

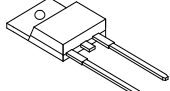
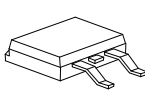
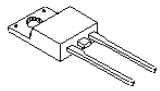
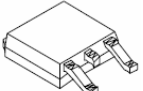
ST5100/STB5100/STF5100/STD5100 SCHOTTKY RECTIFIER

Applications:

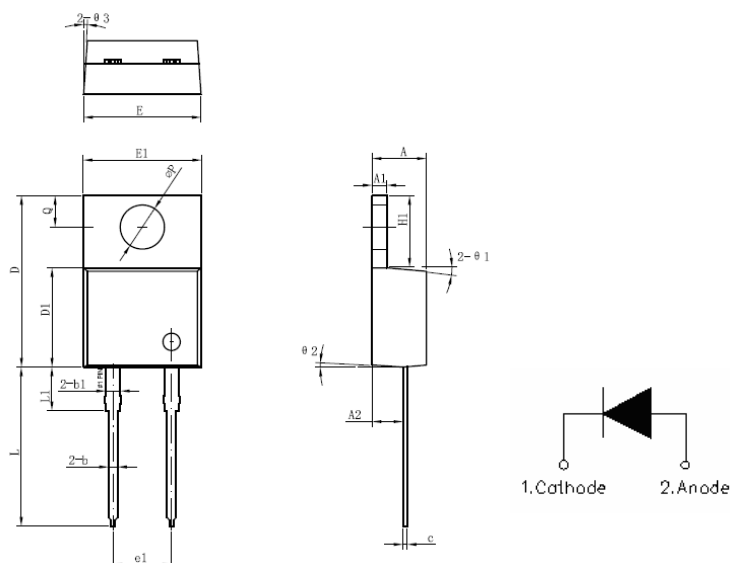
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Features:

- 150 °C T_J 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

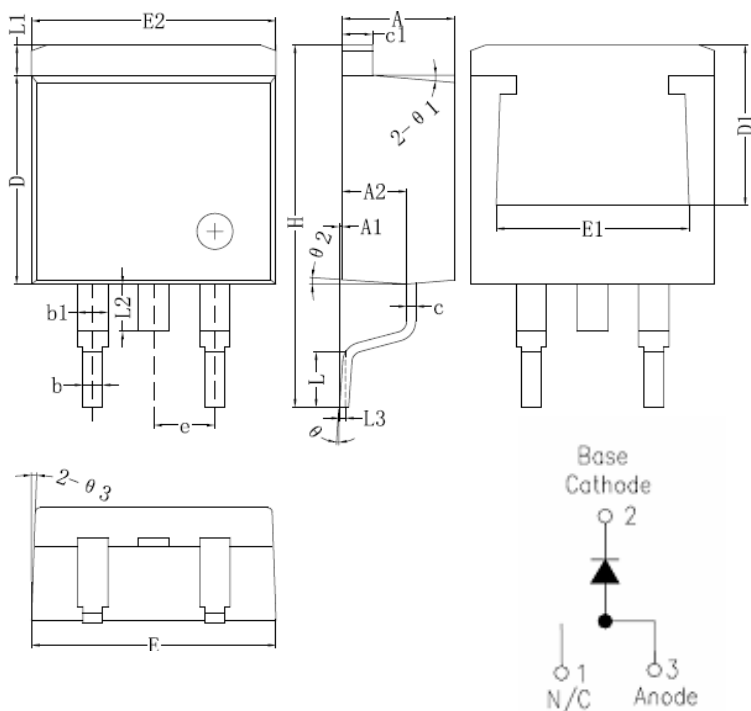
| Case styles | | | |
|---|--|--|--|
|  ST5100 TO-220AC |  STB5100 D²PAK |  STF5100 ITO-220AC |  STD5100 DPAK |

Mechanical Dimensions: In Inches / mm



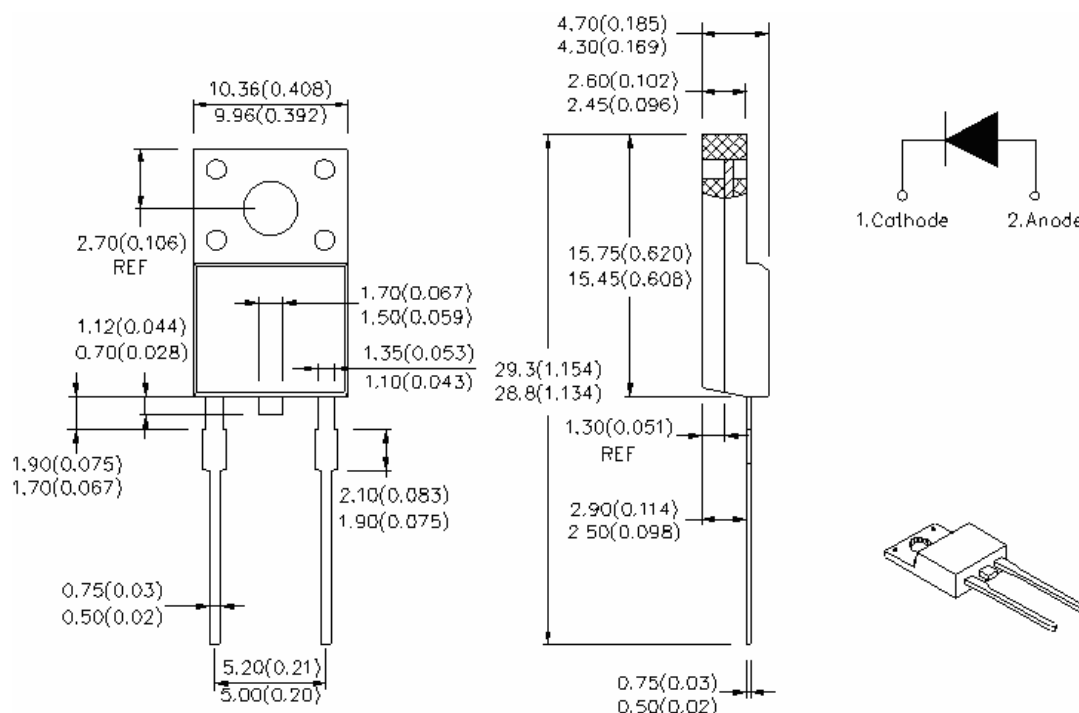
TO-220AC

| 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 |
| Θ1 | | 5° | |
| Θ2 | | 4° | |
| Θ3 | | 4° | |

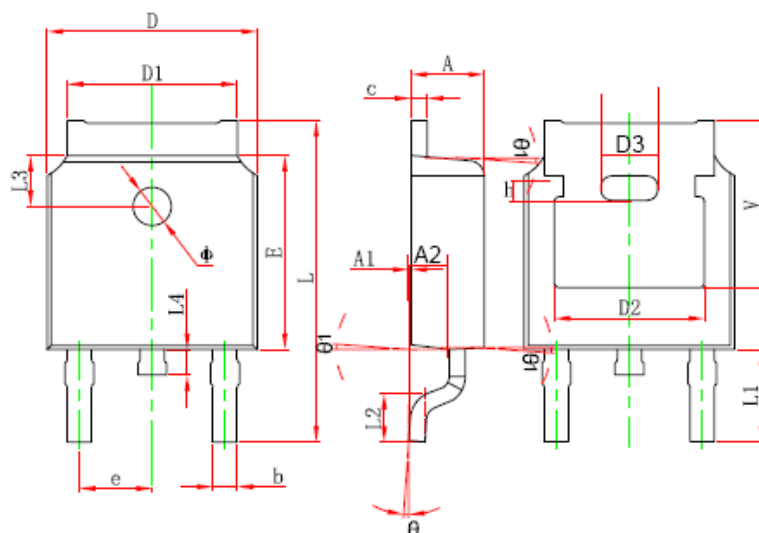


| Symbol | Dimensions in millimeters | | |
|--------|---------------------------|---------|-------|
| | Min. | Typical | Max. |
| A | 4.55 | 4.70 | 4.85 |
| A1 | 0 | 0.10 | 0.25 |
| A2 | 2.59 | 2.69 | 2.89 |
| b | 0.71 | 0.81 | 0.96 |
| b1 | | 1.27 | |
| c | 0.36 | 0.38 | 0.61 |
| c1 | 1.17 | 1.27 | 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° | |

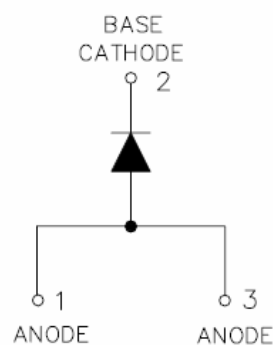
D²PAK



ITO-220AC

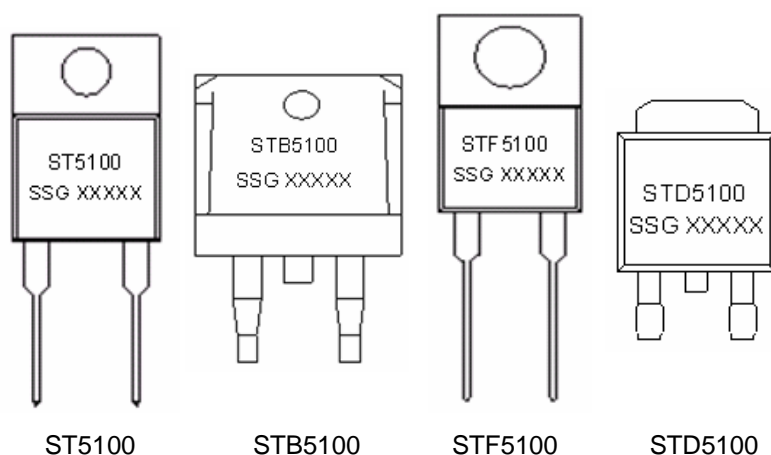


| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.200 | 2.380 | 0.087 | 0.094 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| b | 0.710 | 0.810 | 0.028 | 0.032 |
| c | 0.460 | 0.560 | 0.018 | 0.022 |
| D | 6.500 | 6.700 | 0.256 | 0.264 |
| D1 | 5.130 | 5.460 | 0.202 | 0.215 |
| D2 | 4.830 REF. | | 0.190 REF. | |
| E | 6.000 | 6.200 | 0.236 | 0.244 |
| e | 2.186 | 2.386 | 0.086 | 0.094 |
| L | 9.800 | 10.400 | 0.386 | 0.409 |
| L1 | 2.900 REF. | | 0.114 REF. | |
| L2 | 1.400 | 1.700 | 0.055 | 0.067 |
| L3 | 1.600 REF. | | 0.063 REF. | |
| L4 | 0.600 | 1.000 | 0.024 | 0.039 |
| Φ | 1.100 | 1.300 | 0.043 | 0.051 |
| θ | 0° | 8° | 0° | 8° |
| A2 | 0.910 | 1.110 | 0.036 | 0.044 |
| V | 5.350 REF. | | 0.211 REF. | |
| D3 | 1.778 REF. | | 0.070 REF. | |
| h | 0.762 REF. | | 0.030 REF. | |
| θ1 | 7° | | 7° | |



DPAK

Marking Diagram:



Where XXXXX is YYWWL

ST = Device Type
B/F/D = Package type
5 = Forward Current (5A)
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 |
|---------|-----------------------------|----------------|
| ST5100 | TO-220AC(Pb-Free) | 50pcs / tube |
| STB5100 | D ² PAK(Pb-Free) | 800pcs / reel |
| STF5100 | ITO-220AC(Pb-Free) | 50pcs / tube |
| STD5100 | DPAK(Pb-Free) | 2500pcs / reel |

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 @ $T_C=100^\circ\text{C}$, rectangular wave form | 5 | A |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | I_{FSM} | 8.3 ms, half Sine pulse | 120 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|---------------------------------|-----------------|---|-------|--------|-------|
| Forward Voltage Drop (per leg)* | V _{F1} | @ 5A, Pulse, T _J = 25 °C | 0.69 | 0.75 | V |
| | V _{F2} | @ 5A, Pulse, T _J = 125 °C | 0.61 | 0.70 | V |
| Reverse Current (per leg)* | I _{R1} | @V _R = rated V _R T _J = 25 °C | 0.006 | 0.12 | mA |
| | I _{R2} | @V _R = rated V _R T _J = 125 °C | 2.0 | 18 | mA |
| Junction Capacitance (per leg) | C _T | @V _R = 5V, T _C = 25 °C f _{SIG} = 1MHz | 245 | 300 | pF |
| Voltage Rate of Change | dv/dt | - | - | 10,000 | V/μs |

* Pulse Width < 300μs, Duty Cycle <2%

Thermal-Mechanical Specifications:

| Characteristics | Symbol | ST5100 | STB5100 | STD5100 | STF5100 | Units |
|---|---|-------------|---------|---------|---------|-------|
| Junction Temperature | T _J | -55 to +150 | | | | °C |
| Storage Temperature | T _{stg} | -55 to +150 | | | | °C |
| Maximum Thermal Resistance Junction to Case(per leg)* | R _{θJC} | 3.0 | 3.0 | 2.4 | 5.5 | °C/W |
| Approximate Weight | wt | 1.8 | 1.85 | 0.39 | 1.8 | g |
| Case Style | TO-220AC/ D ² PAK/ DPAK/ ITO-220AC | | | | | |

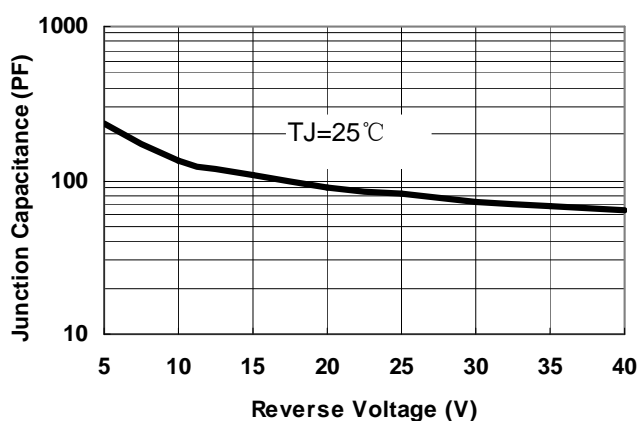


Fig.1-Typical Junction Capacitance

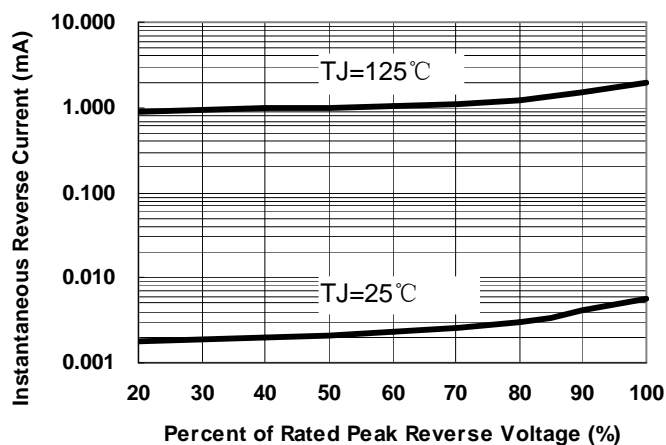


Fig.2-Typical Reverse Characteristics

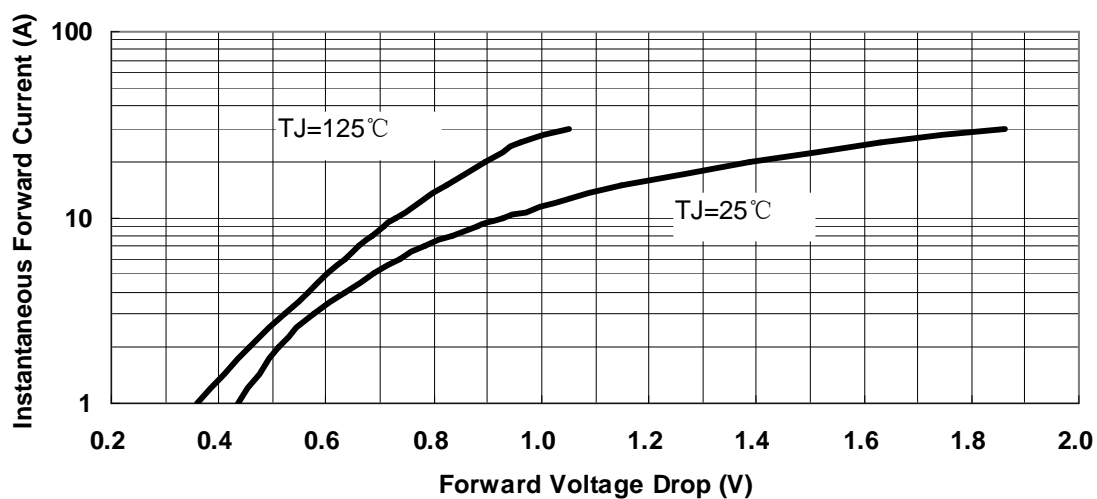


Fig.3-Typical Instantaneous Forward Voltage Characteristics



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