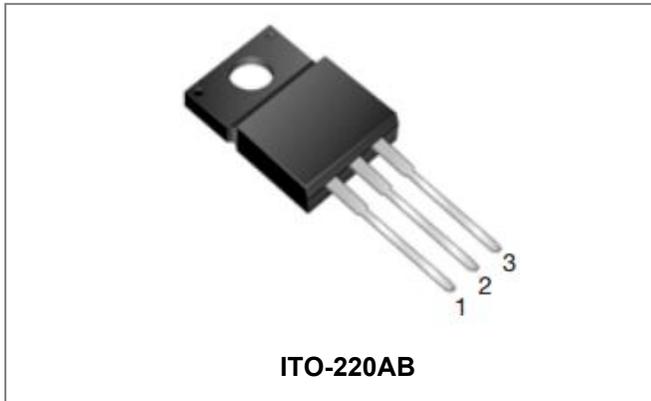


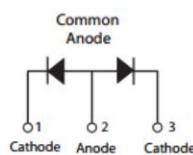
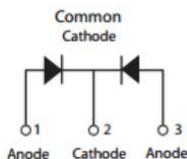
## STF40150C(R) SCHOTTKY RECTIFIER



### Features

- 150 °C T<sub>J</sub> operation
- Ultralow 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
- This is a Pb – 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                      | V <sub>RRM</sub>   | -  | 150                           | V     |
| Working Peak Reverse Voltage                         | V <sub>RWM</sub>   |  |                               |       |
| DC Blocking Voltage                                  | V <sub>R</sub>     |  |                               |       |
| Average Rectified Forward Current                    | I <sub>F(AV)</sub> | 50% duty cycle @T <sub>c</sub> =100°C, rectangular wave form | 20(Per Leg)<br>40(Per Device) | A     |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg) | I <sub>FSM</sub>   | 8.3ms, Half Sine pulse, T <sub>c</sub> =25°C                 | 250                           | A     |

### Thermal-Mechanical Specifications:

| Characteristics                                      | Symbol           | Condition    | Specification | Units |
|--|------------------|--------------|---------------|-------|
| Junction Temperature                                 | T <sub>J</sub>   | -            | -55 to +150   | °C    |
| Storage Temperature                                  | T <sub>stg</sub> | -            | -55 to +150   | °C    |
| Typical Thermal Resistance Junction to Case(Per Leg) | R <sub>θJC</sub> | DC operation | 4             | °C/W  |
| Approximate Weight                                   | wt               | -            | 2             | g     |
| Case Style   |                  |              | ITO-220AB     |       |

**Electrical Characteristics:**

| Characteristics   | Symbol           | Condition   | Typ.  | Max. | Units |
|---|------------------|---|-------|------|-------|
| Forward Voltage Drop (Per Leg)*   | $V_{F1}$         | @ 5A, Pulse, $T_J = 25\text{ }^\circ\text{C}$   | 0.68  | -    | V     |
|   |                  | @ 10A, Pulse, $T_J = 25\text{ }^\circ\text{C}$  | 0.76  | -    |       |
| @ 20A, Pulse, $T_J = 25\text{ }^\circ\text{C}$  |                  | 0.84  | 1.43  |      |       |
|   | $V_{F2}$         | @ 5A, Pulse, $T_J = 125\text{ }^\circ\text{C}$  | 0.55  | -    | V     |
|   |                  | @ 10A, Pulse, $T_J = 125\text{ }^\circ\text{C}$   | 0.62  | -    |       |
|   |                  | @ 20A, Pulse, $T_J = 125\text{ }^\circ\text{C}$   | 0.71  | 0.82 |       |
| Reverse Current(Per Leg)*   | $I_{R1}$         | @ $V_R = \text{rated } V_R, T_J = 25\text{ }^\circ\text{C}$   | 0.003 | 0.25 | mA    |
|   | $I_{R2}$         | @ $V_R = \text{rated } V_R, T_J = 125\text{ }^\circ\text{C}$  | 0.3   | 25   | mA    |
| Junction Capacitance  | $C_T$            | @ $V_R = 5\text{V}, T_C = 25\text{ }^\circ\text{C}, f_{\text{SIG}} = 1\text{MHz}$                       | 528   | -    | pF    |
| RSM Isolation Voltage<br>( $t = 1.0\text{ second}, R. H. < =30\%, T_A = 25\text{ }^\circ\text{C}$ ) | $V_{\text{ISO}}$ | Clip mounting, the epoxy body away from the heatsink edge by more than 0.110" along the lead direction. | -     | 4500 | V     |
|   |                  | Clip mounting, the epoxy body is inside the heatsink.   | -     | 3500 |       |
|   |                  | Screw mounting, the epoxy body is inside the heatsink.  | -     | 1500 |       |

\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Ratings and Characteristics Curves**

Figure 1  
Typical Forward Characteristics

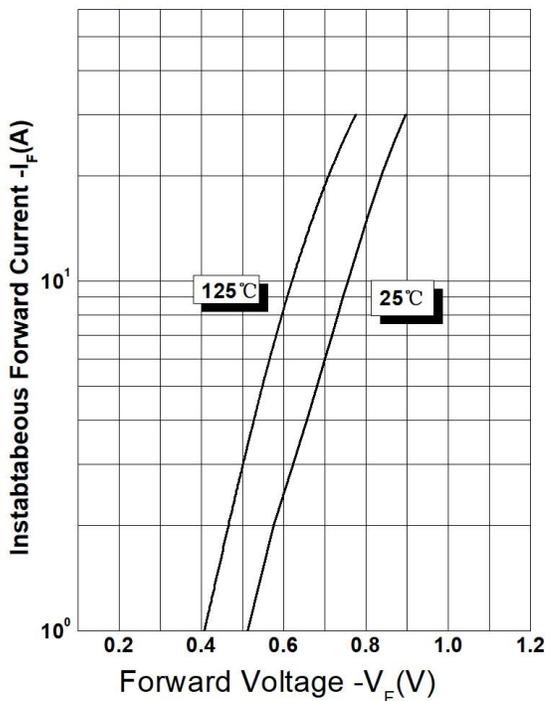


Figure 2  
Typical Reverse Characteristics

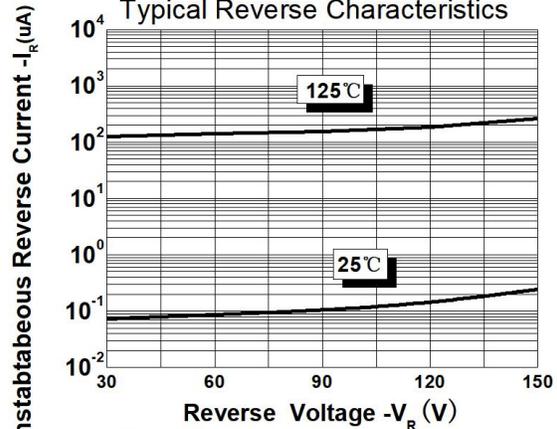
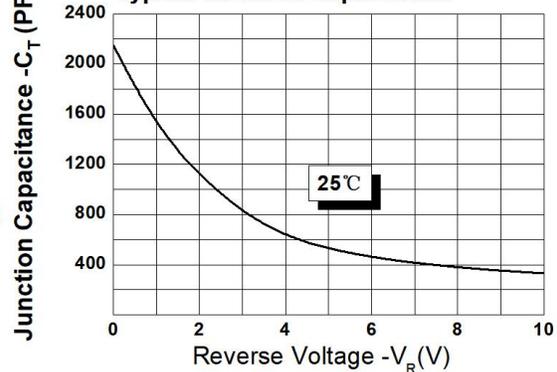
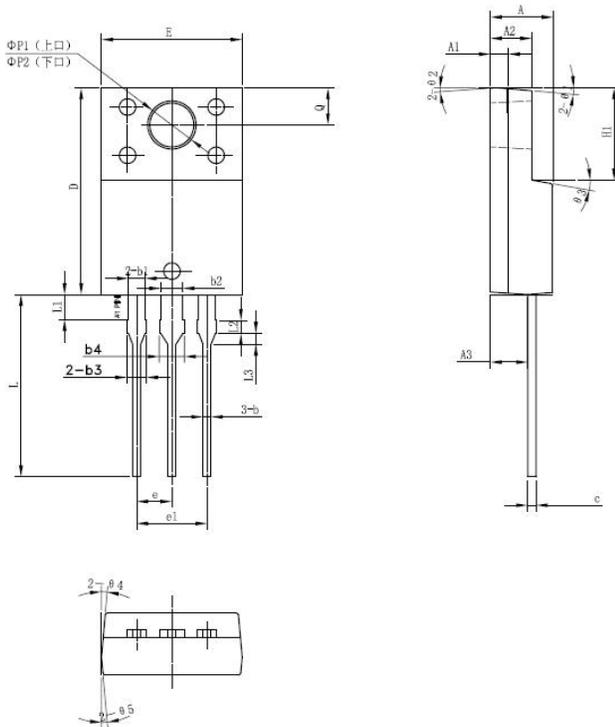
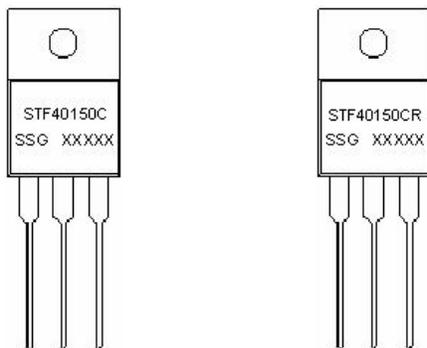


Figure 3  
Typical Junction Capacitance



**Mechanical Dimensions ITO-220AB**


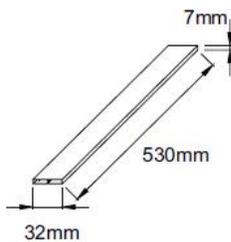
| SYMBOL  | Millimeters |       |       |
|---------|-------------|-------|-------|
|         | MIN.        | TYP.  | MAX.  |
| A       | 4.30        | 4.50  | 4.70  |
| A1      | 1.10        | 1.30  | 1.50  |
| A2      | 2.80        | 3.00  | 3.20  |
| A3      | 2.50        | 2.70  | 2.90  |
| b       | 0.50        | 0.60  | 0.75  |
| b1      | 1.10        | 1.20  | 1.35  |
| b2      | 1.50        | 1.60  | 1.75  |
| b3      | 1.20        | 1.30  | 1.45  |
| b4      | 1.60        | 1.70  | 1.85  |
| c       | 0.50        | 0.60  | 0.75  |
| D       | 14.80       | 15.00 | 15.20 |
| E       | 9.96        | 10.16 | 10.36 |
| e       |             | 2.55  |       |
| e1      |             | 5.10  |       |
| H1      | 6.50        | 6.70  | 6.90  |
| L       | 12.70       | 13.20 | 13.70 |
| L1      | 1.60        | 1.80  | 2.00  |
| L2      | 0.80        | 1.00  | 1.20  |
| L3      | 0.60        | 0.80  | 1.00  |
| ΦP1(上口) | 3.30        | 3.50  | 3.70  |
| ΦP2(下口) | 2.99        | 3.19  | 3.39  |
| Q       | 2.50        | 2.70  | 2.90  |
| Θ1      |             | 5°    |       |
| Θ2      |             | 4°    |       |
| Θ3      |             | 10°   |       |
| Θ4      |             | 5°    |       |
| Θ5      |             | 5°    |       |

**Marking Diagram**


Where XXXXX is YYWWL

ST = Device Type  
 F = Package type  
 40 = Forward Current (40A)  
 150 = Reverse Voltage (150V)  
 C(R) = Configuration  
 SSG = SSG  
 YY = Year  
 WW = Week  
 L = Lot Number

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

**Tube Specification**

**Ordering Information**

| Device       | Package                | Shipping     |
|--------------|------------------------|--------------|
| STF40150C(R) | ITO-220AB<br>(Pb-Free) | 50 pcs/ tube |

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

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