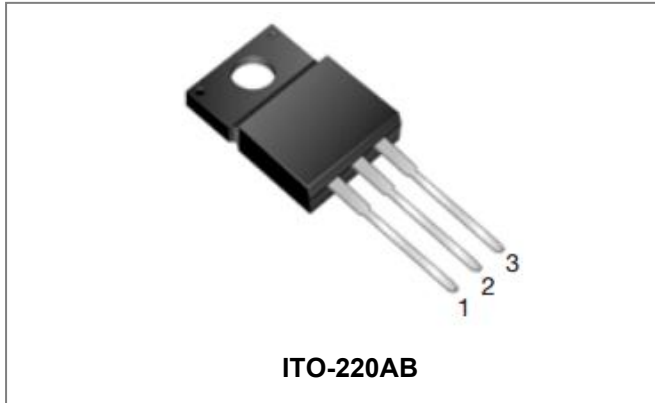


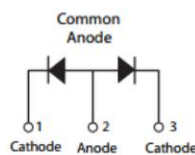
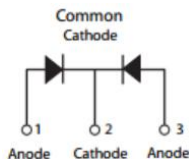
STF40120C(R) SCHOTTKY RECTIFIER



Features

- 150 °C T_J 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 _{RRM} | - | 120 | V |
| Working Peak Reverse Voltage | V _{RWM} | | | |
| DC Blocking Voltage | V _R | | | |
| Average Rectified Forward Current | I _{F(AV)} | 50% duty cycle @T _c =74°C, rectangular wave form | 20(Per Leg) 40(Per Device) | A |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg) | I _{FSM} | 8.3ms, Half Sine pulse, T _c =25°C | 250 | A |

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(Per Leg) | R _{θJC} | 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, $T_J = 25\text{ }^\circ\text{C}$ | 0.50 | - | V |
| | | @ 10A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ | 0.64 | - | |
| @ 20A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ | | 0.87 | 0.97 | | |
| | V_{F2} | @ 5A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ | 0.46 | - | V |
| | | @ 10A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ | 0.57 | - | |
| | | @ 20A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ | 0.68 | 0.76 | |
| Reverse Current(Per Leg)* | I_{R1} | @ $V_R = \text{rated } V_R, T_J = 25\text{ }^\circ\text{C}$ | 33 | 500 | μA |
| | I_{R2} | @ $V_R = \text{rated } V_R, T_J = 125\text{ }^\circ\text{C}$ | 6 | 45 | mA |
| Junction Capacitance | C_T | @ $V_R = 5\text{V}, T_C = 25\text{ }^\circ\text{C}, f_{\text{SIG}} = 1\text{MHz}$ | 608 | - | pF |
| RSM Isolation Voltage ($t = 1.0$ second, R. H. $< 30\%$, $T_A = 25\text{ }^\circ\text{C}$) | V_{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 $< 300\text{ }\mu\text{s}$, duty cycle $< 2\%$

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

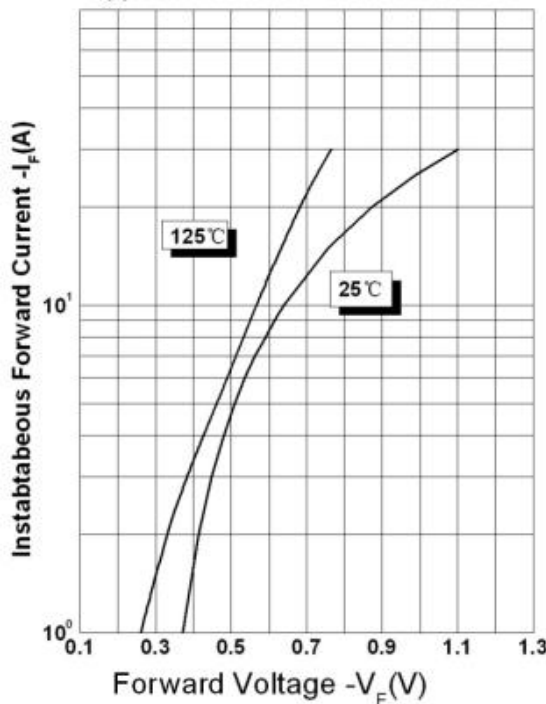


Figure 2
Typical Reverse Characteristics

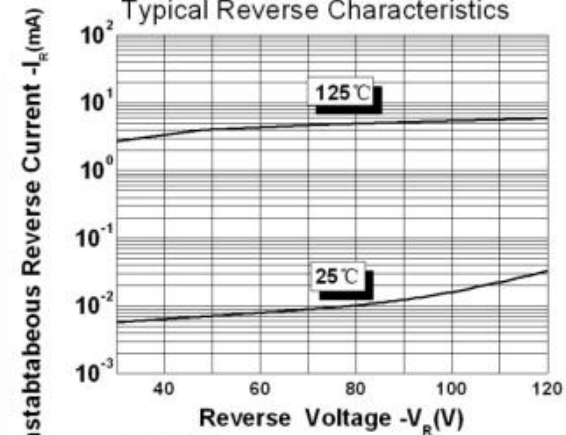
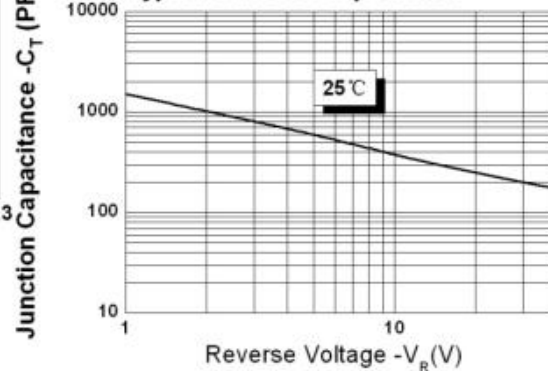
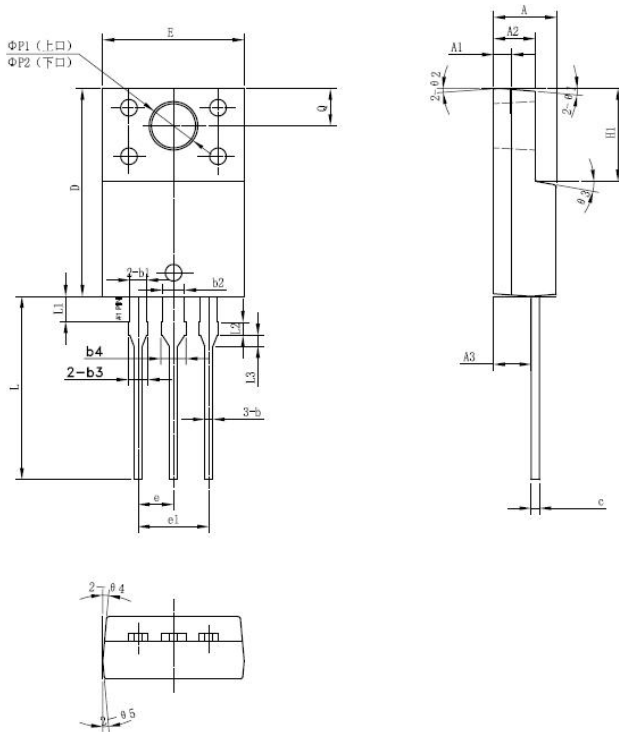
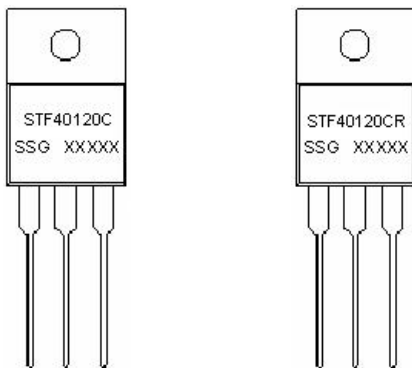


Figure 3
Typical Junction Capacitance



Mechanical Dimensions ITO-220AB


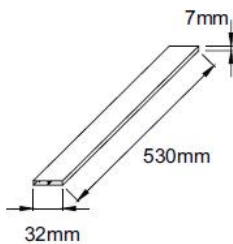
| SYMBOL | Millimeters | | |
|---------|-------------|-------|-------|
| | MIN. | TYP. | MAX. |
| A | 4.30 | 4.50 | 4.70 |
| A1 | 1.10 | 1.30 | 1.50 |
| A2 | 2.80 | 3.00 | 3.20 |
| A3 | 2.50 | 2.70 | 2.90 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| b2 | 1.50 | 1.60 | 1.75 |
| b3 | 1.20 | 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)
 120 = Reverse Voltage (120V)
 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 |
|--------------|------------------------|--------------|
| STF40120C(R) | ITO-220AB (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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