



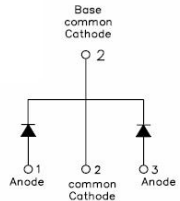
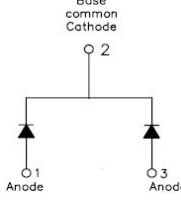
## ST20150C/STB20150C SCHOTTKY RECTIFIER

### Applications

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

### 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

| ST20150C   | STB20150C  |
|--|--|
|                              |                              |
| <p>Base common Cathode</p>  | <p>Base common Cathode</p>  |
| TO-220AB   | D <sup>2</sup> PAK   |

### 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>VRWM</sub><br>V <sub>R</sub> | -   | 150                           | V     |
| Average Rectified Forward Current  | I <sub>F(AV)</sub>                                      | 50% duty cycle @T <sub>c</sub> =105°C,<br>rectangular wave form | 10(Per Leg)<br>20(Per Device) | A     |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg)                                   | I <sub>FSM</sub>  | 8.3ms, Half Sine pulse  | 150                           | A     |

**Electrical Characteristics:**

| Characteristics                | Symbol          | Condition   | Typ. | Max. | Units |
|--------------------------------|-----------------|---|------|------|-------|
| Forward Voltage Drop(Per Leg)* | V <sub>F1</sub> | @ 5A, Pulse, T <sub>J</sub> = 25°C                                      | 0.70 | -    | V     |
|                                |                 | @ 10A, Pulse, T <sub>J</sub> = 25°C                                     | 1.02 | 1.2  |       |
|                                | V <sub>F2</sub> | @ 5A, Pulse, T <sub>J</sub> = 25°C                                      | 0.61 | -    | V     |
|                                |                 | @ 10A, Pulse, T <sub>J</sub> = 125°C                                    | 0.76 | 0.80 |       |
| Reverse Current(Per Leg)*      | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25°C          | -    | 0.15 | mA    |
|                                | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125°C         | 4    | 15   | mA    |
| Junction Capacitance           | C <sub>T</sub>  | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C<br>f <sub>SIG</sub> = 1MHz | 447  | -    | pF    |

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

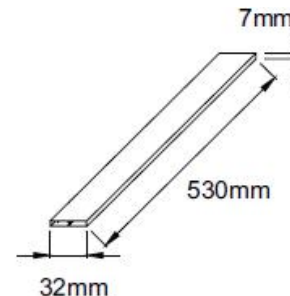
**Thermal-Mechanical Specifications:**

| 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 | 2.8           | °C/W  |

**Tube Specification**

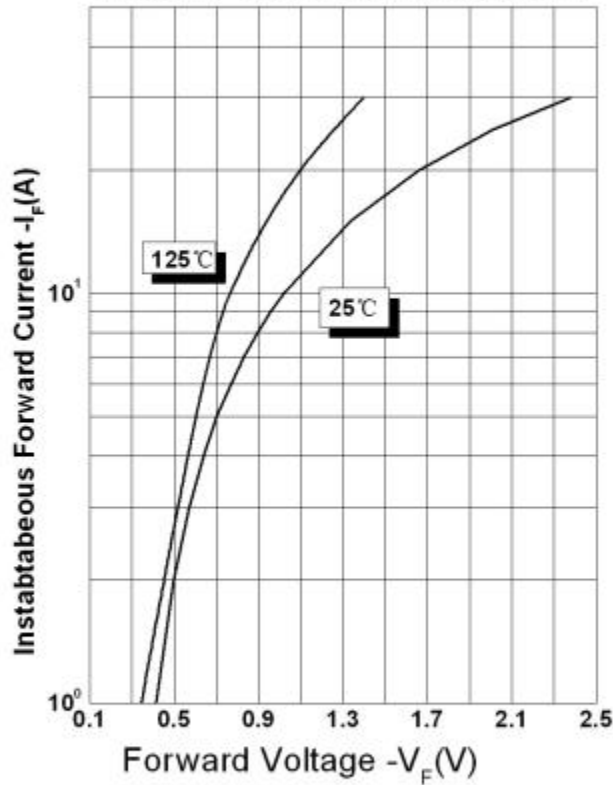
| Device    | Package            | Weight | Shipping      |
|-----------|--------------------|--------|---------------|
| ST20150C  | TO-220AB           | 2.0    | 50pcs / tube  |
| STB20150C | D <sup>2</sup> PAK | 1.85   | 800pcs / reel |

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

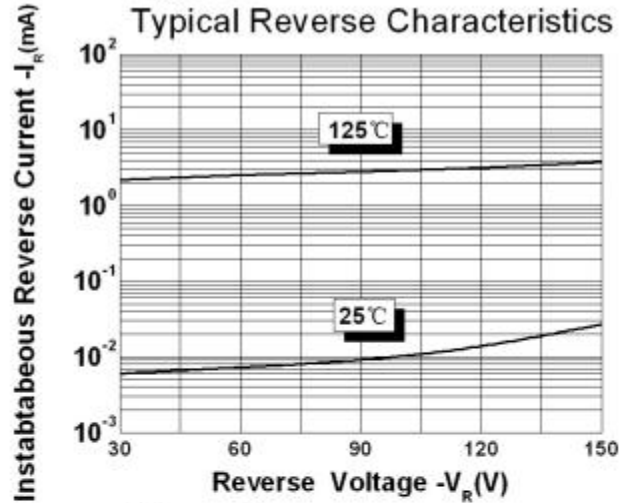
**Tube Specification(TO-220AB)**


**Ratings and Characteristics Curves**

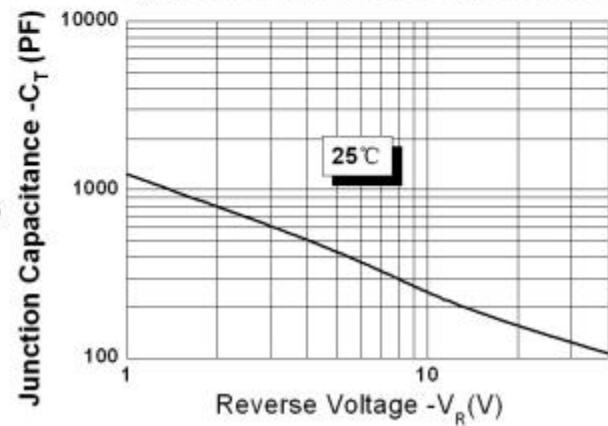
**Figure 1**  
Typical Forward Characteristics



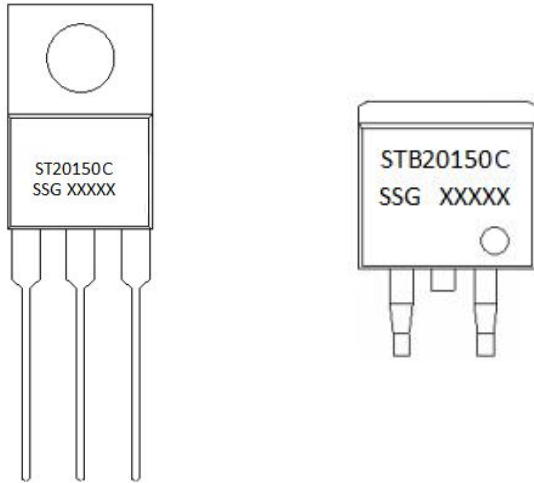
**Figure 2**  
Typical Reverse Characteristics



**Figure 3**  
Typical Junction Capacitance



**Marking Diagram**

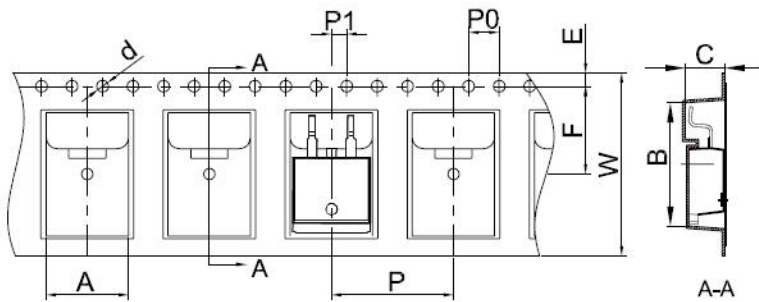


Where XXXXX is YYWWL

ST = Device Type  
 B = Package type  
 20 = Forward Current (20A)  
 150 = Reverse Voltage (150V)  
 C = Configuration  
 SSG = SSG  
 YY = Year  
 WW = Week  
 L = Lot Number

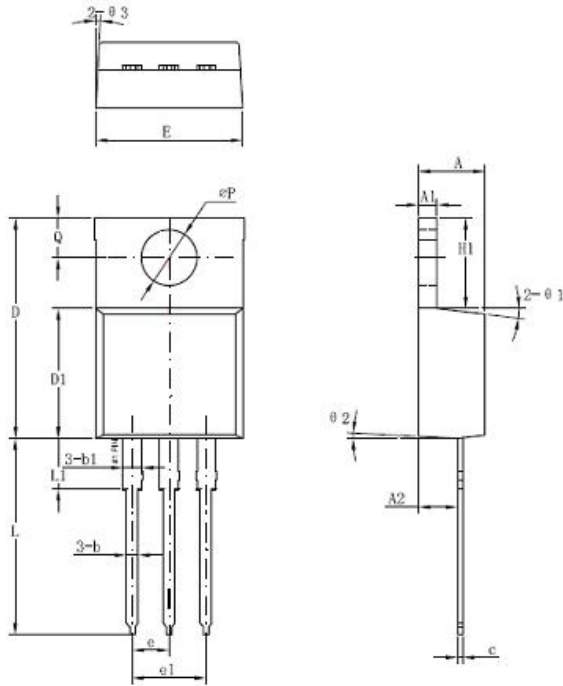
**Cautions:** Molding resin  
 Epoxy resin UL:94V-0

**Carrier Tape Specification D2PAK**



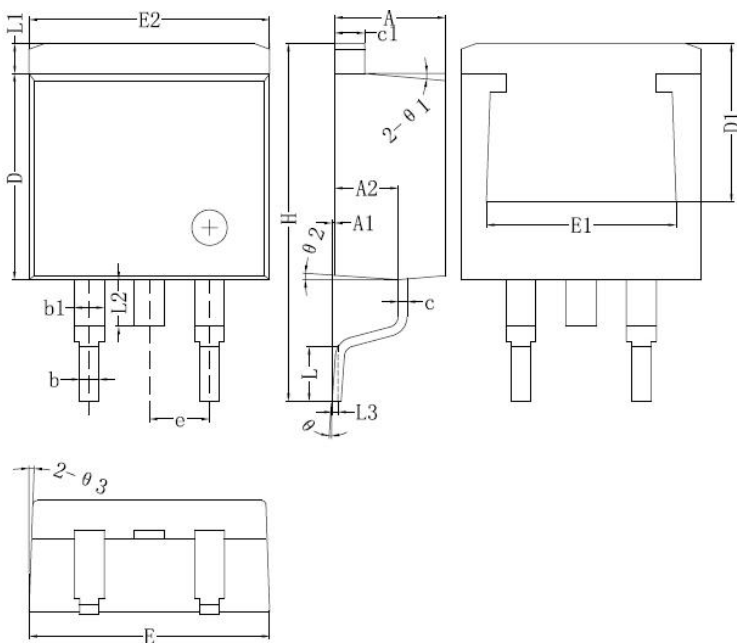
| SYMBOL | Millimeters |       |
|--------|-------------|-------|
|        | Min.        | Max.  |
| A      | 10.70       | 10.90 |
| B      | 16.03       | 16.23 |
| C      | 5.11        | 5.31  |
| d      | 1.45        | 1.65  |
| E      | 1.65        | 1.85  |
| F      | 11.40       | 11.60 |
| P0     | 3.90        | 4.10  |
| P      | 15.90       | 16.10 |
| P1     | 1.90        | 2.10  |
| W      | 23.90       | 24.30 |

**Mechanical Dimensions TO-220AB**



| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min                       | Typical | Max   |
| A      | 4.42                      | 4.57    | 4.72  |
| A1     | 1.17                      | 1.27    | 1.37  |
| A2     | 2.52                      | 2.69    | 2.89  |
| b      | 0.71                      | 0.81    | 0.96  |
| b1     | 1.17                      | 1.27    | 1.37  |
| c      | 0.31                      | 0.38    | 0.61  |
| D      | 14.94                     | 15.24   | 15.54 |
| D1     | 8.85                      | 9.00    | 9.15  |
| E      | 10.01                     | 10.16   | 10.31 |
| e      |                           | 2.54    |       |
| e1     | 4.98                      | 5.06    | 5.18  |
| H1     | 6.04                      | 6.24    | 6.44  |
| L      | 12.7                      | 13.56   | 13.80 |
| L1     | 3.56                      | 3.5     | 3.96  |
| ΦP     | 3.74                      | 3.84    | 4.04  |
| Q      | 2.54                      | 2.74    | 2.94  |
| Θ1     |                           | 7°      |       |
| Θ2     |                           | 3°      |       |
| Θ3     |                           | 4°      |       |

**Mechanical Dimensions D<sup>2</sup>PAK**



| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min.                      | Typical | Max.  |
| A      | 4.47                      | 4.70    | 4.85  |
| A1     | 0                         | 0.10    | 0.25  |
| A2     | 2.59                      | 2.69    | 2.89  |
| b      | 0.71                      | 0.81    | 0.96  |
| b1     | 1.17                      | 1.27    | 1.37  |
| c      | 0.31                      | 0.38    | 0.61  |
| c1     | 1.17                      | 1.27    | 1.37  |
| D      | 8.50                      | 8.70    | 8.90  |
| D1     | 6.40                      |         |       |
| E      | 10.01                     | 10.16   | 10.31 |
| E1     | 7.6                       |         |       |
| E2     | 9.98                      | 10.08   | 10.31 |
| e      |                           | 2.54    |       |
| H      | 14.6                      | 15.1    | 15.6  |
| L      | 2.00                      | 2.30    | 2.74  |
| L1     | 1.12                      | 1.27    | 1.42  |
| L2     | 1.30                      |         | 2.20  |
| L3     |                           | 0.25BSC |       |
| e      | 0                         | -       | 8°    |
| e1     |                           | 5°      |       |
| e2     |                           | 4°      |       |
| e3     |                           | 4°      |       |



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