

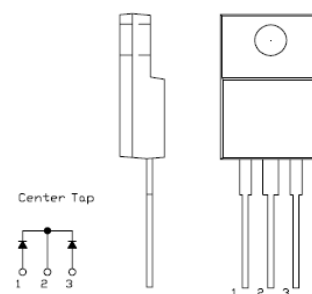
## ST60100C STB60100C STF60100C SCHOTTKY RECTIFIER

### Applications:

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

### Features:

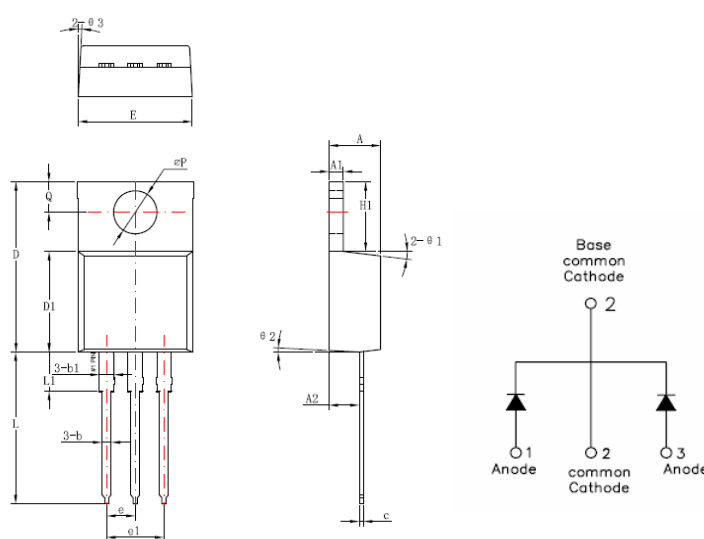
- 150 °C T<sub>J</sub> operation
- Center tap configuration
- Ultralow forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request



OUTLINE DRAWING

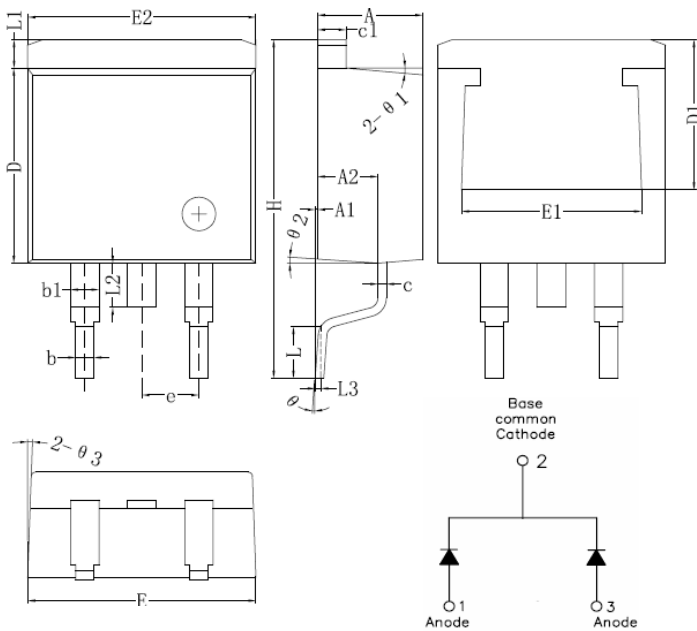
| Case styles |                    |           |
|-------------|--------------------|-----------|
| ST60100C    | STB60100C          | STF60100C |
|             |                    |           |
| TO-220AB    | D <sup>2</sup> PAK | ITO-220AB |

Mechanical Dimensions: In Inches / mm



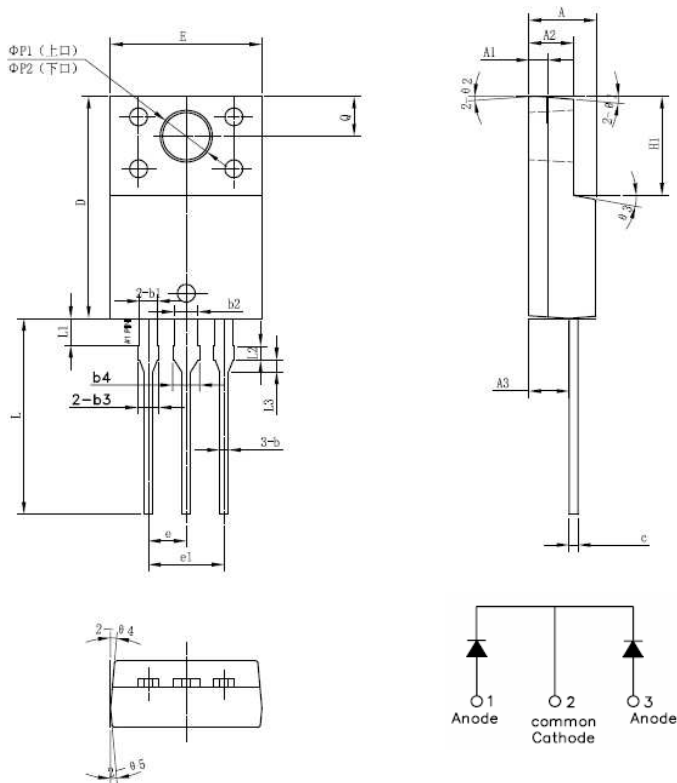
| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min                       | Typical | Max   |
| A      | 4.42                      | 4.57    | 4.72  |
| A1     | 1.17                      | 1.27    | 1.37  |
| A2     | 2.59                      | 2.69    | 2.89  |
| b      | 0.71                      | 0.81    | 0.96  |
| b1     |                           | 1.27    |       |
| c      | 0.36                      | 0.38    | 0.61  |
| D      | 14.94                     | 15.24   | 15.54 |
| D1     | 8.85                      | 9.00    | 9.15  |
| E      | 10.01                     | 10.16   | 10.31 |
| e      |                           | 2.54    |       |
| e1     |                           | 5.06    |       |
| H1     | 6.04                      | 6.24    | 6.44  |
| L      | 12.7                      | 13.56   | 13.78 |
| L1     |                           | 3.5     |       |
| ΦP     | 3.74                      | 3.84    | 4.04  |
| Q      | 2.54                      | 2.74    | 2.94  |
| Θ1     |                           | 7°      |       |
| Θ2     |                           | 3°      |       |
| Θ3     |                           | 4°      |       |

TO-220AB



| 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°      |       |

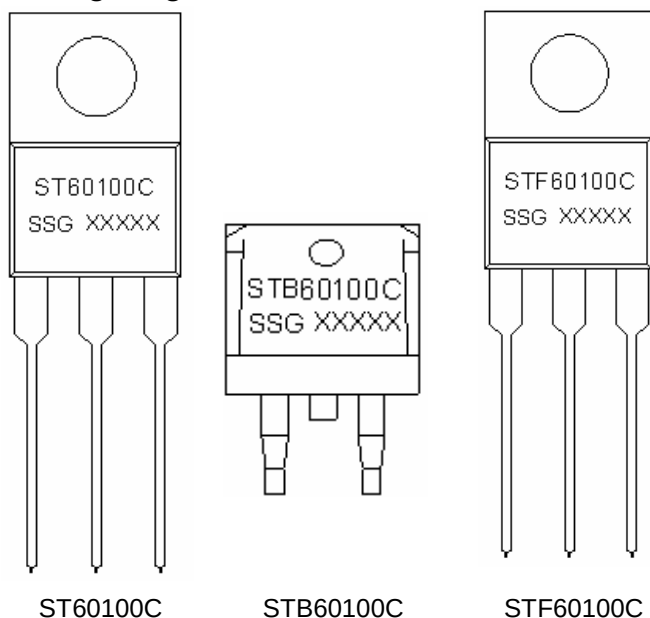
**D²PAK**



| SYMBOL  | 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       | 0.55  | 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□) | 3.30  | 3.50  | 3.70  |
| ΦP2(下□) | 2.99  | 3.19  | 3.39  |
| Q       | 2.50  | 2.70  | 2.90  |
| Θ1      |       | 5°    |       |
| Θ2      |       | 4°    |       |
| Θ3      |       | 10°   |       |
| Θ4      |       | 5°    |       |
| Θ5      |       | 5°    |       |

## ITO-220AB

## Marking Diagram:



Where XXXXX is YYWWL

S = Device Type  
T = Ultralow VF  
B/F = Package type  
60 = Forward Current (60A)  
100 = Reverse Voltage (100V)  
C = Configuration  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

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

## Ordering Information:

| Device    | Package                     | Shipping      |
|-----------|-----------------------------|---------------|
| ST60100C  | TO-220AB(Pb-Free)           | 50pcs / tube  |
| STB60100C | D <sup>2</sup> PAK(Pb-Free) | 800pcs / reel |
| STF60100C | ITO-220AB(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 @ $T_C = 105^\circ\text{C}$<br>rectangular wave form | 60   | A     |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse                                             | 300  | A     |

## Electrical Characteristics:

| Characteristics                           | Symbol   | Condition                                                                                                                 | Typ.           | Max.    | Units |
|-------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------|----------------|---------|-------|
| Forward Voltage Drop (per leg)*           | $V_{F1}$ | @ 5A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$                                                                           | 0.47           | -       | V     |
|                                           |          | @ 10A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$                                                                          | 0.54           | -       |       |
|                                           |          | @ 15A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$                                                                          | 0.61           | 0.68    |       |
|                                           |          | @ 20A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$                                                                          | 0.68           | -       |       |
|                                           |          | @ 30A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$                                                                          | 0.82           | 0.90    |       |
|                                           | $V_{F2}$ | @ 5A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$                                                                          | 0.38           | -       | V     |
|                                           |          | @ 10A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$                                                                         | 0.51           | -       |       |
|                                           |          | @ 15A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$                                                                         | 0.58           | 0.65    |       |
|                                           |          | @ 20A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$                                                                         | 0.64           | -       |       |
|                                           |          | @ 30A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$                                                                         | 0.74           | 0.80    |       |
| Reverse Current at DC condition (per leg) | $I_{R1}$ | @ $V_R = 70\text{V}$ , $T_J = 25\text{ }^{\circ}\text{C}$<br>@ $V_R = 100\text{V}$ , $T_J = 25\text{ }^{\circ}\text{C}$   | 0.012<br>0.030 | -<br>1  | mA    |
| Reverse Current (per leg) *               | $I_{R2}$ | @ $V_R = 70\text{V}$ , $T_J = 125\text{ }^{\circ}\text{C}$<br>@ $V_R = 100\text{V}$ , $T_J = 125\text{ }^{\circ}\text{C}$ | 10<br>15       | -<br>75 | mA    |
| Junction Capacitance (per leg)            | $C_T$    | @ $V_R = 5\text{V}$ , $T_C = 25\text{ }^{\circ}\text{C}$<br>$f_{SIG} = 1\text{MHz}$                                       | 845            | 1000    | pF    |

\* Pulse Width < 300 $\mu$ s, Duty Cycle < 2%

## Thermal-Mechanical Specifications:

| Characteristics                                       | Symbol                                | Condition    | Specification | Units                |
|-------------------------------------------------------|---------------------------------------|--------------|---------------|----------------------|
| Junction Temperature                                  | $T_J$                                 | -            | -55 to +150   | $^{\circ}\text{C}$   |
| Storage Temperature                                   | $T_{stg}$                             | -            | -55 to +150   | $^{\circ}\text{C}$   |
| Maximum Thermal Resistance Junction to Case (per leg) | $R_{\theta JC}$                       | DC operation | 5.0           | $^{\circ}\text{C/W}$ |
| Approximate Weight                                    | wt                                    | -            | 2/1.8/2       | g                    |
| Case Style                                            | TO-220AB/D <sup>2</sup> PAK/ITO-220AB |              |               |                      |

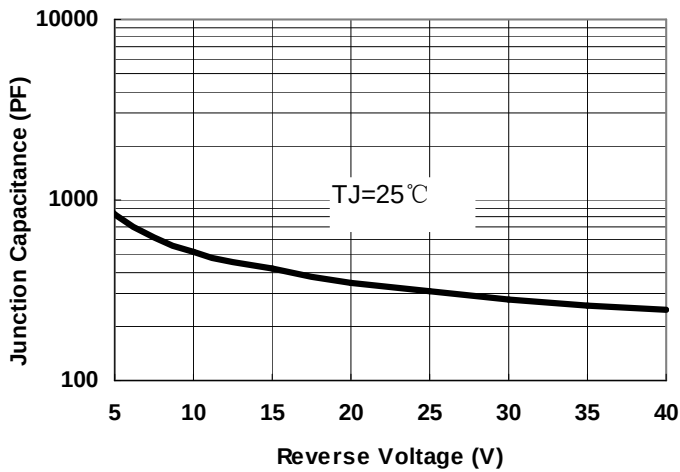


Fig.1-Typical Junction Capacitance

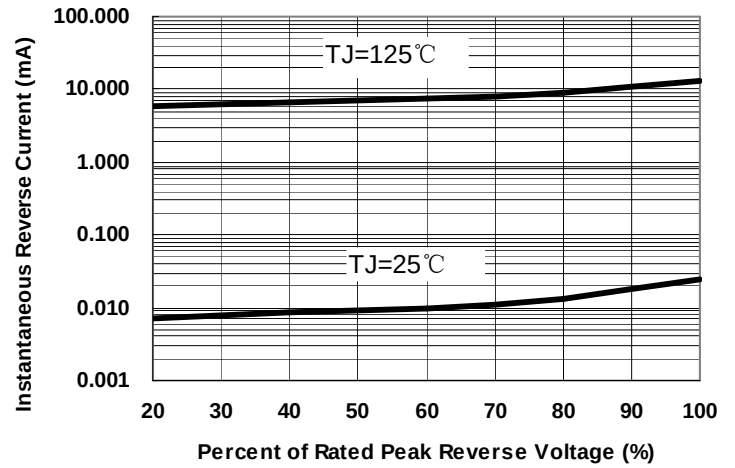


Fig.2-Typical Reverse Characteristics

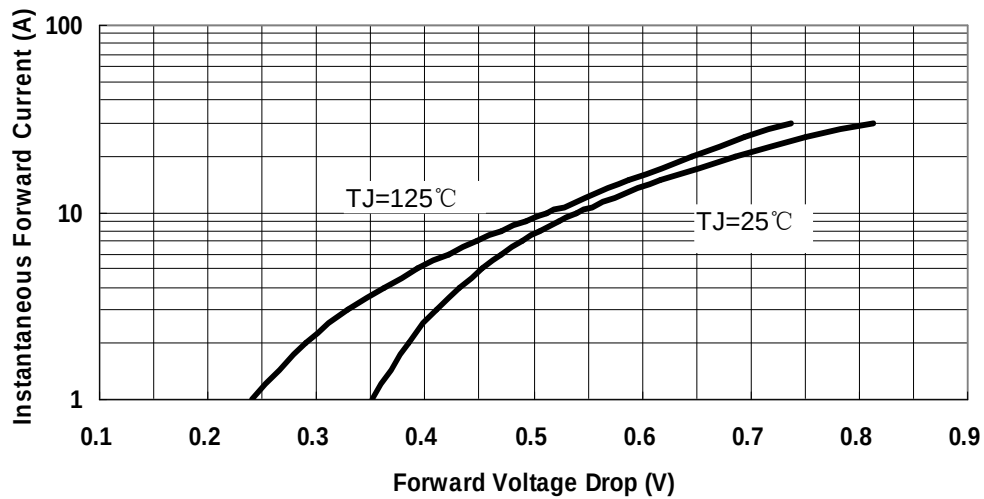


Fig.3-Typical Instantaneous Forward Voltage Characteristics

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