

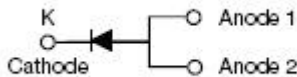
## ST860S SCHOTTKY RECTIFIER



### Features

- 150°C T<sub>J</sub> operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Terminals finish: 100% Pure Tin
- “-A” is an AEC-Q101 qualified device
- 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 <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | -   | 60   | V     |
| Average Rectified Forward Current  | I <sub>F(AV)</sub>                                     | 50% duty cycle @T <sub>L</sub> =125°C,<br>rectangular wave form | 8    | A     |
| Peak One Cycle Non-Repetitive Surge Current  | I <sub>FSM</sub>                                       | 8.3ms, Half Sine pulse, T <sub>J</sub> = 25 °C                  | 140  | A     |

### Electrical Characteristics:

| Characteristics       | Symbol          | Condition   | Typ. | Max. | Units |
|-----------------------|-----------------|---|------|------|-------|
| Forward Voltage Drop* | V <sub>F1</sub> | @ 4A, Pulse, T <sub>J</sub> = 25 °C                                     | 0.42 | -    | V     |
|                       |                 | @ 8A, Pulse, T <sub>J</sub> = 25 °C                                     | 0.50 | 0.61 |       |
|                       | V <sub>F2</sub> | @ 4A, Pulse, T <sub>J</sub> = 125 °C                                    | 0.34 | -    | V     |
|                       |                 | @ 8A, Pulse, T <sub>J</sub> = 125 °C                                    | 0.44 | 0.55 |       |
| Reverse Current*      | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub><br>T <sub>J</sub> = 25 °C        | 0.02 | 0.6  | mA    |
| Reverse Current*      | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub><br>T <sub>J</sub> = 125 °C       | 10   | 25   | mA    |
| Junction Capacitance  | C <sub>T</sub>  | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C<br>f <sub>SIG</sub> = 1MHz | 502  | -    | pF    |

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

**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 Case    | $R_{\theta JC}$ | -         | 3.5           | °C/W  |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | -         | 70            | °C/W  |
| Approximate Weight                             | wt              | -         | 0.08          | g     |

**Ratings and Characteristics Curves**

Figure 1  
Typical Forward Characteristics

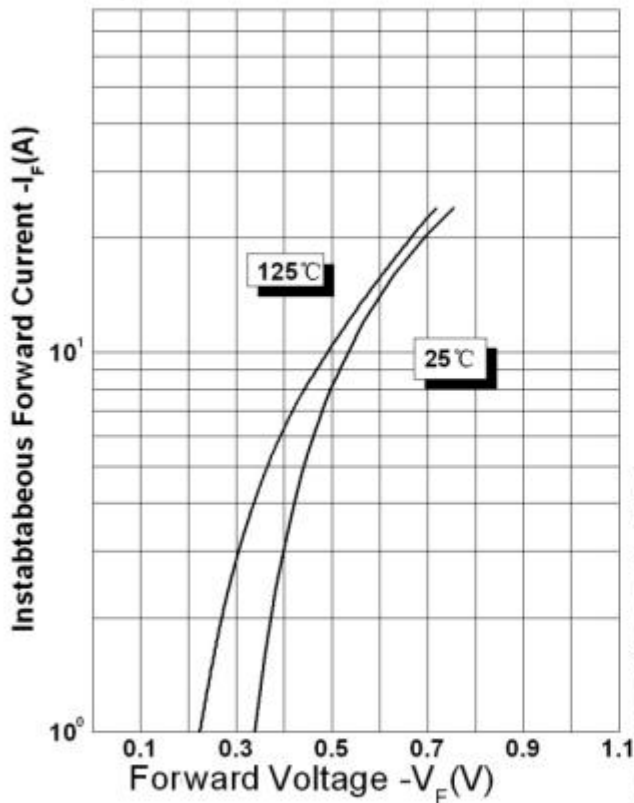


Figure 2  
Typical Reverse Characteristics

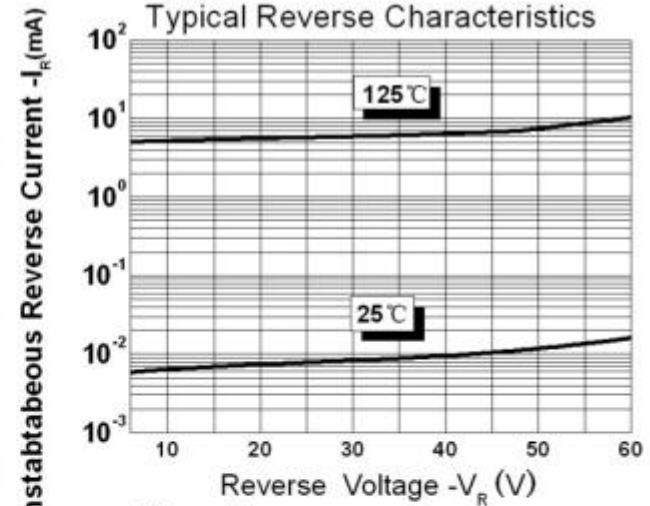
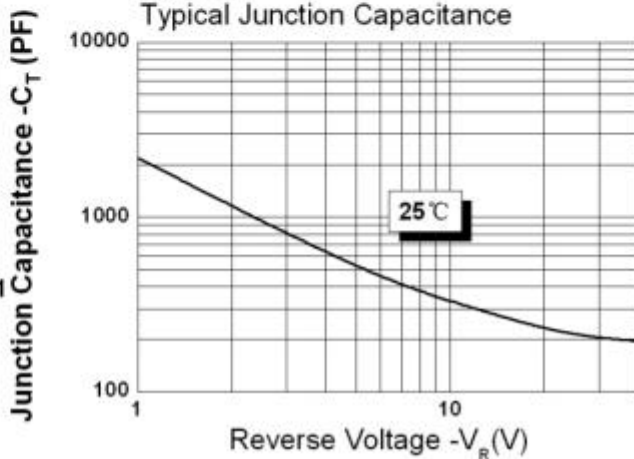
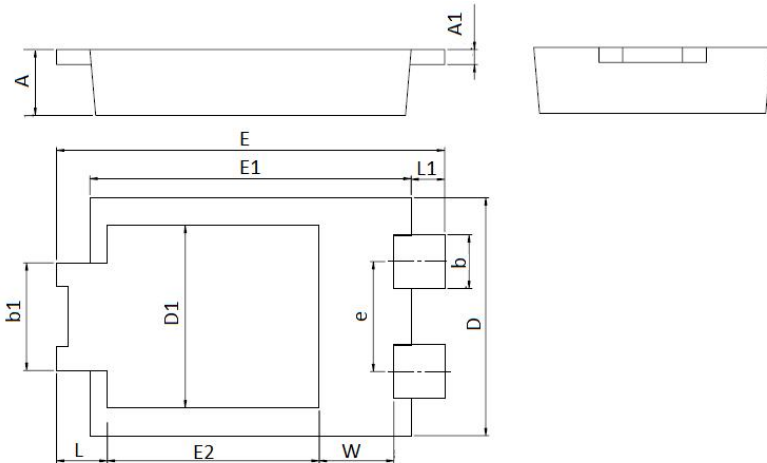
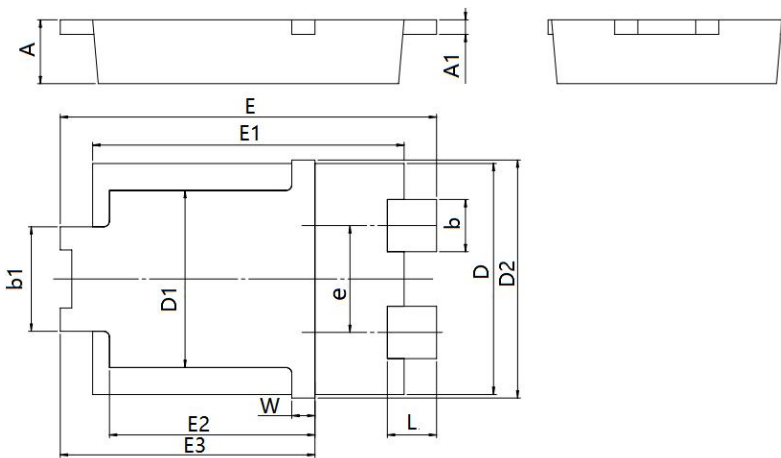


Figure 3  
Typical Junction Capacitance



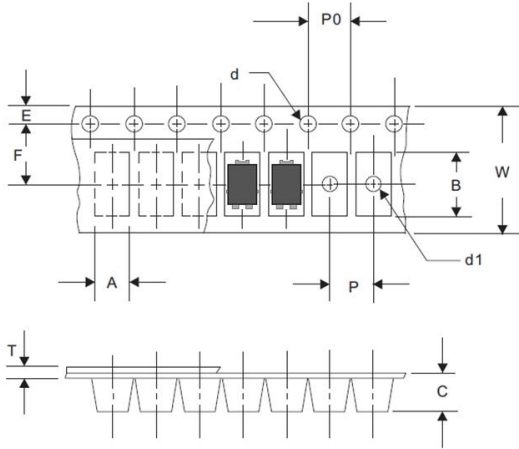
**Mechanical Dimensions TO-277B**


| 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     | 4.00        | 4.25 | 0.157  | 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.

**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      |
|----------|------------------|---------------|
| ST860S   | TO-277B(Pb-Free) | 5000pcs/ reel |
| ST860STR | 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

- ST = Device Type
- 8 = Forward Current (8A)
- 60 = Reverse Voltage (60V)
- S = Package type
- YY = Year
- WW = Week
- L = Lot Number

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

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