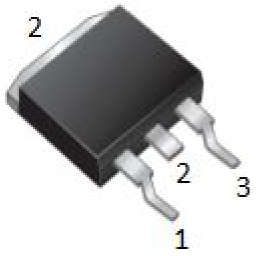
**Technical Data**
**Data Sheet N2557, Rev. -**

# SDURB8U120 ULTRAFAST RECTIFIER

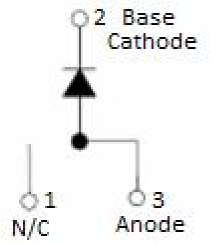


**D$^2$PAK**

## 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: 100% Pure Tin
- This is a Pb − free device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

## Maximum Ratings (limiting values, TC =25°C unless otherwise specified)

| Characteristics | Symbol | Condition | Max. | Units |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | - | 1200 | V |
| Average Rectified Forward Current | $I_{F\ (AV)}$ | 50% duty cycle @Tc=70°C, rectangular wave form | 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°C | 1.85 | 2.20 | V |
| | $V_{F2}$ | @ 8A, Pulse, $T_J$ = 125°C | 1.63 | 2.00 | V |
| Reverse Current* | $I_{R1}$ | @$V_R$ = rated $V_R$,$T_J$ =25°C | 0.005 | 10 | uA |
| | $I_{R2}$ | @$V_R$ = rated $V_R$, $T_J$ =125°C | 0.2 | 1 | mA |
| Reverse Recovery Time | $t_{rr}$ | $I_F$=500mA, $I_R$=1A,and $I_{rm}$=250mA | 41 | 50 | ns |

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

## Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|---|---|---|---|
| Junction Temperature | $T_J$ | - | -55 to +150 | °C |
| Storage Temperature | $T_{stg}$ | - | -55 to +150 | °C |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | DC operation | 1.5 | °C/W |
| Approximate Weight | wt | - | 1.85 | g |
| Case Style | D²PAK | | | |

## Ratings and Characteristics Curves

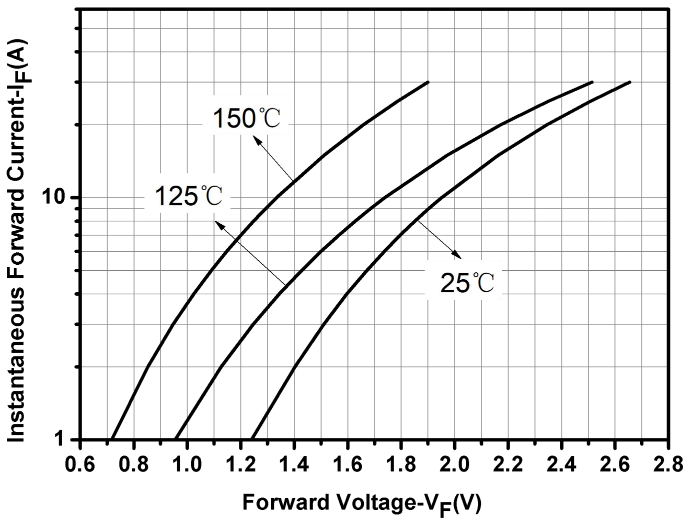


Fig.1-Typical Forward Voltage Characteristics

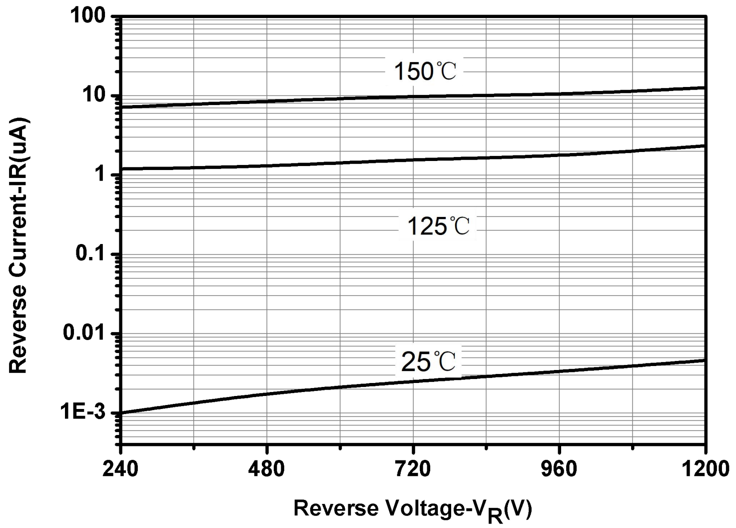


Fig.2-Typical Reverse Characteristics

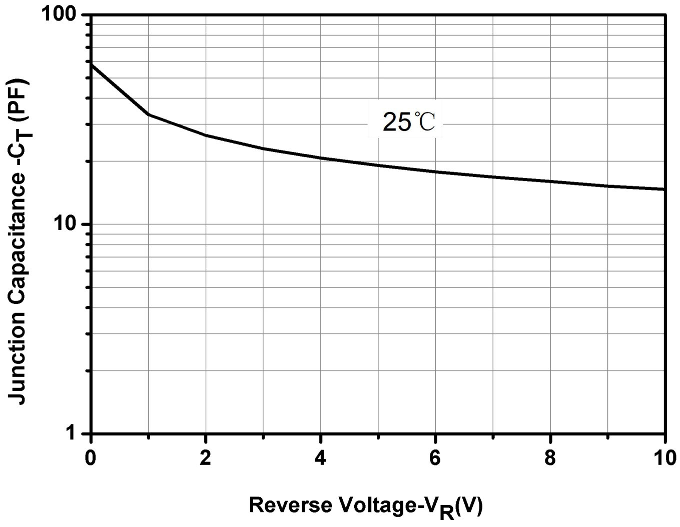


Fig.3-Capacitance vs. Reverse Voltage

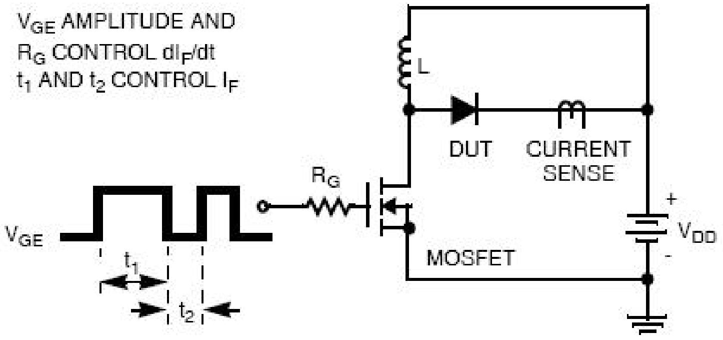
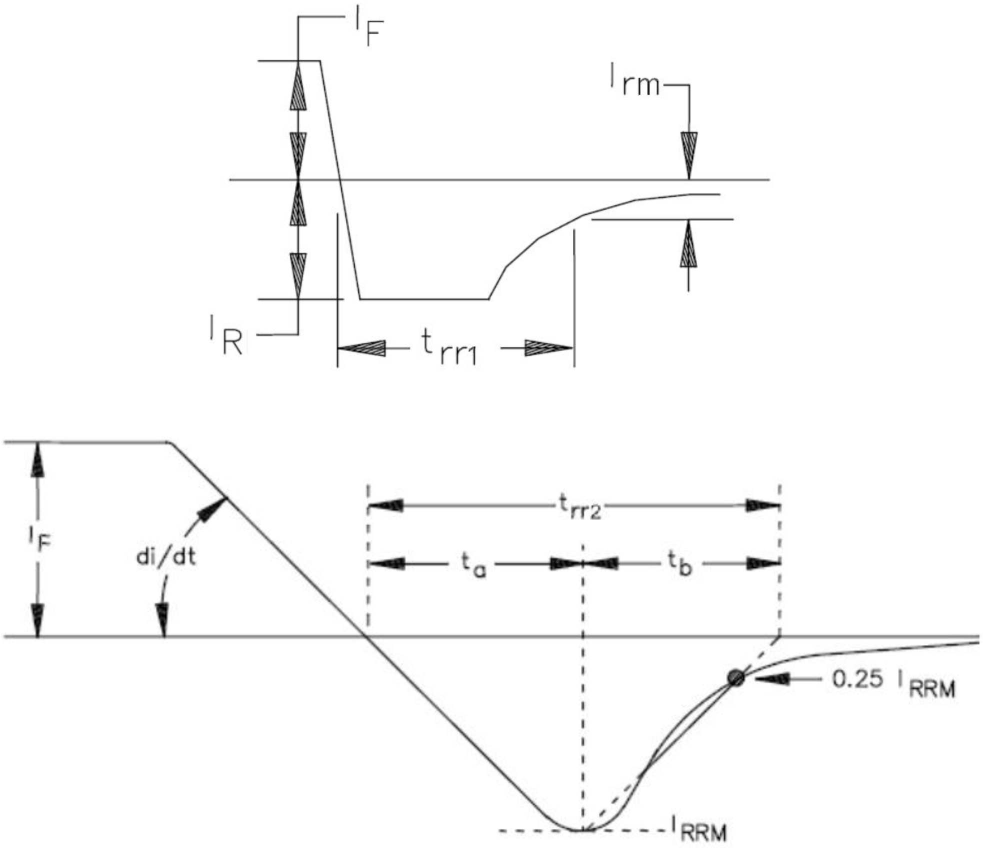


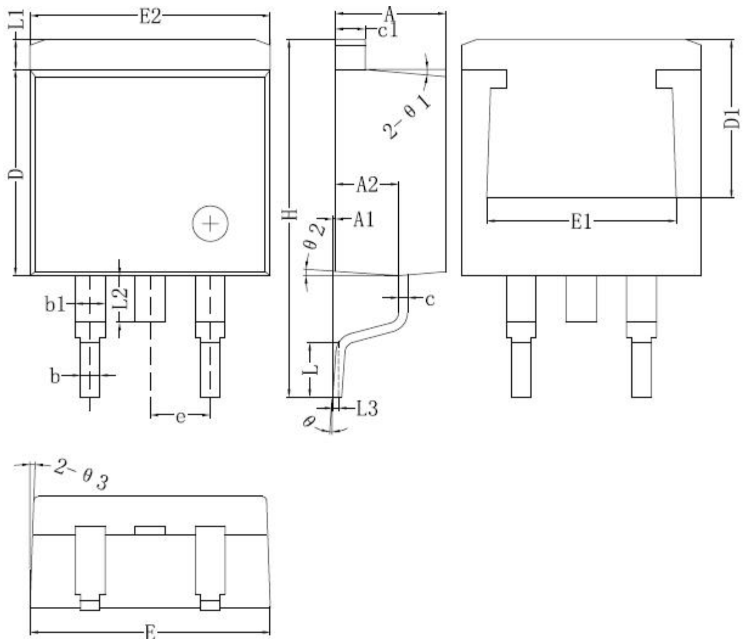
Fig.4-Diode Test Circuit



Note: 1. $t_{rr1}$ MIL-STD-750 Test Method 4031, condition "B”.
2. $t_{rr2}$ MIL-STD-750 Test Method 4031, condition “D" .

**Fig.5-Reverse Recovery Waveform**

## Mechanical Dimensions D$^2$PAK



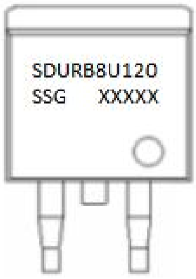
| Symbol | Dimensions in millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 4.06 | 4.83 |
| A1 | 0 | 0.26 |
| b | 0.51 | 0.99 |
| b1 | 1.14 | 1.78 |
| c | 0.31 | 0.74 |
| c1 | 1.14 | 1.65 |
| D | 8.38 | 9.65 |
| D1 | 6.4 | |
| E1 | 6.22 | |
| E2 | 9.65 | 10.67 |
| e | 2.54BSC | |
| H | 14.6 | 15.88 |
| L | 1.78 | 2.8 |
| L1 | - | 1.68 |
| L2 | - | 2.2 |
| L3 | 0.255BSC | |
| Θ | 0 | 8° |

## Ordering Information

| Device | Package | Shipping |
|---|---|---|
| SDURB8U120 | D$^2$PAK | 800pcs / reel |
| SDURB8U120TR | D$^2$PAK | 800pcs / reel |

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

## Marking Diagram

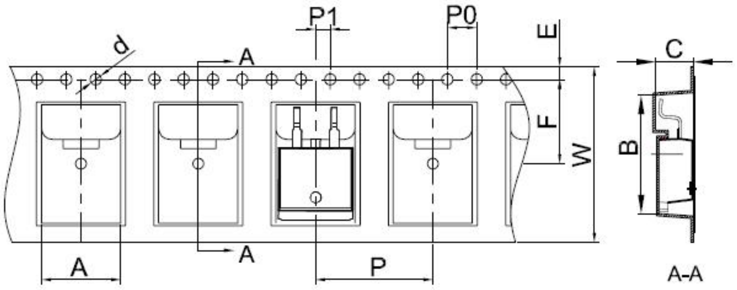


Where XXXXX is YYWWL

SDUR = Device Type
B = Package type
8 = Forward Current (8A)
U = U
120 = Reverse Voltage(1200V)
SSG = SSG
YY = Year
WW = Week
L = Lot Number

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

## Carrier Tape Specification D$^2$PAK



| SYMBOL | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 10.70 | 10.90 |
| B | 16.03 | 16.23 |
| C | 5.11 | 5.31 |
| d | 1.45 | 1.65 |
| E | 1.65 | 1.85 |
| F | 11.40 | 11.60 |
| P0 | 3.90 | 4.10 |
| P | 15.90 | 16.10 |
| P1 | 1.90 | 2.10 |
| W | 23.90 | 24.30 |

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