Technical Data
Data Sheet N2245, Rev. A

RoHS HF

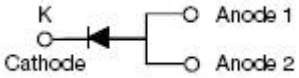
# ST10200S SCHOTTKY RECTIFIER


TO-277B

## Features

- 150°C $T_J$ operation
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Trench MOS Schottky technology
- "-A" is an AEC-Q101 qualified device
- Terminals finish: 100% Pure Tin
- This is a Halogen Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

## Circuit Diagram




## Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

## Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | - | 200 | V |
| Average Rectified Forward Current | $I_{F\ (AV)}$ | 50% duty cycle @$T_A$=95°C, rectangular wave form | 10 | A |
| Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$ | 8.3ms, Half Sine pulse, $T_J$ = 25 °C | 180 | A |

## Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Forward Voltage Drop* | $V_{F1}$ | @ 10A, Pulse, $T_J$ = 25 °C | 0.81 | 1.34 | V |
| | $V_{F2}$ | @ 10A, Pulse, $T_J$ = 125 °C | 0.67 | 0.75 | V |
| Reverse Current* | $I_{R1}$ | @$V_R$ = rated $V_R$<br>$T_J$ = 25 °C | 0.0005 | 0.4 | mA |
| Reverse Current* | $I_{R2}$ | @$V_R$ = rated $V_R$<br>$T_J$ = 125 °C | 0.5 | 30 | mA |

* Pulse width < 300 µs, duty cycle < 2%

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## Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|---|---|---|---|
| Junction Temperature | $T_J$ | - | -55 to +150 | °C |
| Storage Temperature | $T_{stg}$ | - | -55 to +150 | °C |
| Typical Thermal Resistance Junction to Ambient (NOTE1) | $R_{\theta JA}$ | DC operation | 75 | °C/W |
| Typical Thermal Resistance Junction to Lead (NOTE1) | $R_{\theta JL}$ | DC operation | 4 | °C/W |
| Approximate Weight | wt | - | 0.08 | g |

**NOTE: 1.** Units mounted on P.C.B., 0.5 x 0.5" (30 x 30mm) copper pads.

## Ratings and Characteristics Curves

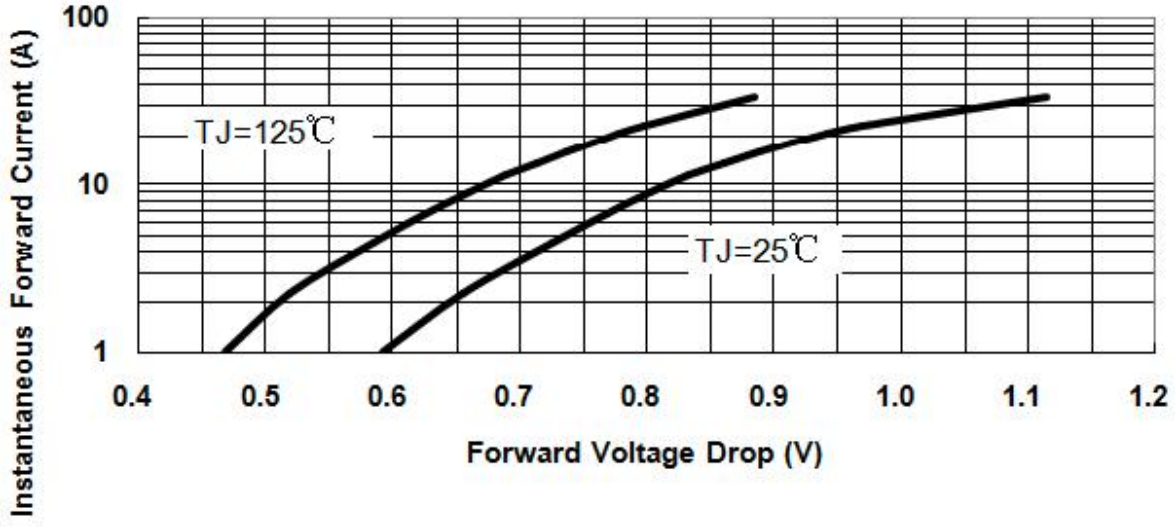


**Fig.1-Typical Instantaneous Forward Voltage Characteristics**

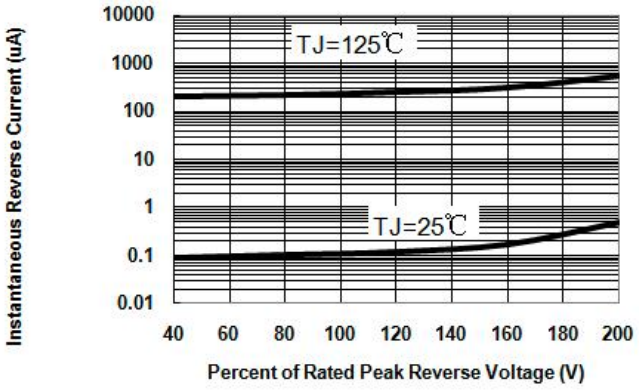


**Fig.2-Typical Reverse Characteristics**

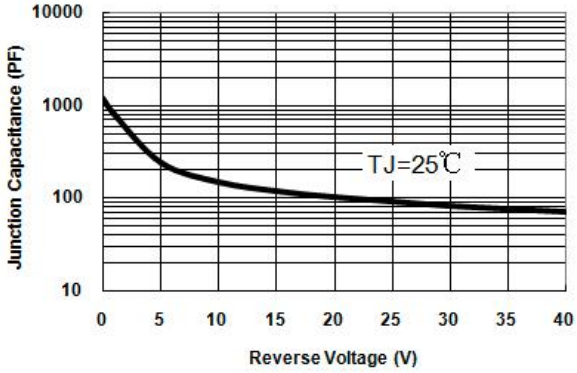


**Fig.3-Typical Junction Capacitance**

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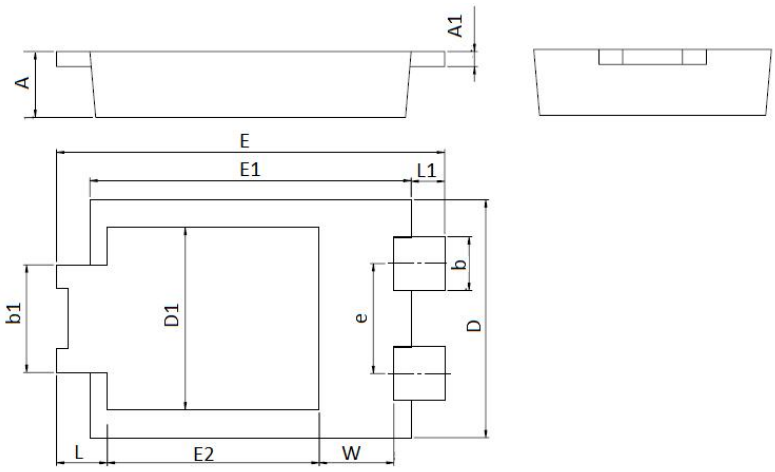
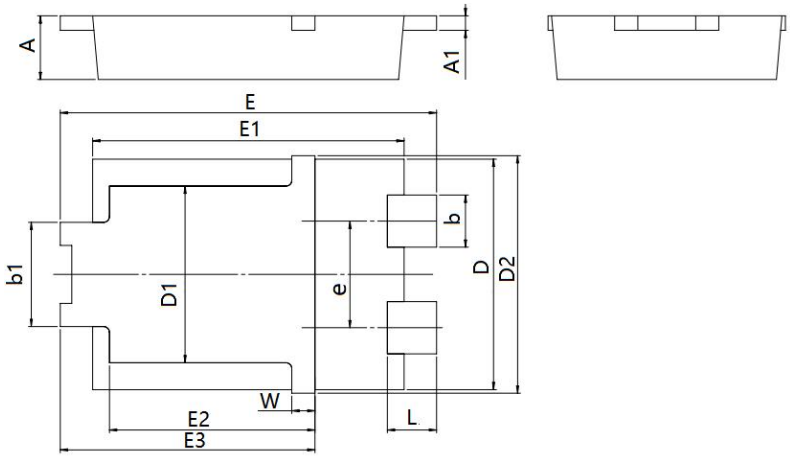
## Mechanical Dimensions TO-277B




| SYMBOL | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 0.95 | 1.25 | 0.037 | 0.049 |
| A1 | 0.20 | 0.30 | 0.008 | 0.012 |
| b | 0.85 | 0.95 | 0.033 | 0.037 |
| b1 | 1.70 | 1.90 | 0.067 | 0.075 |
| D | 3.88 | 4.08 | 0.153 | 0.161 |
| D1 | 2.90 | 3.20 | 0.114 | 0.126 |
| e | 1.74 | 1.94 | 0.069 | 0.076 |
| E | 6.30 | 6.70 | 0.248 | 0.264 |
| E1 | 5.28 | 5.48 | 0.208 | 0.216 |
| E2 | 3.40 | 3.70 | 0.134 | 0.146 |
| L | 0.70 | 1.00 | 0.028 | 0.039 |
| L1 | 0.41 | 0.71 | 0.016 | 0.028 |
| W | 1.10 | 1.40 | 0.043 | 0.055 |

## Mechanical Dimensions TO-277B(New)




| SYMBOL | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 0.95 | 1.25 | 0.037 | 0.049 |
| A1 | 0.20 | 0.30 | 0.008 | 0.012 |
| b | 0.85 | 0.95 | 0.033 | 0.037 |
| b1 | 1.70 | 1.90 | 0.067 | 0.075 |
| D | 3.88 | 4.08 | 0.153 | 0.161 |
| D1 | 2.90 | 3.20 | 0.114 | 0.126 |
| D2 | 4.25 | - | 0.167 | - |
| e | 1.74 | 1.94 | 0.069 | 0.076 |
| E | 6.30 | 6.70 | 0.248 | 0.264 |
| E1 | 5.28 | 5.48 | 0.208 | 0.216 |
| E2 | 3.40 | 3.70 | 0.134 | 0.146 |
| E3 | 4.20 | 4.60 | 0.165 | 0.181 |
| L | 0.65 | 1.05 | 0.025 | 0.041 |
| W | 0.25 | 0.55 | 0.010 | 0.022 |

Notes: New Mechanical Dimensions is performed from date code 2236X.

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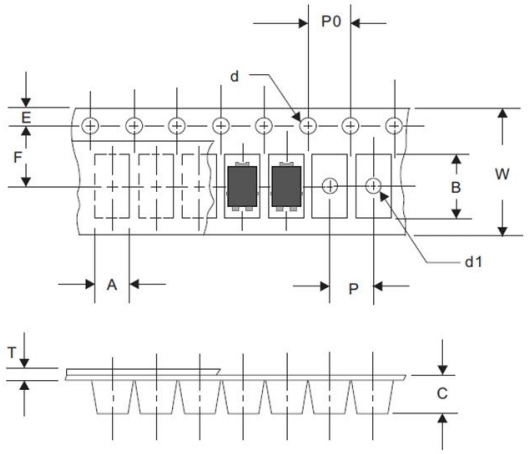
## Carrier Tape Specification TO-277B



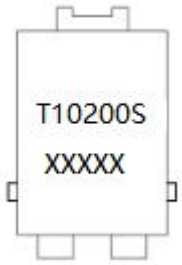

| SYMBOL | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 4.28 | 4.48 |
| B | 6.80 | 7.10 |
| C | 1.30 | 1.50 |
| d | 1.40 | 1.60 |
| d1 | - | 1.50 |
| E | 1.65 | 1.85 |
| F | 5.40 | 5.60 |
| P | 7.90 | 8.10 |
| P0 | 3.90 | 4.10 |
| T | 0.24 | 0.44 |
| W | 11.70 | 12.30 |

## Ordering Information

| Device | Package | Shipping |
|---|---|---|
| ST10200S | TO-277B(Pb-Free) | 5000pcs/ reel |
| ST10200STR | TO-277B(Pb-Free) | 5000pcs/ reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

## Marking Diagram




Where XXXXX is YYWWL

T = Device Type
10 = Forward Current (10A)
200 = Reverse Voltage (200V)
S = Package type
YY = Year
WW = Week
L = Lot Number

**Cautions:** Molding resin
Epoxy resin UL:94V-0