

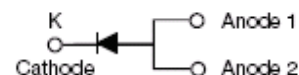
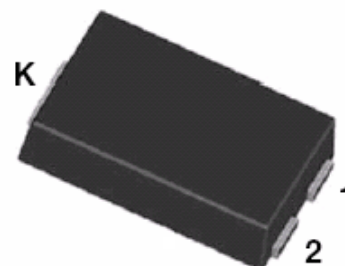
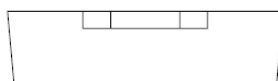
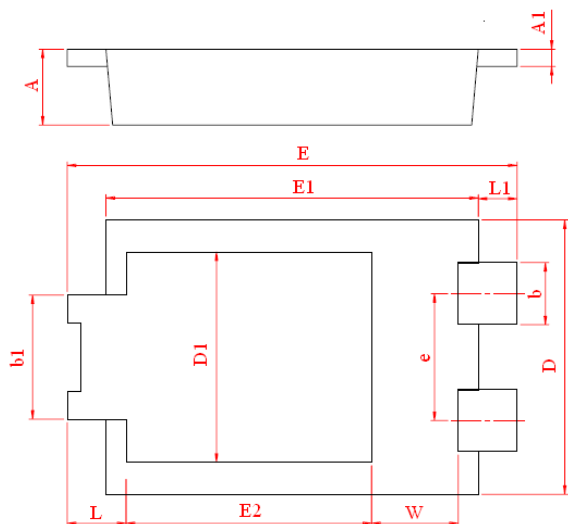
## ST1045S-A SCHOTTKY RECTIFIER

**Applications:**

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

**Features:**

- 150 °C T<sub>J</sub> operation
- Center tap configuration
- Ultralow forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Trench MOS Schottky technology
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request
- This is an AEC-Q101 qualified device


**Mechanical Dimensions: In mm/Inches**


| Dim. | TO-277B |      |         |       |
|------|---------|------|---------|-------|
|      | 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 |
|      | In mm   |      | In inch |       |

**TO-277B(JK)**

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - [sales@smc-diodes.com](mailto:sales@smc-diodes.com) •

**Marking Diagram:**



Where XXXXX is YYWWL

- S = Device Type
- T = Ultralow VF
- 10 = Forward Current (10)
- 45 = Reverse Voltage (45V)
- S = Package type
- A = AEC-Q101 qualified device
- YY = Year
- WW = Week
- L = Lot Number

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

**Ordering Information:**

| Device    | Package              | Shipping      |
|-----------|----------------------|---------------|
| ST1045S-A | TO-277B<br>(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.

**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>$V_R$ | -  | 45   | V     |
| Average Forward Current  | $I_{F(AV)}$                     | 50% duty cycle @ $T_C = 80^\circ\text{C}$<br>rectangular wave form | 10   | A     |
| Peak One Cycle Non-Repetitive<br>Surge Current(per leg)                                | $I_{FSM}$                       | 8.3 ms, half Sine pulse  | 150  | A     |

**Electrical Characteristics:**

| Characteristics                 | Symbol   | Condition   | Typ.         | Max.         | Units |
|---------------------------------|----------|---|--------------|--------------|-------|
| Forward Voltage Drop (per leg)* | $V_{F1}$ | @ 5A, Pulse, $T_J = 25\text{ }^\circ\text{C}$<br>@ 10A, Pulse, $T_J = 25\text{ }^\circ\text{C}$   | 0.43<br>0.49 | 0.51<br>0.57 | V     |
|                                 | $V_{F2}$ | @ 5A, Pulse, $T_J = 125\text{ }^\circ\text{C}$<br>@ 10A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ | 0.32<br>0.41 | 0.43<br>0.50 | V     |
| Reverse Current (per leg) *     | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25\text{ }^\circ\text{C}$                                   | 0.017        | 0.80         | mA    |
|                                 | $I_{R2}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 125\text{ }^\circ\text{C}$                                  | 15           | 100          | mA    |
| Junction Capacitance (per leg)  | $C_T$    | @ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$                 | 656          | -            | pF    |

\* Pulse Width < 300 $\mu$ s, Duty Cycle <2%

**Thermal-Mechanical Specifications:**

| Characteristics                                | Symbol          | Condition    | Specification | Units              |
|--|-----------------|--------------|---------------|--------------------|
| Junction Temperature                           | $T_J$           | -            | -55 to +150   | $^\circ\text{C}$   |
| Storage Temperature                            | $T_{stg}$       | -            | -55 to +150   | $^\circ\text{C}$   |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | DC operation | 75            | $^\circ\text{C/W}$ |
| Approximate Weight                             | wt              | -            | 0.08          | g                  |
| Case Style                                     | TO-227B         |              |               |                    |

Figure 1  
Typical Forward Characteristics

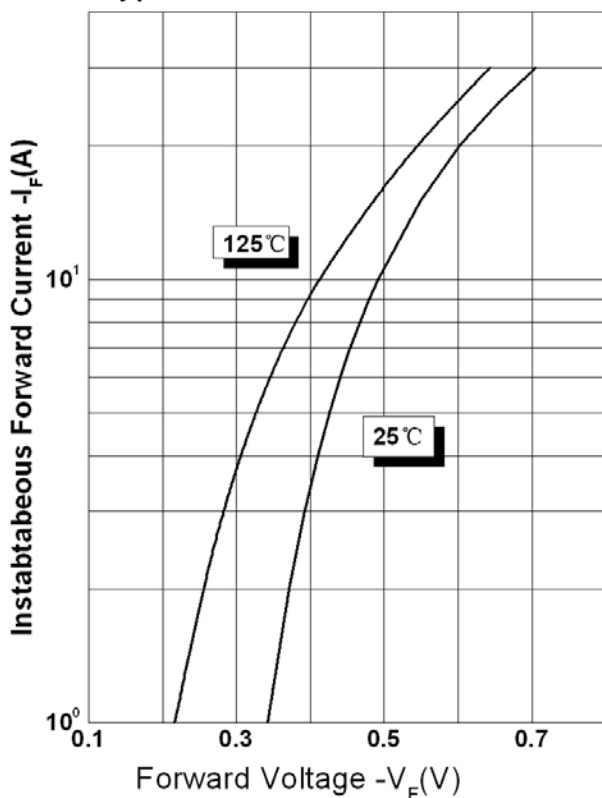


Figure 2  
Typical Reverse Characteristics

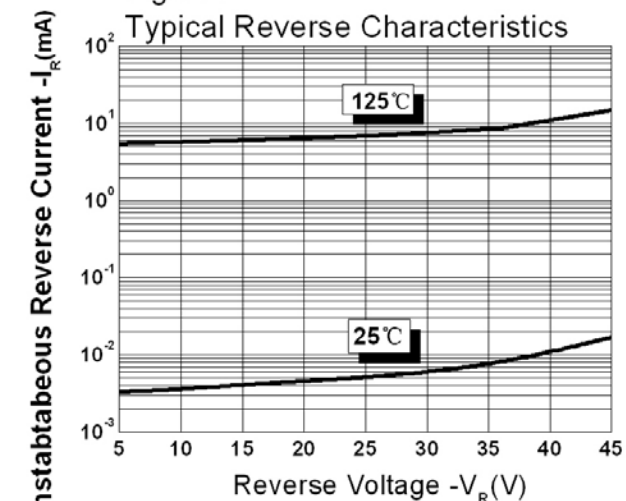
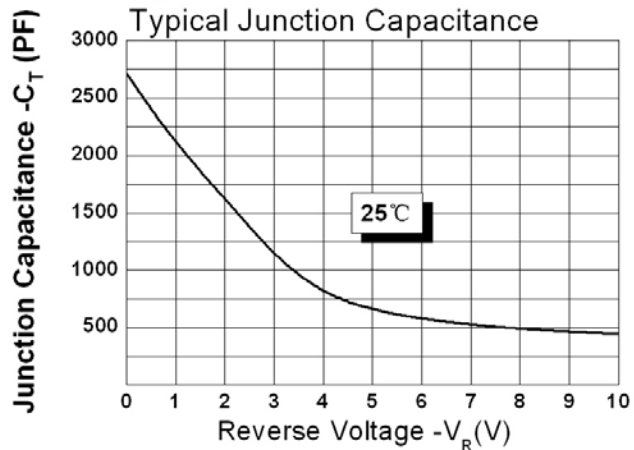


Figure 3  
Typical Junction Capacitance





**ST1045S-A**

**Technical Data**  
**Data Sheet N1797, Rev. A**

**Green Products**

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