

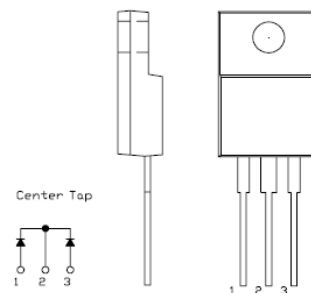
## SBRF20100CTL SCHOTTKY RECTIFIER

### Applications:

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

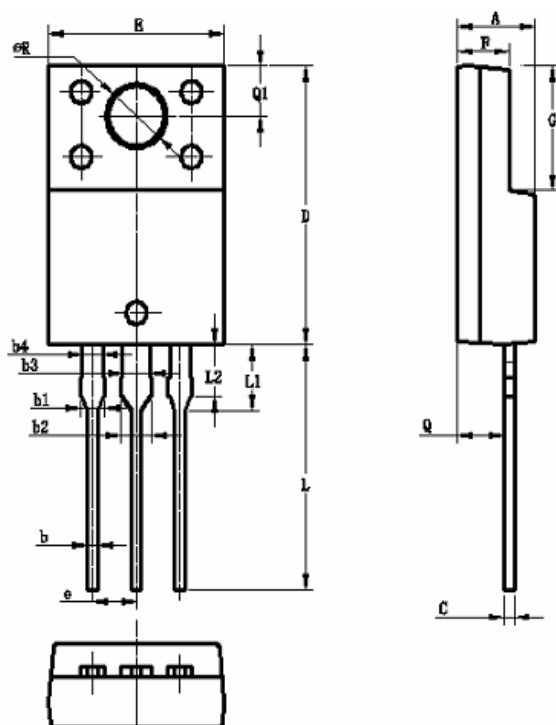
### Features:

- 150°C T<sub>J</sub> operation
- Center tap configuration
- Low 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

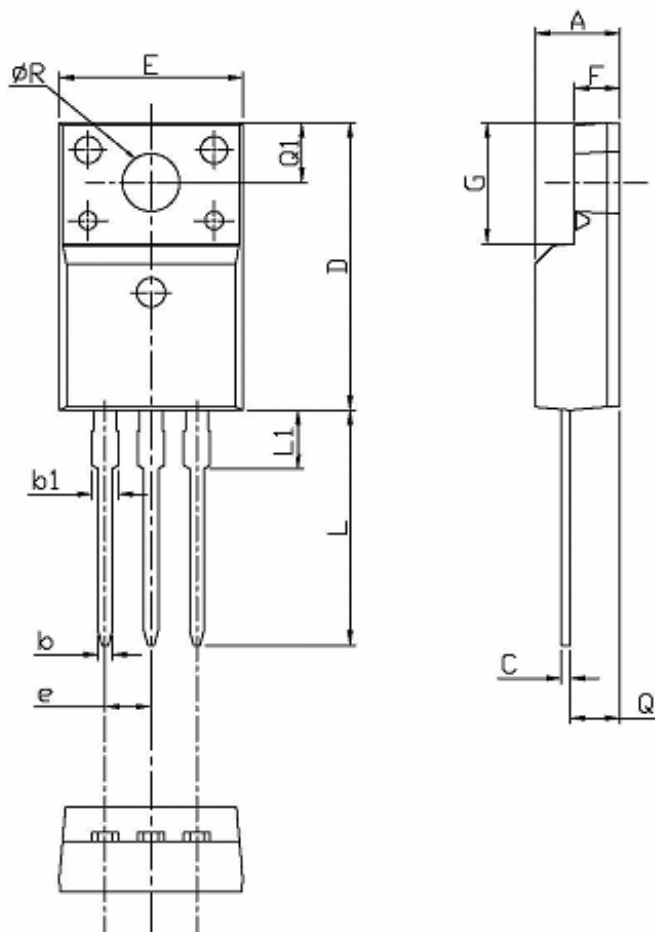


OUTLINE DRAWING

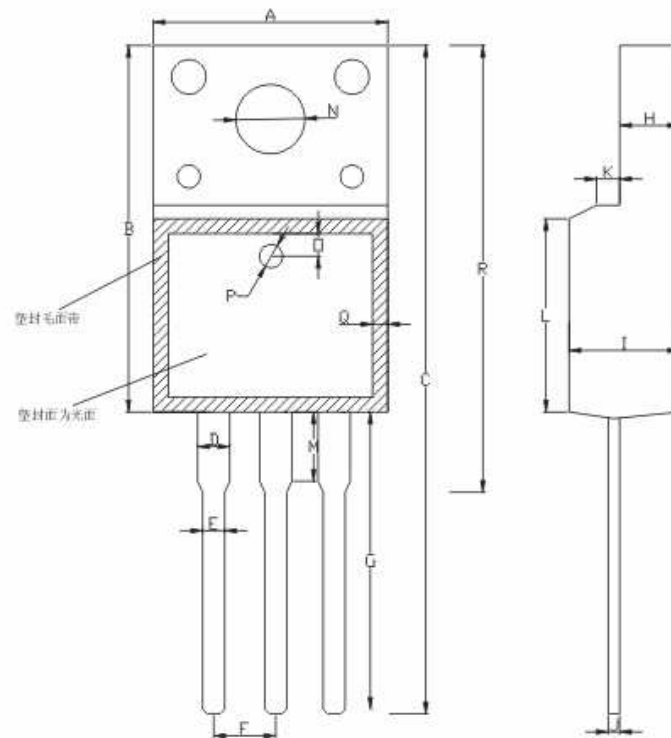
### Mechanical Dimensions: In mm



|     | OPTION 1(CJ) |       | OPTION 2(HD) |       |
|-----|--------------|-------|--------------|-------|
| Dim | Min          | Max   | Min          | Max   |
| A   | 4.4          | 4.6   | 4.30         | 4.70  |
| b   | 0.6TYP       |       | 0.50         | 0.75  |
| b1  | 1.3TYP       |       | 1.30         | 1.40  |
| b2  | 1.7TYP       |       | 1.70         | 1.80  |
| b3  | 1.6TYP       |       | 1.50         | 1.75  |
| b4  | 1.2TYP       |       | 1.10         | 1.35  |
| C   | 0.60TYP      |       | 0.50         | 0.75  |
| D   | 14.8         | 15.1  | 14.80        | 15.20 |
| E   | 10.06        | 10.26 | 9.96         | 10.36 |
| e   | 2.55TYP      |       | 2.54TYP      |       |
| F   | 2.9          | 3.1   | 2.80         | 3.20  |
| G   | 6.5          | 6.9   | 6.50         | 6.90  |
| L   | 12.7         | 13.7  | 12.8         | 13.2  |
| L1  | 3.4          | 3.8   | 3.60         | 4.00  |
| L2  | 2.6          | 3.0   | -            | -     |
| Q   | 2.5          | 2.9   | 2.50         | 2.90  |
| Q1  | 2.5          | 2.9   | 2.70REF      |       |
| ØR  | 3.5REF       |       | 3.50REF      |       |



|          | OPTION 3 |       | OPTION 4 |       |
|----------|----------|-------|----------|-------|
| Dim      | Min      | Max   | Min      | Max   |
| A        | 4.53     | 4.93  | 4.50     | 4.90  |
| b        | 0.71     | 0.91  | 0.70     | 0.90  |
| b1       | 1.15     | 1.39  | 1.33     | 1.47  |
| C        | 0.36     | 0.53  | 0.45     | 0.60  |
| D        | 15.67    | 16.07 | 15.67    | 16.07 |
| E        | 9.96     | 10.36 | 9.96     | 10.36 |
| e        | 2.54TYP  |       | 2.54 BSC |       |
| F        | 2.34     | 2.76  | 2.34     | 2.74  |
| G        | 6.50     | 6.90  | 6.48     | 6.88  |
| L        | 12.37    | 12.77 | 12.78    | 13.18 |
| L1       | 2.23     | 2.63  | 3.03     | 3.43  |
| Q        | 2.56     | 2.96  | 2.56     | 2.96  |
| Q1       | 3.10     | 3.50  | 3.10     | 3.50  |
| $\phi R$ | 2.98     | 3.38  | 3.08     | 3.28  |

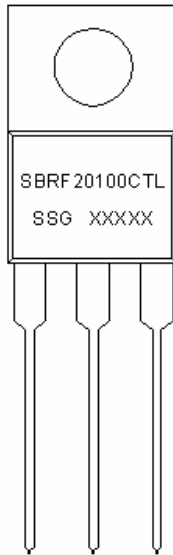


|                     |                     |                     |                    |
|---------------------|---------------------|---------------------|--------------------|
| A: $10.20 \pm 0.50$ | B: $15.90 \pm 0.50$ | C: $29.00 \pm 1.00$ | D: $1.24 \pm 0.10$ |
| E: $0.80 \pm 0.10$  | F: $2.54 \pm 0.10$  | G: $13.10 \pm 1.0$  | H: $2.55 \pm 0.05$ |
| I: $4.70 \pm 0.05$  | J: $0.50 \pm 0.05$  | K: $1.20 \pm 0.20$  | L: $8.00 \pm 0.50$ |
| M: $3.00 \pm 0.50$  | N: $3.20 \pm 0.20$  | O: $1.25 \pm 0.05$  | P: $1.5 \pm 0.05$  |
| Q: $1.0 \pm 0.20$   | R: $19.2 \pm 1.0$   |                     |                    |

**OPTION 5 (SR)**

**ITO-220AB**

### Marking Diagram:



Where XXXXX is YYWWL

SBR = Device Type  
F = Package type  
20 = Forward Current (20A)  
100 = Reverse Voltage (100V)  
CTL = Configuration  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

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

### Ordering Information:

| Device       | Package                | Shipping     |
|--------------|------------------------|--------------|
| SBRF20100CTL | ITO-220AB<br>(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     |
| Max. Average Forward (per leg)                             | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 133^\circ\text{C}$ , rectangular wave form | 20   | A     |
| Max. Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse                                            | 150  | A     |

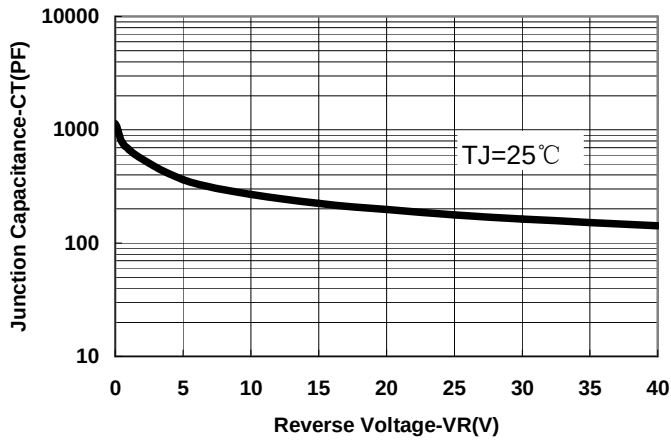
**Electrical Characteristics:**

| Characteristics                       | Symbol   | Condition                                                                             | Max.   | Units            |
|---------------------------------------|----------|---------------------------------------------------------------------------------------|--------|------------------|
| Max. Forward Voltage Drop (per leg) * | $V_{F1}$ | @ 10 A, Pulse, $T_C = 25\text{ }^{\circ}\text{C}$                                     | 0.94   | V                |
|                                       | $V_{F2}$ | @ 10 A, Pulse, $T_C = 125\text{ }^{\circ}\text{C}$                                    | 0.78   | V                |
| Max. Reverse Current (per leg) *      | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_C = 25\text{ }^{\circ}\text{C}$                     | 1.0    | mA               |
|                                       | $I_{R2}$ | @ $V_R = \text{rated } V_R$<br>$T_C = 125\text{ }^{\circ}\text{C}$                    | 6.0    | mA               |
| Max. Junction Capacitance (per leg)   | $C_T$    | @ $V_R = 5\text{ V}$ , $T_C = 25\text{ }^{\circ}\text{C}$<br>$f_{SIG} = 1\text{ MHz}$ | 400    | pF               |
| Typical Series Inductance (per leg)   | $L_S$    | Measured lead to lead 5 mm from package body                                          | 8.0    | nH               |
| Max. Voltage Rate of Change           | dv/dt    | -                                                                                     | 10,000 | V/ $\mu\text{s}$ |

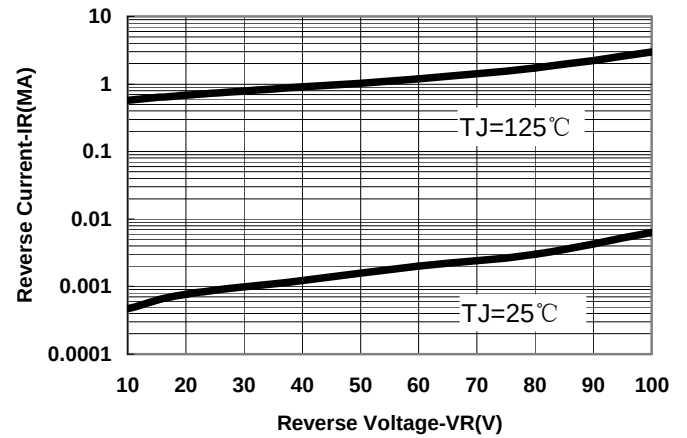
\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

**Thermal-Mechanical Specifications:**

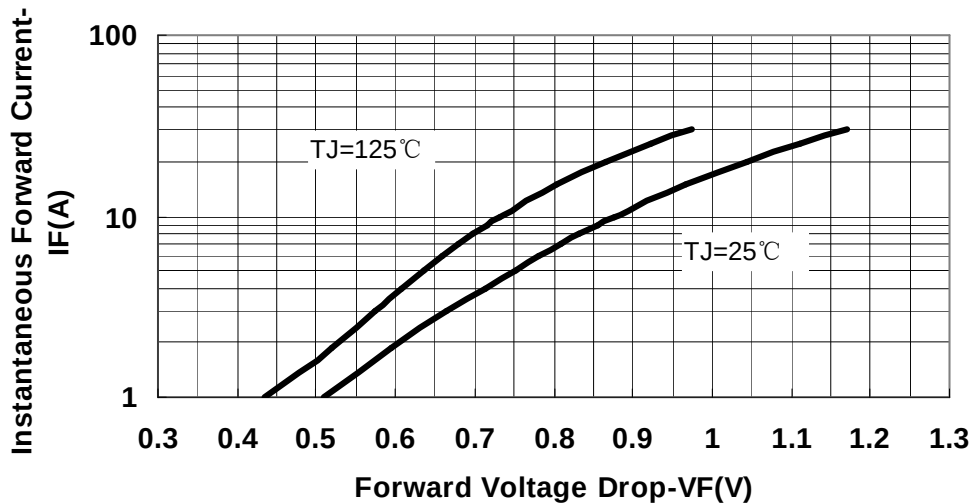
| Characteristics                             | Symbol          | Condition    | Specification | Units                |
|---------------------------------------------|-----------------|--------------|---------------|----------------------|
| Max. Junction Temperature                   | $T_J$           | -            | -55 to +150   | $^{\circ}\text{C}$   |
| Max. Storage Temperature                    | $T_{stg}$       | -            | -55 to +150   | $^{\circ}\text{C}$   |
| Maximum Thermal Resistance Junction to Case | $R_{\theta JC}$ | DC operation | 3.5           | $^{\circ}\text{C/W}$ |
| Approximate Weight                          | wt              | -            | 2             | g                    |
| Case Style                                  | ITO-220AB       |              |               |                      |



**Fig.1-Typical Junction Capacitance Vs.Reverse Voltage**



**Fig.2-Typical Values Of Reverse Current VS.Reverse Voltage**



**Fig.3-Typical Forward Voltage Drop Characteristics**

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