

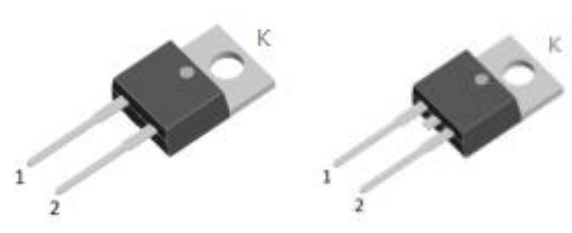
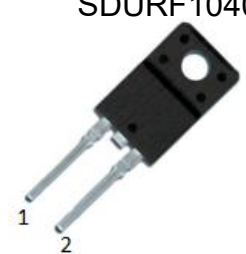

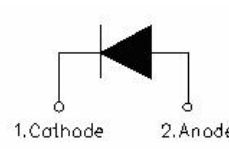
SDUR1040/SDURF1040 ULTRAFAST RECTIFIER

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

Features

- Ultra-Fast Switching
- High Current Capability
- Low Reverse Leakage Current
- High Surge Current Capability
- Plastic Material has UL Flammability Classification 94V-O
- 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

| SDUR1040 | SDURF1040 |
|---|---|
|  |  |
|  |  |
| TO-220AC | ITO-220AC |

Maximum Ratings(at 25 °C unless otherwise specified)

| Characteristics | Symbol | Condition | Max. | Units |
|--|---------------------------------|--|------|-------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | - | 400 | V |
| Average Rectified Forward Current in DC | $I_{F(AV)}$ | $T_c=134^{\circ}\text{C}(\text{TO-220AC})$ $T_c=95^{\circ}\text{C}(\text{ITO-220AC})$ | 10 | A |
| Peak One Cycle Non-Repetitive Surge Current | I_{FSM} | 8.3ms, Half Sine pulse | 125 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|-----------------------|-----------------|---|------|------|-------|
| Forward Voltage Drop* | V _{F1} | @ 10A, Pulse, T _J = 25°C | 1.04 | 1.3 | V |
| | V _{F2} | @ 10A, Pulse, T _J = 125°C | 0.95 | 1.2 | V |
| Reverse Current* | I _{R1} | @V _R = rated V _R , T _J = 25°C | 0.07 | 10 | μA |
| | I _{R2} | @V _R = rated V _R , T _J = 125°C | 62 | 500 | μA |
| Reverse Recovery Time | t _{rr} | I _F =500mA, I _R =1A, and I _{rm} =250mA | 27 | 45 | ns |

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

Thermal-Mechanical Specifications:

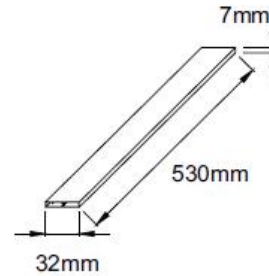
| Characteristics | Symbol | SDUR1040 | SDURF1040 | Units |
|--|------------------|---------------------|-----------|-------|
| Junction Temperature | T _J | -55 to +150 | | °C |
| Storage Temperature | T _{stg} | -55 to +150 | | °C |
| Typical Thermal Resistance Junction to Case | R _{θJC} | 1.2 | 4.2 | °C/W |
| Case Style | | TO-220AC/ ITO-220AC | | |

Tube Specification

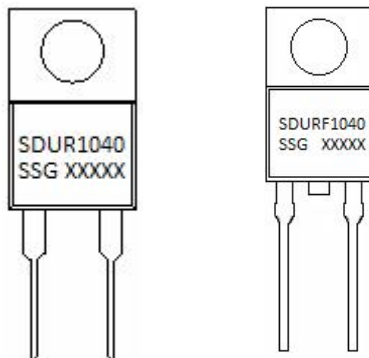
| Device | Package | Weight | Shipping |
|-----------|-----------|--------|--------------|
| SDUR1040 | TO-220AC | 1.6g | 50pcs / tube |
| SDURF1040 | ITO-220AC | 1.6g | 50pcs / tube |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

Tube Specification(TO-220AC/ITO-220AC)



Marking Diagram



Where XXXXX is YYWWL

SDUR = Device Type
F = Package type
10 = Forward Current (10A)
40 = Reverse Voltage (400V)
SSG = SSG
YY = Year
WW = Week
L = Lot Number

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

Ratings and Characteristics Curves

Figure 1 Typical Forward Characteristics

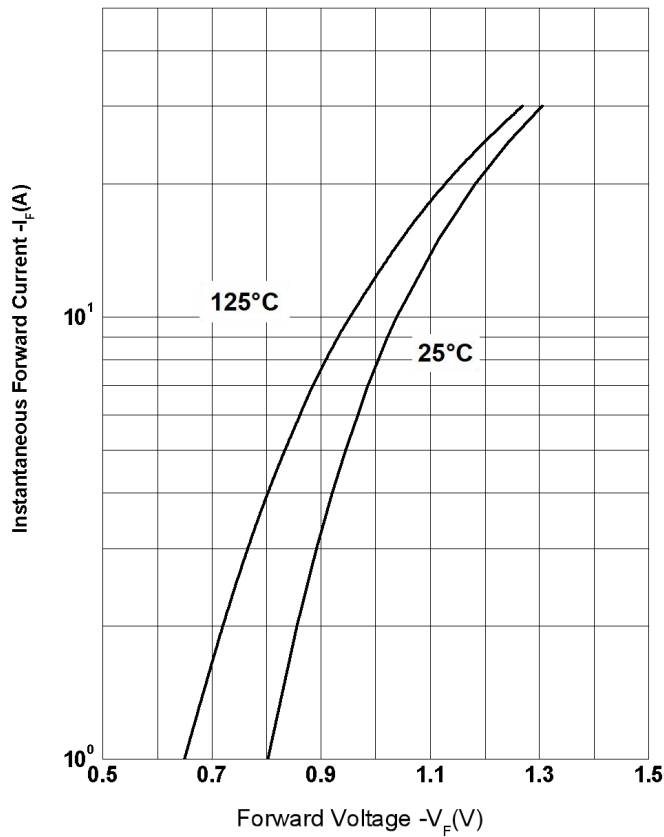


Figure 2 Typical Reverse Characteristics

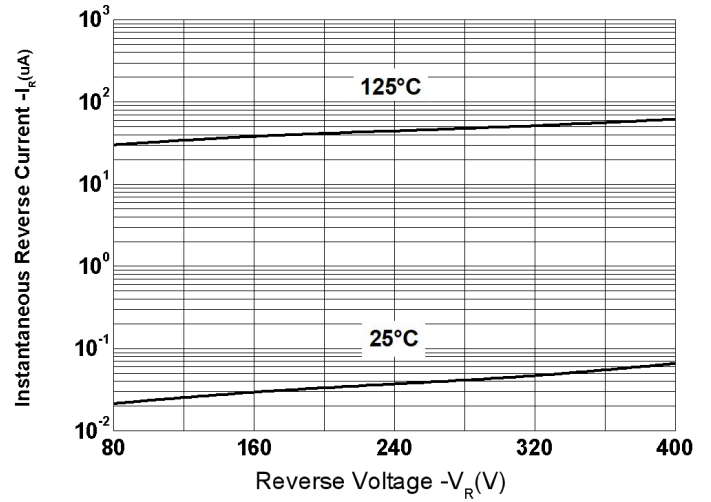
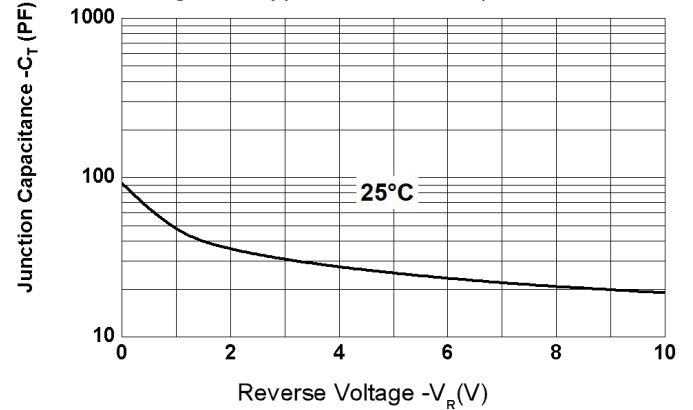
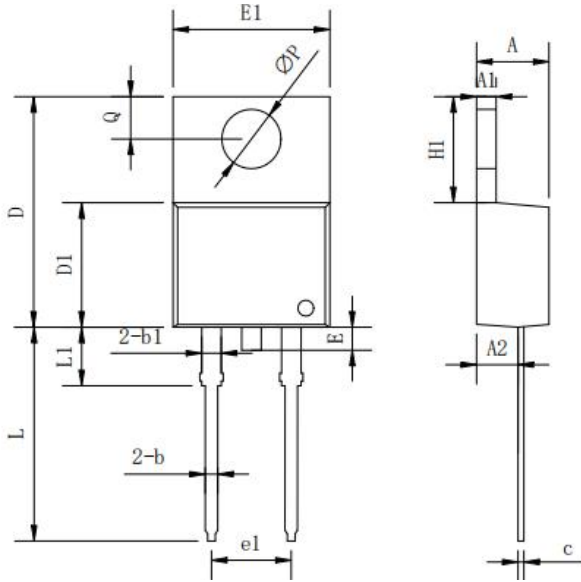


Figure 3 Typical Junction Capacitance

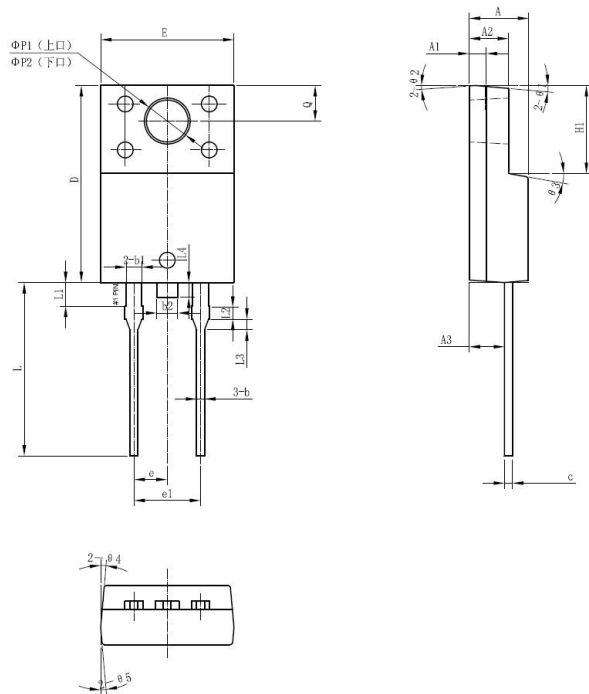


Mechanical Dimensions TO-220AC



| Symbol | Dimensions in millimeters | | |
|--------|---------------------------|---------|-------|
| | Min. | Typical | Max. |
| A | 3.56 | - | 4.83 |
| A1 | 0.51 | - | 1.4 |
| A2 | 2.03 | - | 2.92 |
| b | 0.38 | - | 1.02 |
| b1 | 1.14 | - | 1.78 |
| c | 0.31 | - | 0.61 |
| D | 14.22 | - | 16.51 |
| D1 | 8.38 | - | 9.42 |
| E | - | - | 1.78 |
| E1 | 9.65 | 10.16 | 10.67 |
| e1 | - | 5.08 | - |
| H1 | 5.84 | - | 6.86 |
| L | 12.7 | - | 14.73 |
| L1 | - | - | 6.35 |
| ΦP | - | 3.56 | - |
| Q | 2.54 | - | 3.43 |

Mechanical Dimensions ITO-220AC



| SYMBOL | Dimensions in millimeters | | |
|---------|---------------------------|---------|-------|
| | Min. | Typical | 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 | 0.50 | 0.60 | 0.75 |
| D | 14.80 | 15.00 | 15.20 |
| E | 9.96 | 10.16 | 10.36 |
| e | - | 2.55 | - |
| e1 | 5.00 | 5.10 | 5.16 |
| 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(上口) | 3.30 | 3.50 | 3.70 |
| ΦP2(下口) | 2.99 | 3.19 | 3.39 |
| Q | 2.50 | 2.70 | 2.90 |
| Θ1 | | 5° | |
| Θ2 | | 4° | |
| Θ3 | | 10° | |
| Θ4 | | 5° | |
| Θ5 | | 5° | |



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