

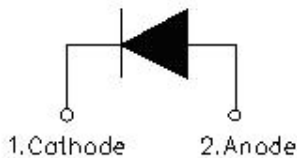
## SDURK30F60 ULTRAFAST RECTIFIER



### 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: 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( $T_c = 25^\circ\text{C}$ unless otherwise specified)

| Characteristics                                      | Symbol    | Condition                        | Max. | Units |
|--|-----------|----------------------------------|------|-------|
| Peak Repetitive Reverse Voltage                      | $V_{RRM}$ | -                                | 600  | V     |
| Working Peak Reverse Voltage                         | $V_{RWM}$ |                                  |      |       |
| DC Blocking Voltage                                  | $V_R$     |                                  |      |       |
| Average Rectified Forward Current                    | $I_F(AV)$ | $T_c = 70^\circ\text{C}$ , In DC | 30   | A     |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg) | $I_{FSM}$ | 8.3ms, Half Sine pulse           | 150  | A     |

**Electrical Characteristics:**

| Characteristics          | Symbol           | Condition  | Typ.         | Max.      | Units |
|--------------------------|------------------|--|--------------|-----------|-------|
| Forward Voltage Drop*    | V <sub>F1</sub>  | @ 15A, Pulse, T <sub>J</sub> = 25°C<br>@ 30A, Pulse, T <sub>J</sub> = 25°C                         | 1.38<br>1.66 | -<br>2.20 | V     |
|                          | V <sub>F1</sub>  | @ 15A, Pulse, T <sub>J</sub> = 125°C<br>@ 30A, Pulse, T <sub>J</sub> = 125°C                       | 1.20<br>1.48 | -<br>2.00 | V     |
| Reverse Current*         | I <sub>R1</sub>  | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 25°C                                     | 0.009        | 10        | uA    |
|                          | I <sub>R2</sub>  | @V <sub>R</sub> = rated V <sub>R</sub> , T <sub>J</sub> = 125°C                                    | 0.006        | 1         | mA    |
| Reverse Recovery Time    | t <sub>rr</sub>  | I <sub>F</sub> = 500mA, I <sub>R</sub> = 1A, and I <sub>rm</sub> = 250mA,<br>T <sub>J</sub> = 25°C | 29           | 40        | ns    |
| Reverse Recovery Time    | t <sub>rr</sub>  | I <sub>F</sub> = 30A, diF/dt = -210A/μs<br>V <sub>R</sub> = 380V, T <sub>J</sub> = 25°C            | 104          | -         | ns    |
| Reverse Recovery Charge  | Q <sub>rr</sub>  |  | 285          | -         | nC    |
| Reverse Recovery Current | I <sub>RRM</sub> |  | 5.2          | -         | A     |
| Reverse Recovery Time    | t <sub>rr</sub>  | I <sub>F</sub> = 30A, diF/dt = -210A/μs<br>V <sub>R</sub> = 380V, T <sub>J</sub> = 125°C           | 144          | -         | ns    |
| Reverse Recovery Charge  | Q <sub>rr</sub>  |  | 828          | -         | nC    |
| Reverse Recovery Current | I <sub>RRM</sub> |  | 8.4          | -         | A     |

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

**Thermal-Mechanical Specifications:**

| Characteristics                             | Symbol           | Condition    | Specification | Units |
|---|------------------|--------------|---------------|-------|
| Junction Temperature                        | T <sub>J</sub>   | -            | -55 to +175   | °C    |
| Storage Temperature                         | T <sub>stg</sub> | -            | -55 to +175   | °C    |
| Typical Thermal Resistance Junction to Case | R <sub>θJC</sub> | DC operation | 3.5           | °C/W  |
| Approximate Weight                          | wt               | -            | 1.6           | g     |
| Case Style                                  | ITO-220AC-2L     |              |               |       |

**Ratings and Characteristics Curves**

Figure 1 Typical Forward Characteristics

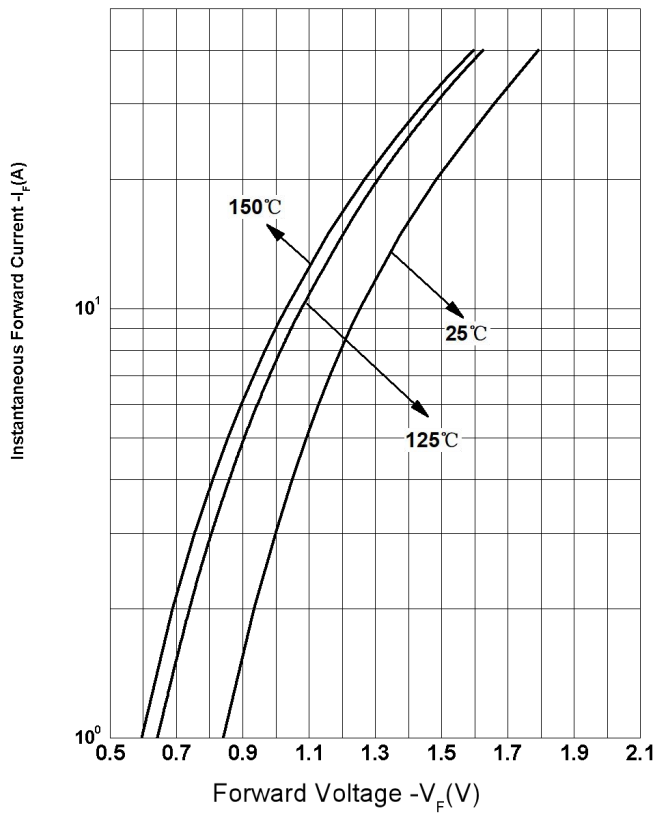


Figure 2 Typical Reverse Characteristics

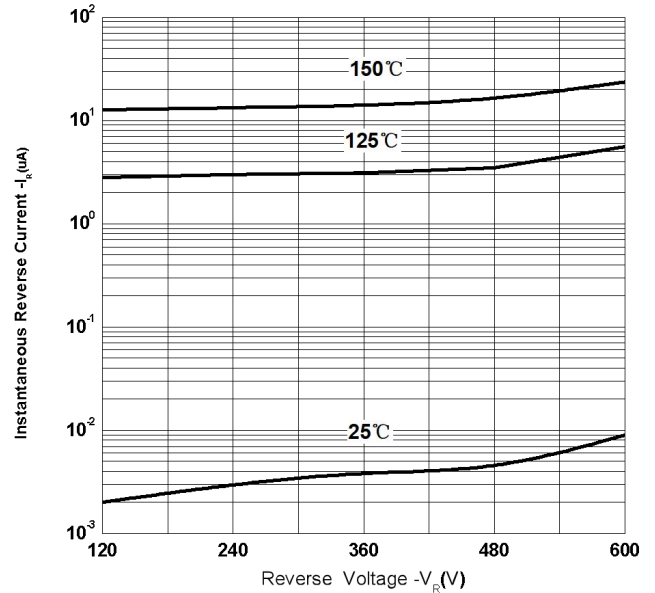
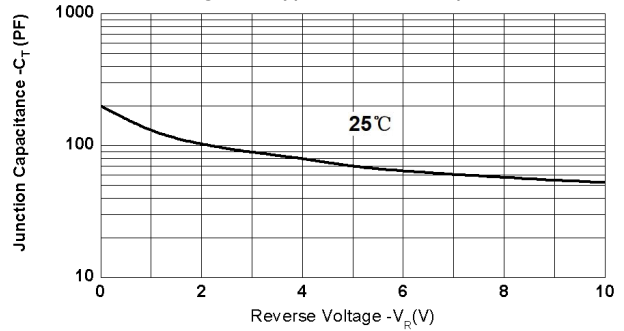
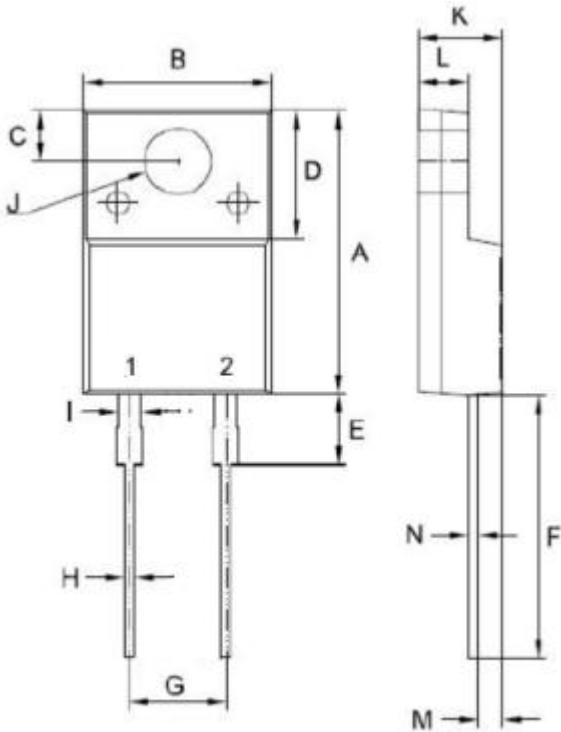
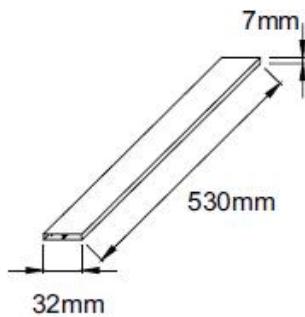
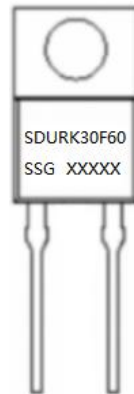


Figure 3 Typical Junction Capacitance



**Mechanical Dimensions ITO-220AC-2L**


| SYMBOL | Millimeters |       |       |
|--------|-------------|-------|-------|
|        | MIN.        | TYP.  | MAX.  |
| A      | 14.50       | 15.30 | 16.00 |
| B      | 9.50        | 10.00 | 10.50 |
| C      | 2.50        | 3.00  | 3.5   |
| D      | 6.30        | 6.80  | 7.30  |
| E      | 3.10        | 3.70  | 4.30  |
| F      | 13.00       | 13.5  | 14.00 |
| G      | 4.90        | 5.10  | 5.30  |
| H      | 0.30        | 0.60  | 0.90  |
| I      | 0.90        | 1.2   | 1.50  |
| J      | 3.20        | 3.50  | 3.80  |
| K      | 4.24        | 4.54  | 4.84  |
| L      | 2.30        | 2.61  | 2.92  |
| M      | 1.09        | 1.29  | 1.49  |
| N      | 0.42        | 0.53  | 0.63  |

**Tube Specification**

**Marking Diagram**


Where XXXXX is YYWWL

- SDUR = Device Type
- K = Package type
- 30 = Forward Current (30A)
- F = F
- 60 = Reverse Voltage (600V)
- SSG = SSG
- YY = Year
- WW = Week
- L = Lot Number

**Ordering Information:**

| Device     | Package               | Shipping     |
|------------|-----------------------|--------------|
| SDURK30F60 | ITO-220AC-2L(Pb-Free) | 50pcs / tube |

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