

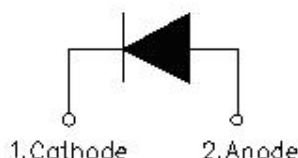
## SDUR3020W ULTRAFAST RECTIFIER



### 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
- 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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | -   | 200  | V     |
| Average Rectified Forward Current  | $I_{F(AV)}$                     | 50% duty cycle @ $T_c=105^\circ\text{C}$ ,<br>rectangular wave form | 30   | A     |
| Peak One Cycle Non-Repetitive Surge Current  | $I_{FSM}$                       | 8.3ms, Half Sine pulse  | 250  | A     |

### Electrical Characteristics:

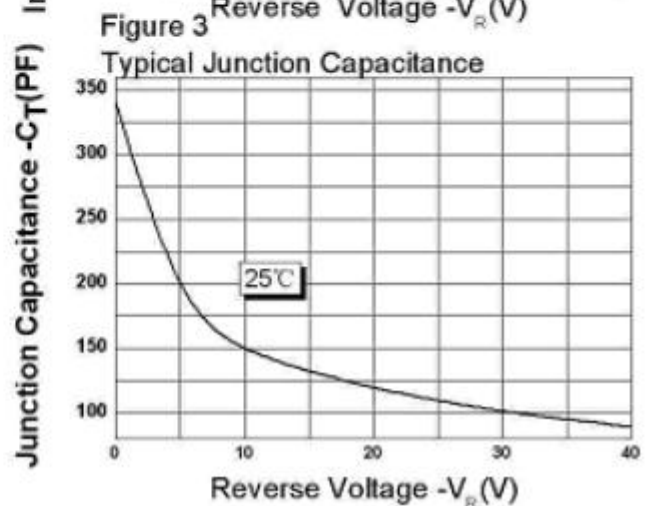
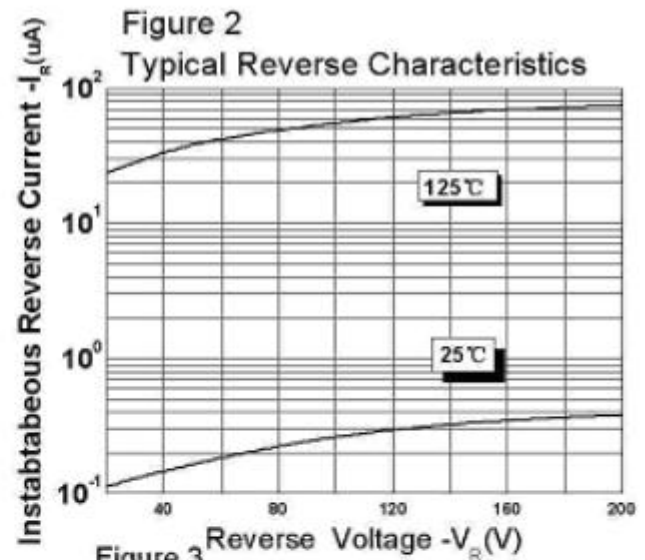
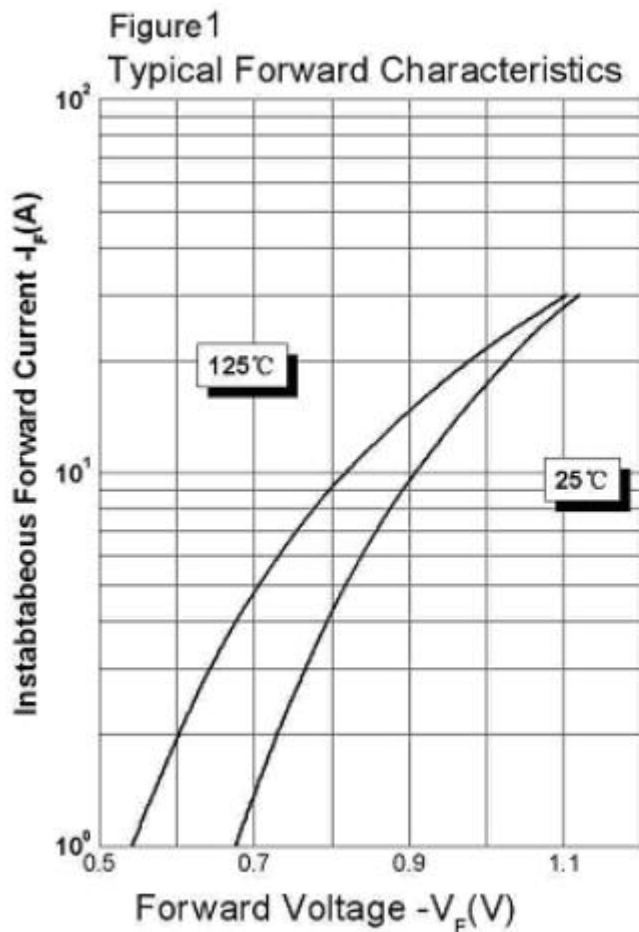
| Characteristics       | Symbol   | Condition   | Typ. | Max. | Units         |
|-----------------------|----------|---|------|------|---------------|
| Forward Voltage Drop* | $V_{F1}$ | @ 30A, Pulse, $T_J = 25^\circ\text{C}$                            | 0.95 | 1.20 | V             |
| Reverse Current*      | $I_{R1}$ | @ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$               | 0.4  | 10   | $\mu\text{A}$ |
|                       | $I_{R2}$ | @ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$              | 70   | 500  | $\mu\text{A}$ |
| Reverse Recovery Time | $t_{rr}$ | $I_F=500\text{mA}, I_R=1\text{A}, \text{and } I_{m}=250\text{mA}$ | 29   | 35   | ns            |

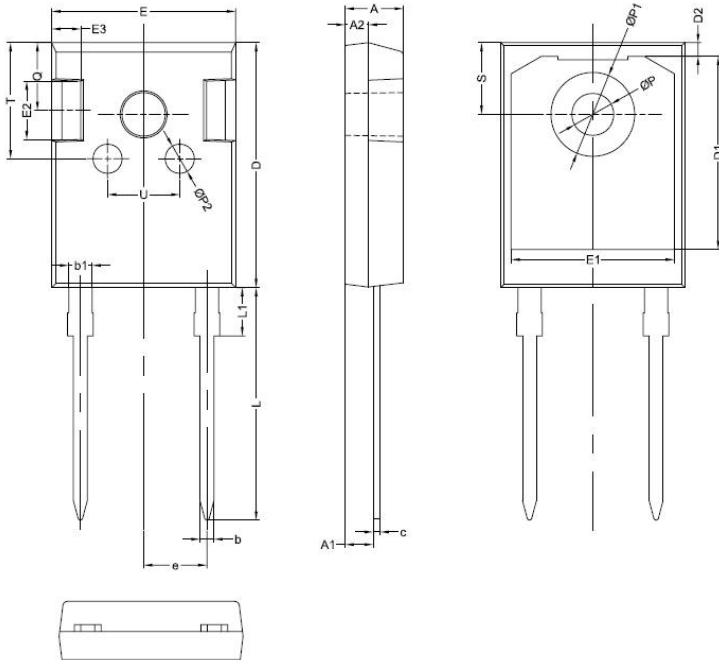
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications:**

| Characteristics                             | Symbol          | Condition    | Specification | Units |
|---|-----------------|--------------|---------------|-------|
| Junction Temperature                        | $T_J$           | -            | -55 to +150   | °C    |
| Storage Temperature                         | $T_{stg}$       | -            | -55 to +150   | °C    |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | DC operation | 0.9           | °C/W  |
| Approximate Weight                          | wt              | -            | 6.28          | g     |
| Case Style                                  | TO-247AC        |              |               |       |

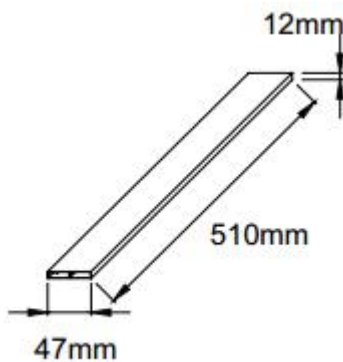
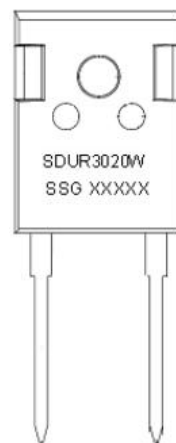
**Ratings and Characteristics Curves**



**Mechanical Dimensions TO-247AC**


| SYMBOL | Millimeters |       |       |
|--------|-------------|-------|-------|
|        | MIN.        | TYP.  | MAX.  |
| A      | 4.80        | 5.00  | 5.20  |
| A1     | 2.20        | 2.41  | 2.61  |
| A2     | 1.90        | 2.00  | 2.10  |
| b      | 1.10        | 1.20  | 1.35  |
| b1     | 1.80        | 2.00  | 2.20  |
| c      | 0.50        | 0.60  | 0.75  |
| D      | 20.30       | 21.00 | 21.20 |
| D1     |             | 16.58 |       |
| D2     |             | 1.17  |       |
| E      | 15.60       | 15.80 | 16.00 |
| E1     |             | 14.02 |       |
| E2     |             | 5.00  |       |
| E3     |             | 2.50  |       |
| e      |             | 5.44  |       |
| L      | 19.42       | 19.92 | 20.42 |
| L1     |             | 4.13  |       |
| P      | 3.50        | 3.60  | 3.70  |
| P1     | 7.1         | 7.19  | 7.40  |
| P2     |             | 2.50  |       |
| Q      |             | 5.80  |       |
| S      | 6.05        | 6.15  | 6.25  |
| T      |             | 10.00 |       |
| U      |             | 6.20  |       |

Note: Date code is after 17501, please use this new TO-247AC mechanical dimensions.

**Tube Specification**

**Marking Diagram**


Where XXXXX is YYWWL

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

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

**Ordering Information:**

| Device    | Package           | Shipping     |
|-----------|-------------------|--------------|
| SDUR3020W | TO-247AC(Pb-Free) | 25pcs / tube |

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

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - [sales@smc-diodes.com](mailto:sales@smc-diodes.com) •

**Technical Data**  
**Data Sheet N1260, Rev. A**



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