

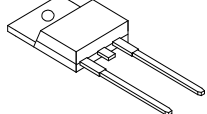
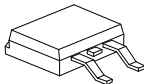
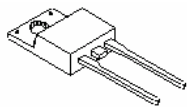
## ST30100/STB30100/STF30100 SCHOTTKY RECTIFIER

### Applications:

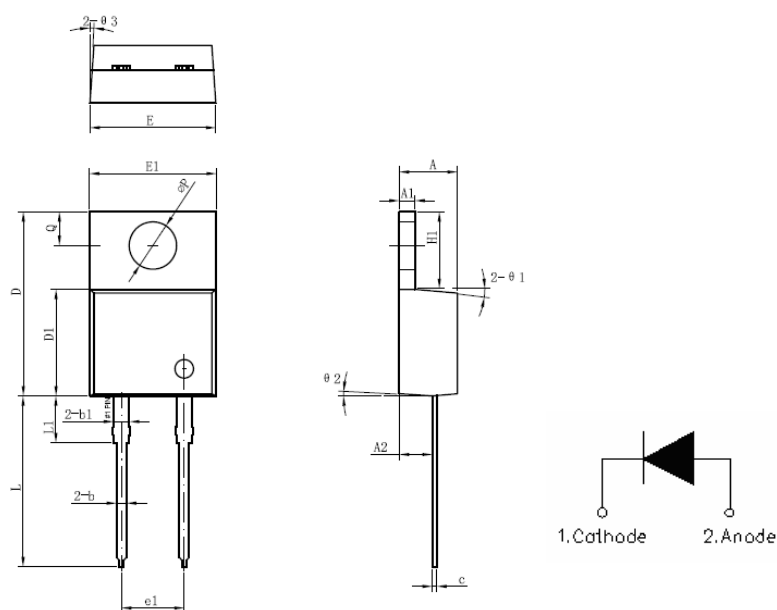
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Center tap configuration

### Features:

- 150°C T<sub>J</sub> operation
- Center tap configuration
- 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
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot

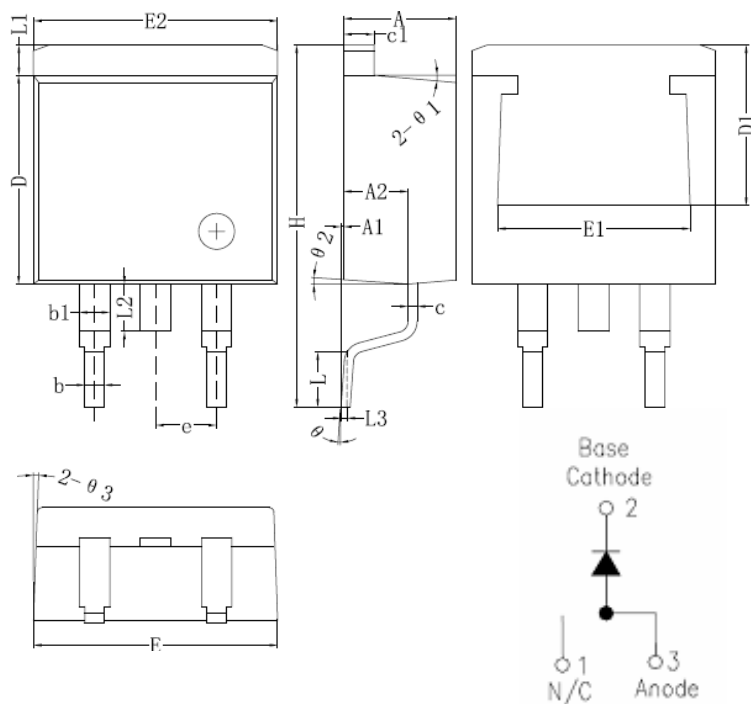
|                                                                                                                          |                                                                                                                        |                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>ST30100</b><br><br><b>TO-220AC</b> | <b>STB30100</b><br><br><b>D²PAK</b> | <b>STF30100</b><br><br><b>ITO-220AC</b> |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|

Mechanical Dimensions: In Inches / mm



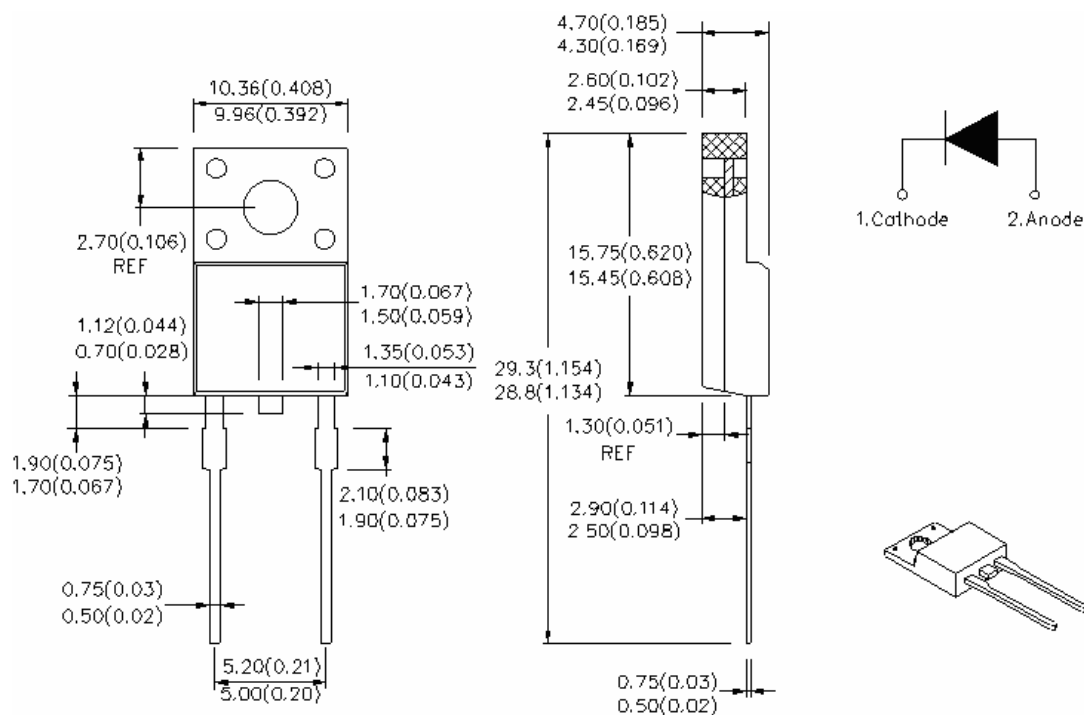
TO-220AC

| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min.                      | Typical | Max.  |
| A      | 4.55                      | 4.70    | 4.85  |
| A1     | 1.17                      | 1.27    | 1.37  |
| A2     | 2.59                      | 2.69    | 2.89  |
| b      | 0.71                      | 0.81    | 0.96  |
| b1     |                           | 1.27    |       |
| c      | 0.36                      | 0.38    | 0.61  |
| D      | 14.64                     | 14.94   | 15.24 |
| D1     | 8.55                      | 8.07    | 8.85  |
| E      | 10.01                     | 10.16   | 10.31 |
| E1     | 9.98                      | 10.18   | 10.38 |
| e1     |                           | 5.08    |       |
| H1     | 6.04                      | 6.24    | 6.44  |
| L      | 13.00                     | 13.86   | 14.08 |
| L1     |                           | 3.80    |       |
| ΦP     | 3.74                      | 3.84    | 4.04  |
| Q      | 2.54                      | 2.74    | 2.94  |
| Ø1     |                           | 5°      |       |
| Ø2     |                           | 4°      |       |
| Ø3     |                           | 4°      |       |



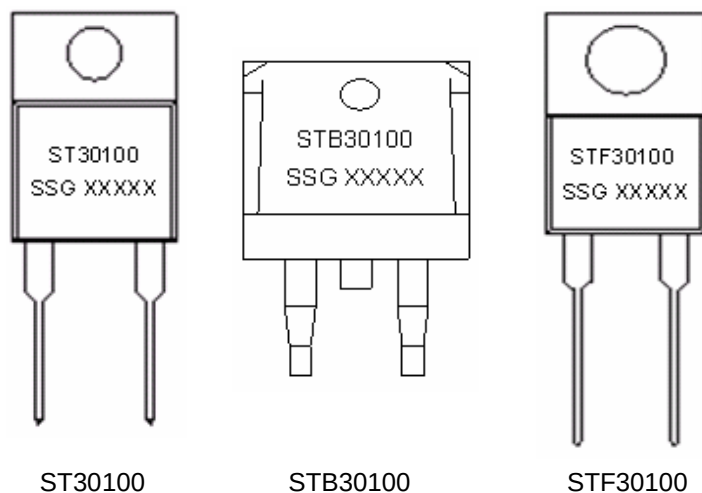
| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min.                      | Typical | Max.  |
| A      | 4.55                      | 4.70    | 4.85  |
| A1     | 0                         | 0.10    | 0.25  |
| A2     | 2.59                      | 2.69    | 2.89  |
| b      | 0.71                      | 0.81    | 0.96  |
| b1     |                           | 1.27    |       |
| c      | 0.36                      | 0.38    | 0.61  |
| c1     | 1.17                      | 1.27    | 1.37  |
| D      | 8.55                      | 8.70    | 8.85  |
| D1     | 6.40                      |         |       |
| E      | 10.01                     | 10.16   | 10.31 |
| E1     | 7.6                       |         |       |
| E2     | 9.98                      | 10.08   | 10.18 |
| e      |                           | 2.54    |       |
| H      | 14.6                      | 15.1    | 15.6  |
| L      | 2.00                      | 2.30    | 2.70  |
| L1     | 1.17                      | 1.27    | 1.40  |
| L2     |                           |         | 2.20  |
| L3     |                           | 0.25BSC |       |
| e      | 0                         | -       | 8°    |
| e1     |                           | 5°      |       |
| e2     |                           | 4°      |       |
| e3     |                           | 4°      |       |

**D²PAK**



**ITO-220AC**

## Marking Diagram:



Where XXXXX is YYWWL

|     |                          |
|-----|--------------------------|
| ST  | = Device Type            |
| B/F | = Package type           |
| 30  | = Forward Current (30A)  |
| 100 | = Reverse Voltage (100V) |
| SSG | = SSG                    |
| YY  | = Year                   |
| WW  | = Week                   |
| L   | = Lot Number             |

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

## Ordering Information:

| Device   | Package                      | Shipping      |
|----------|------------------------------|---------------|
| ST30100  | TO-220AC(Pb-Free)            | 50pcs/ tube   |
| STB30100 | D <sup>2</sup> PAK (Pb-Free) | 800pcs / reel |
| STF30100 | ITO-220AC(Pb-Free)           | 50pcs/ tube   |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

## Maximum Ratings:

| Characteristics                                             | Symbol      | Condition                                                             | Max. | Units |
|-------------------------------------------------------------|-------------|-----------------------------------------------------------------------|------|-------|
| Peak Inverse Voltage                                        | $V_{RWM}$   | -                                                                     | 100  | V     |
| Average Forward Current                                     | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 100^\circ\text{C}$ ,<br>rectangular wave form | 30   | A     |
| Peak One Cycle<br>Non-Repetitive Surge Current<br>(per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse                                               | 300  | A     |



### Electrical Characteristics:

| Characteristics                | Symbol          | Condition                                                               | Max.   | Units |
|--------------------------------|-----------------|-------------------------------------------------------------------------|--------|-------|
| Forward Voltage Drop*          | V <sub>F1</sub> | @ 30A, Pulse, T <sub>J</sub> = 25 °C                                    | 0.75   | V     |
|                                | V <sub>F2</sub> | @ 30A, Pulse, T <sub>J</sub> = 125 °C                                   | 0.70   | V     |
| Reverse Current (per leg)*     | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub><br>T <sub>J</sub> = 25 °C        | 1      | mA    |
|                                | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub><br>T <sub>J</sub> = 125 °C       | 75     | mA    |
| Junction Capacitance (per leg) | C <sub>T</sub>  | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C<br>f <sub>SIG</sub> = 1MHz | 1000   | pF    |
| Voltage Rate of Change         | dv/dt           | -                                                                       | 10,000 | V/μs  |

\* Pulse Width < 300μs, Duty Cycle <2%

### Thermal-Mechanical Specifications:

| Characteristics                                       | Symbol                                   | ST30100     | STB30100 | STF30100 | Units |
|-------------------------------------------------------|------------------------------------------|-------------|----------|----------|-------|
| Junction Temperature                                  | T <sub>J</sub>                           | -55 to +150 |          |          | °C    |
| Storage Temperature                                   | T <sub>stg</sub>                         | -55 to +150 |          |          | °C    |
| Maximum Thermal Resistance Junction to Case(per leg)* | R <sub>θJC</sub>                         | 2.0         | 2.0      | 5.0      | °C/W  |
| Approximate Weight                                    | wt                                       | 1.8         | 1.85     | 1.8      | g     |
| Case Style                                            | TO-220AC/ D <sup>2</sup> PAK / ITO-220AC |             |          |          |       |

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