

SDURF840 ULTRAFAST RECTIFIER



Applications

- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Circuit Diagram



Features

- Ultra-Fast switching
- High current capability
- Low reverse leakage current
- High surge current capability
- Terminals finish: Tin Lead-free plated
- This is a Pb – free device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Maximum Ratings(at 25 °C unless otherwise specified)

| Characteristics | Symbol | Condition | Max. | Units |
|---|------------|---------------------------|------|-------|
| Peak Repetitive Reverse Voltage | V_{RRM} | - | 400 | V |
| Working Peak Reverse Voltage | V_{RWM} | | | |
| DC Blocking Voltage | V_R | | | |
| Average Rectified Forward Current | $I_F (AV)$ | $T_c=98^{\circ}C$, In DC | 8 | A |
| Peak One Cycle Non-Repetitive Surge Current | I_{FSM} | 8.3ms, Half Sine pulse | 80 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|------------------------|----------|--|------|------|---------|
| Forward Voltage Drop * | V_{F1} | @8A, Pulse, $T_J = 25^{\circ}C$ | 1.14 | 1.3 | V |
| | V_{F2} | @8A, Pulse, $T_J = 125^{\circ}C$ | 1.06 | 1.2 | V |
| Reverse Current * | I_{R1} | @ $V_R = \text{rated } V_R$, $T_J = 25^{\circ}C$ | 0.05 | 10 | μA |
| | I_{R2} | @ $V_R = \text{rated } V_R$, $T_J = 125^{\circ}C$ | 36 | 500 | μA |
| Reverse Recovery Time | t_{rr} | $I_F=500mA$, $I_R=1A$, and $I_{rm}=250mA$ | 39 | 45 | ns |

* Pulse width < 300 μs , duty cycle < 2%

- China - Germany - Korea - Singapore - United States •
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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 | $^{\circ}\text{C}$ |
| Typical Thermal Resistance Junction to Case | $R_{\theta\text{JC}}$ | DC operation | 5 | $^{\circ}\text{C/W}$ |
| Approximate Weight | wt | - | 1.65 | g |
| Case Style | ITO-220AC | | | |

Ratings and Characteristics Curves

Figure 1 Typical Forward Characteristics

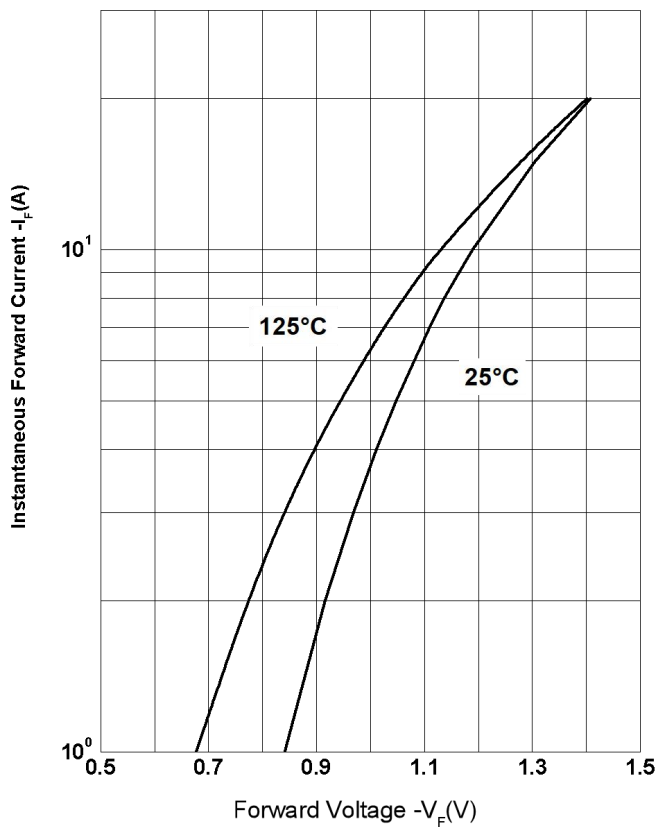


Figure 2 Typical Reverse Characteristics

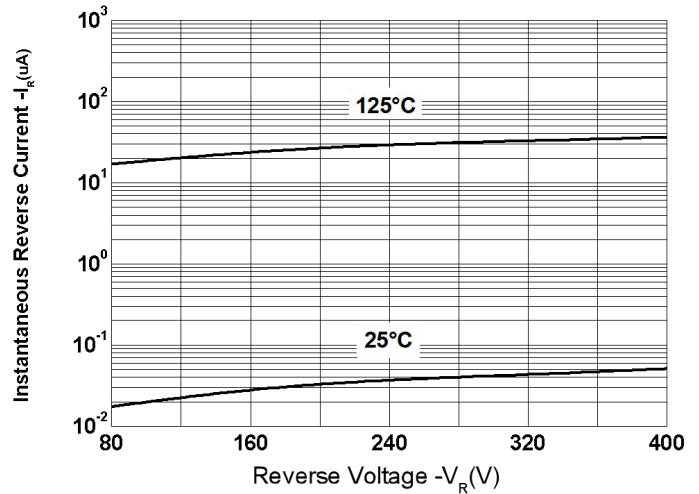
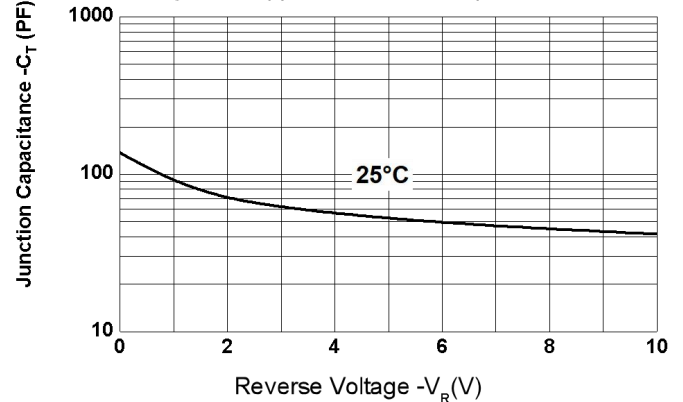
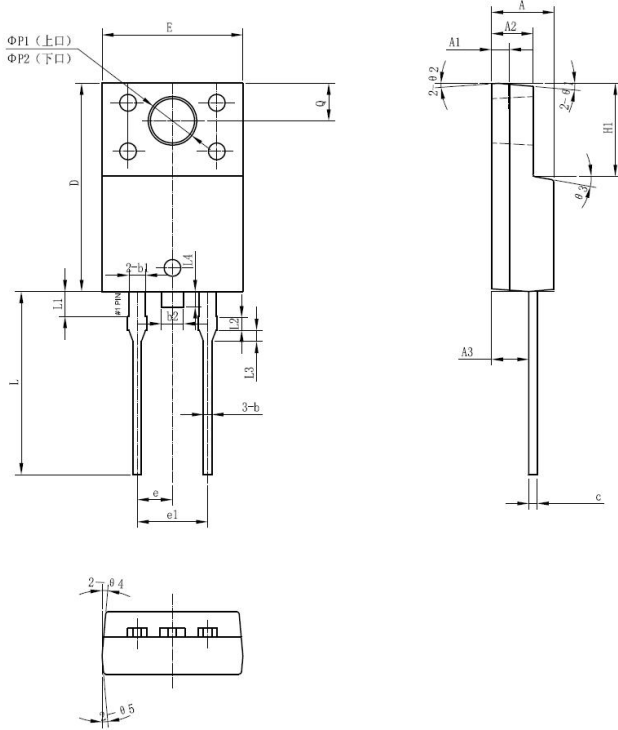


Figure 3 Typical Junction Capacitance

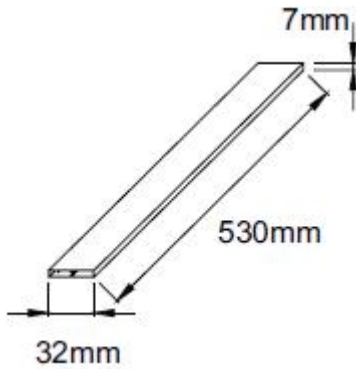


Mechanical Dimensions ITO-220AC

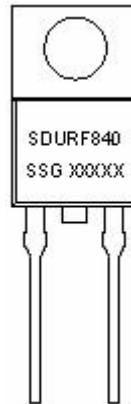


| SYMBOL | Millimeters | | |
|---------|-------------|-------|-------|
| | MIN. | TYP. | MAX. |
| A | 4.30 | 4.50 | 4.70 |
| A1 | 1.10 | 1.30 | 1.50 |
| A2 | 2.80 | 3.00 | 3.20 |
| A3 | 2.50 | 2.70 | 2.90 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| b2 | 1.50 | 1.60 | 1.75 |
| c | 0.55 | 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 |
| L4 | - | 1.10 | 1.50 |
| 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° | |

Tube Specification



Marking Diagram



Where XXXXX is YYWWL

- SDUR = Device Type
- F = Package type
- 8 = Forward Current (8A)
- 40 = Reverse Voltage (400V)
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

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

Ordering Information:

| Device | Package | Shipping |
|----------|---------------------|--------------|
| SDURF840 | ITO-220AC (Pb-Free) | 50 pcs/ tube |

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