Notes:

- 1) The thermal resistance from junction to ambient, case or mount, mounted on P.C.B with 30x30mm copper pads, 2 OZ, FR4 PCB.
- 2) Mounted on recommended copper pad area, free air.

CHARACTERISTIC CURVES

Fig.1 Forward Current Derating Curve

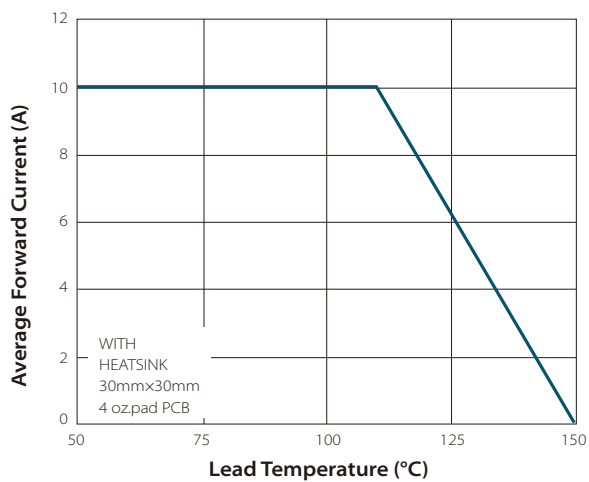


Fig.2 Typical Forward Characteristics

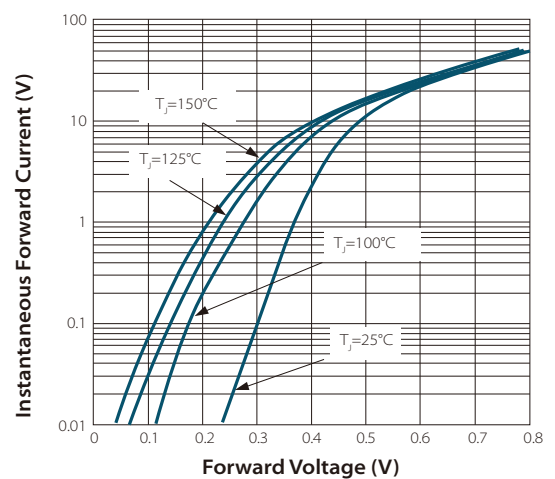
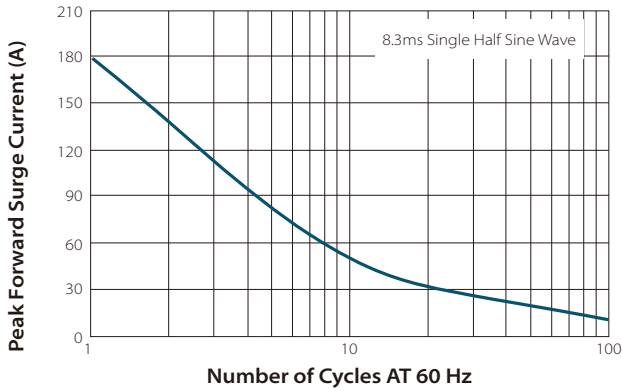
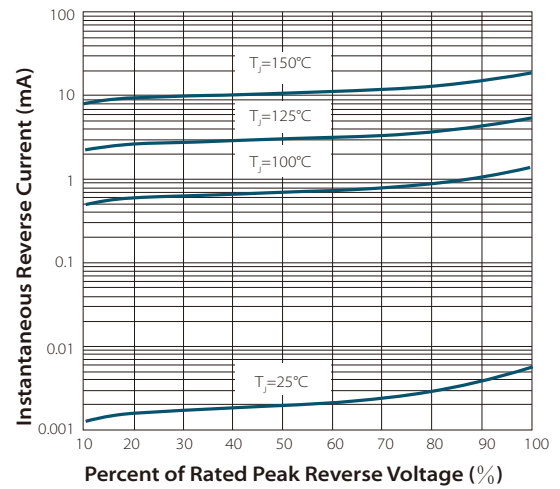
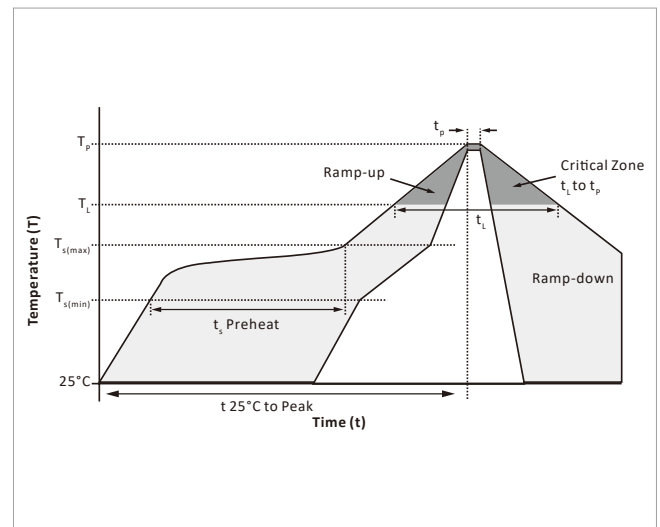


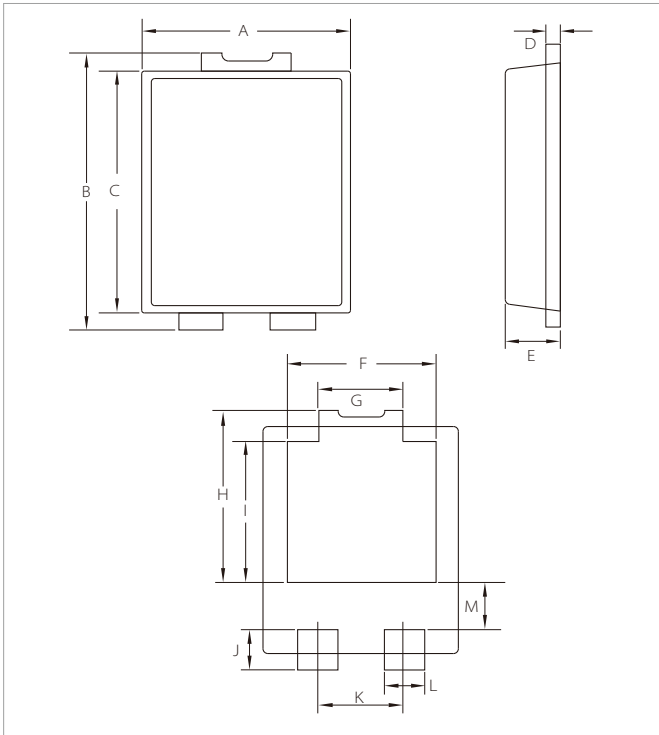
Fig.3 Maximum Non-Repetitive Peak Forward Surge Current

Fig.4 Typical Reverse Characteristics


SOLDERING PARAMETERS

| Reflow Condition | | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat | Temperature Max ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) (t_s) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3°C/second max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/second max |
| Reflow | Temperature (T_L) (Liquidus) | 217°C |
| | Time (min to max) (t_L) | 60 – 150 seconds |
| Peak Temperature (T_p) | | 260°C |
| Time within 5°C of actual peak Temperature (t_p) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T_p) | | 8 minutes max. |
| Do not exceed | | 260°C |

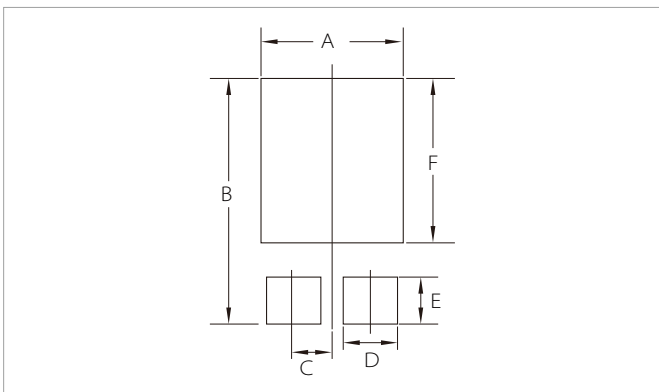


TO-277B PACKAGE INFORMATION



| Ref. | Millimeters | | Inches | |
|------|-------------|------|----------|-------|
| | Min. | Max. | Min. | Max. |
| A | 4.00 | 4.60 | 0.157 | 0.181 |
| B | 6.20 | 6.80 | 0.244 | 0.268 |
| C | 5.50 | 6.00 | 0.216 | 0.236 |
| D | 0.25 | 0.40 | 0.010 | 0.016 |
| E | 1.05 | 1.35 | 0.041 | 0.053 |
| F | 3.00 | 3.50 | 0.118 | 0.138 |
| G | 1.70 | 2.00 | 0.067 | 0.079 |
| H | 4.20 | 4.50 | 0.165 | 0.177 |
| I | 3.52Nom | | 0.139Nom | |
| J | 0.85 | 1.10 | 0.033 | 0.043 |
| K | 1.86Nom | | 0.073Nom | |
| L | 0.80 | 1.00 | 0.031 | 0.039 |
| M | 1.10 | 1.40 | 0.043 | 0.055 |

RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | | Inches | |
|------|-------------|------|--------|------|
| | Min. | Max. | Min. | Max. |
| A | 3.40 | - | 0.134 | - |
| B | 6.90 | | 0.272 | |
| C | 0.95 | | 0.037 | |
| D | 1.30 | - | 0.051 | - |
| E | 1.30 | - | 0.051 | - |
| F | 4.60 | - | 0.181 | - |

ORDERING INFORMATION

| Part Number | Component Package | Marking | QTY/Reel | Reel Size |
|-------------|-------------------|---------|----------|-----------|
| TSP1060L | TO-277B | TSP1060 | 5000PCS | 13" |

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