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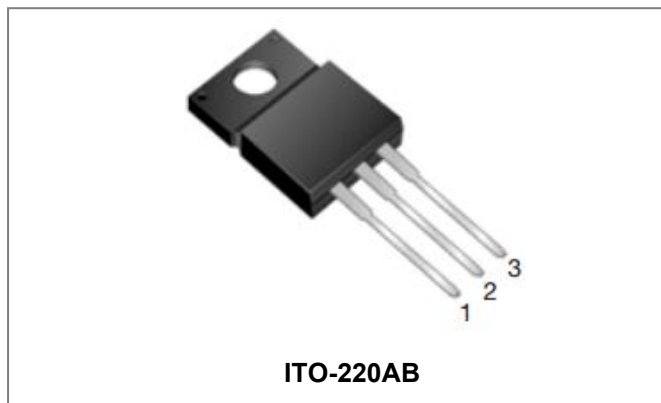
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



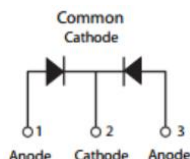
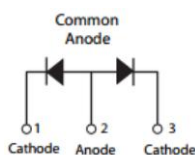
## STF10120C(R) SCHOTTKY RECTIFIER



### 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


**STF10120C**

**STF10120CR**

### 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>    | -                                                            | 120                          | 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> =105°C, rectangular wave form | 5(Per Leg)<br>10(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                 | 120                          | A     |

### Electrical Characteristics:

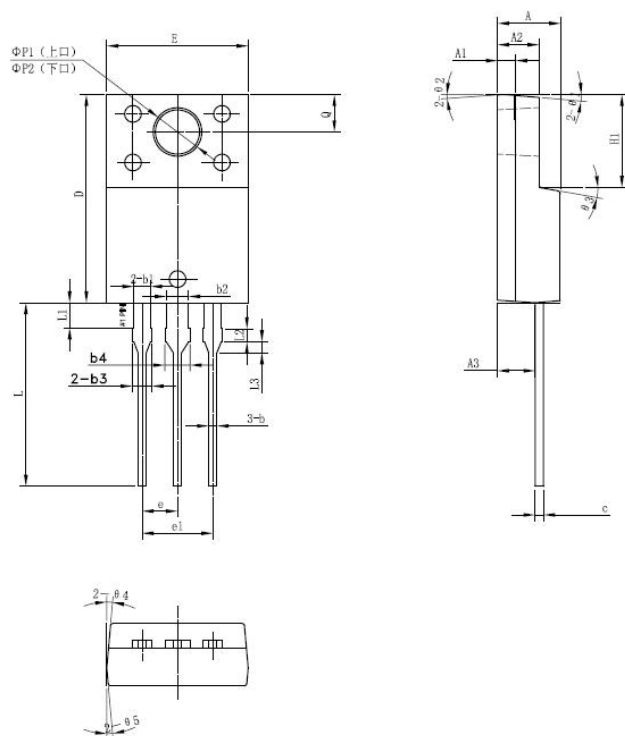
| Characteristics                                                                    | Symbol           | Condition                                                                                               | Typ. | Max. | Units |
|------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------|------|------|-------|
| Forward Voltage Drop(Per Leg)*                                                     | V <sub>F1</sub>  | @ 5A, Pulse, T <sub>J</sub> = 25°C                                                                      | -    | 0.88 | V     |
|                                                                                    | V <sub>F2</sub>  | @ 5A, Pulse, T <sub>J</sub> = 125°C                                                                     | -    | 0.71 | V     |
| Reverse Current(Per Leg)*                                                          | I <sub>R1</sub>  | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25°C                                          | -    | 0.5  | mA    |
|                                                                                    | I <sub>R2</sub>  | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125°C                                         | -    | 35   | mA    |
| RSM Isolation Voltage<br>(t = 1.0 second, R. H. < =30%,<br>T <sub>A</sub> = 25 °C) | V <sub>ISO</sub> | 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 μs, duty cycle < 2%

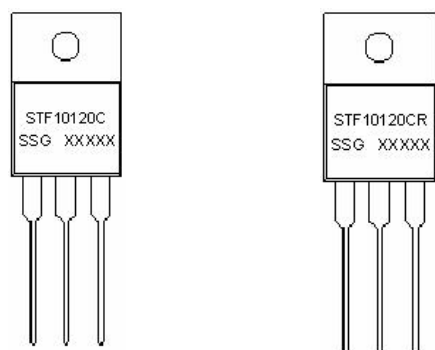
- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - [sales@smc-diodes.com](mailto:sales@smc-diodes.com) •

**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) | $R_{\theta JC}$ | DC operation | 5.5           | °C/W  |
| Approximate Weight                                   | wt              | -            | 2             | g     |
| Case Style                                           | ITO-220AB       |              |               |       |

**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°    |       |

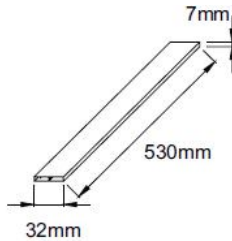
**Marking Diagram**


Where XXXXX is YYWWL

ST = Device Type  
 F = Package type  
 10 = Forward Current (10A)  
 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     |
|--------------|------------------------|--------------|
| STF10120C(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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