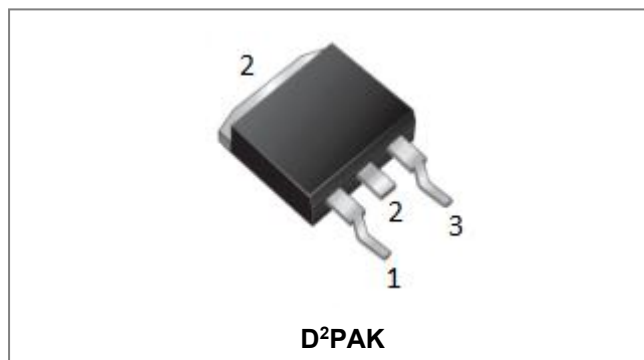


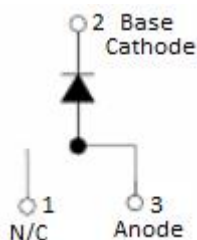
## SDURB3020 ULTRAFAST RECTIFIER



### 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
- “-A” is an AEC-Q101 qualified device
- This is a Pb – free device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Maximum Ratings:

| Characteristics                             | Symbol      | Condition   | Max. | Units |
|---|-------------|---|------|-------|
| Peak Repetitive Reverse Voltage             | $V_{RRM}$   | -   | 200  | V     |
| Working Peak Reverse Voltage                | $V_{RWM}$   |   |      |       |
| DC Blocking Voltage                         | $V_R$       |   |      |       |
| Average Rectified Forward Current           | $I_{F(AV)}$ | 50% duty cycle @ $T_c=75^\circ\text{C}$ , rectangular wave form | 30   | A     |
| Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$   | 8.3ms, Half Sine pulse  | 250  | A     |

### Electrical Characteristics:

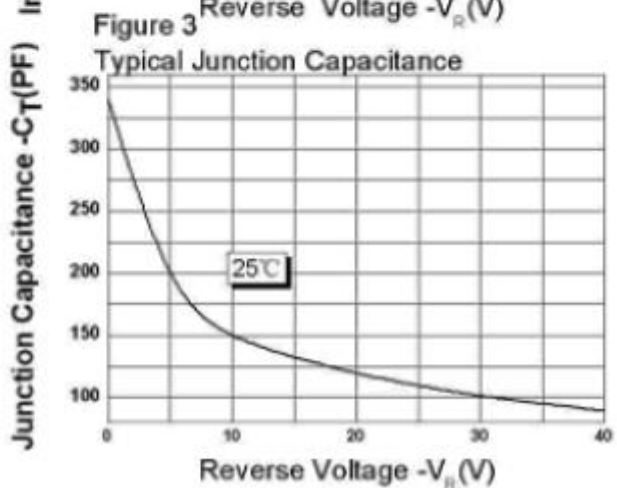
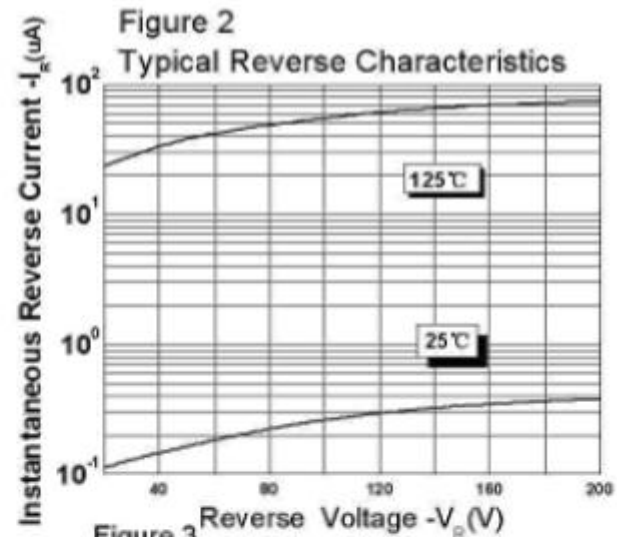
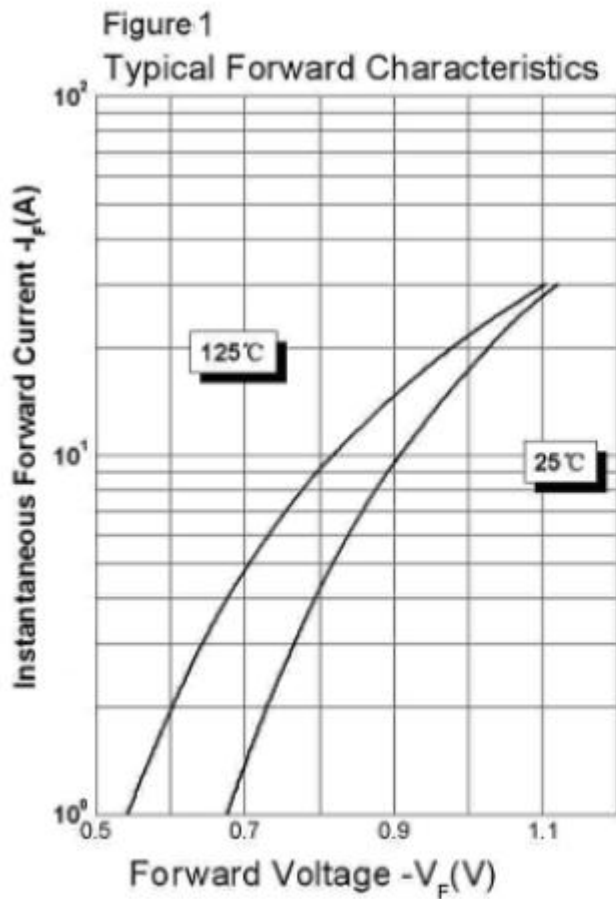
| Characteristics       | Symbol   | Condition   | Typ. | Max. | Units         |
|-----------------------|----------|---|------|------|---------------|
| Forward Voltage Drop* | $V_{F1}$ | @ 30A, Pulse, $T_J = 25^\circ\text{C}$                          | 1.11 | 1.2  | V             |
| Reverse Current*      | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25^\circ\text{C}$         | 0.4  | 10   | $\mu\text{A}$ |
|                       | $I_{R2}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 150^\circ\text{C}$        | -    | 200  | $\mu\text{A}$ |
| Reverse Recovery Time | $t_{rr}$ | $I_F=500\text{mA}$ , $I_R=1\text{A}$ , and $I_{m}=250\text{mA}$ | 37   | 45   | ns            |

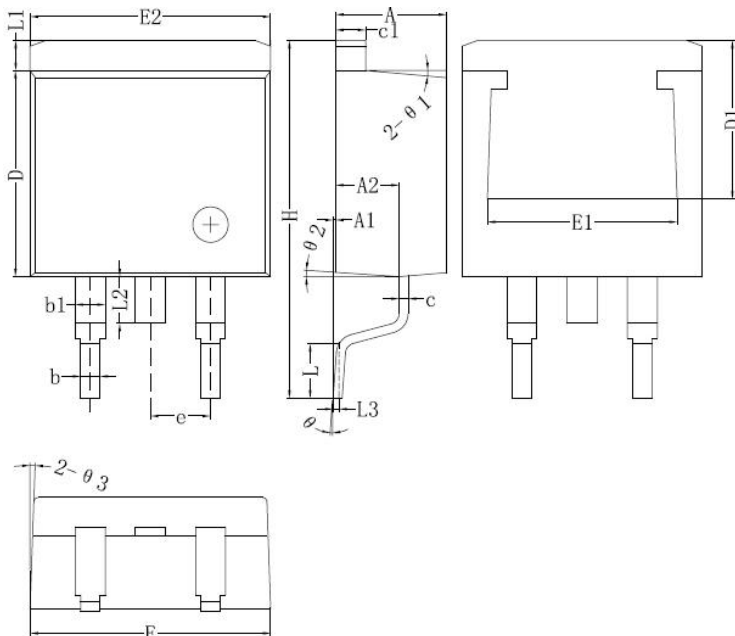
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications:**

| Characteristics                                | Symbol             | Condition    | Specification | Units                |
|--|--------------------|--------------|---------------|----------------------|
| Junction Temperature                           | $T_J$              | -            | -55 to +150   | $^{\circ}\text{C}$   |
| Storage Temperature                            | $T_{\text{stg}}$   | -            | -55 to +150   | $^{\circ}\text{C}$   |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$    | DC operation | 3             | $^{\circ}\text{C/W}$ |
| Approximate Weight                             | wt                 | -            | 1.85          | g                    |
| Case Style                                     | D <sup>2</sup> PAK |              |               |                      |

**Ratings and Characteristics Curves**



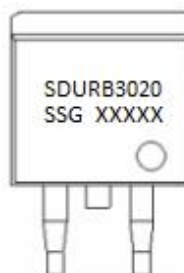
**Mechanical Dimensions D<sup>2</sup>PAK**


| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min.                      | Typical | Max.  |
| A      | 4.47                      | 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     | 1.17                      | 1.27    | 1.37  |
| c      | 0.31                      | 0.38    | 0.61  |
| c1     | 1.17                      | 1.27    | 1.37  |
| D      | 8.50                      | 8.70    | 8.90  |
| D1     | 6.40                      |         |       |
| E      | 10.01                     | 10.16   | 10.31 |
| E1     | 7.6                       |         |       |
| E2     | 9.98                      | 10.08   | 10.31 |
| e      |                           | 2.54    |       |
| H      | 14.6                      | 15.1    | 15.6  |
| L      | 2.00                      | 2.30    | 2.74  |
| L1     | 1.12                      | 1.27    | 1.42  |
| L2     | 1.30                      |         | 2.20  |
| L3     |                           | 0.25BSC |       |
| e      | 0                         | -       | 8°    |
| e1     |                           | 5°      |       |
| e2     |                           | 4°      |       |
| e3     |                           | 4°      |       |

**Ordering Information**

| Device      | Package            | Shipping      |
|-------------|--------------------|---------------|
| SDURB3020   | D <sup>2</sup> PAK | 800pcs / reel |
| SDURB3020TR | D <sup>2</sup> PAK | 800pcs / reel |

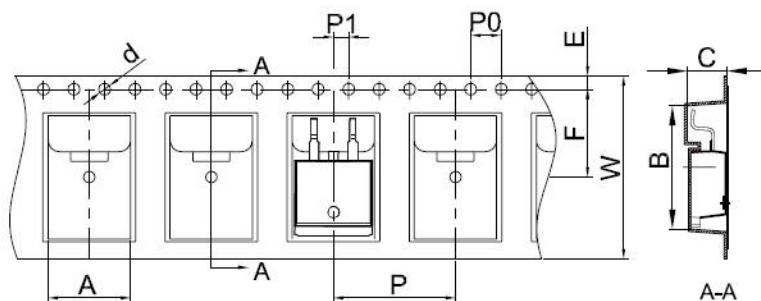
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Marking Diagram**


Where XXXXX is YYWWL

- SDUR = Device Type
- B = Package type
- 30 = Forward Current (30A)
- 20 = Reverse Voltage(200V)
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

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

**Carrier Tape Specification D<sup>2</sup>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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