

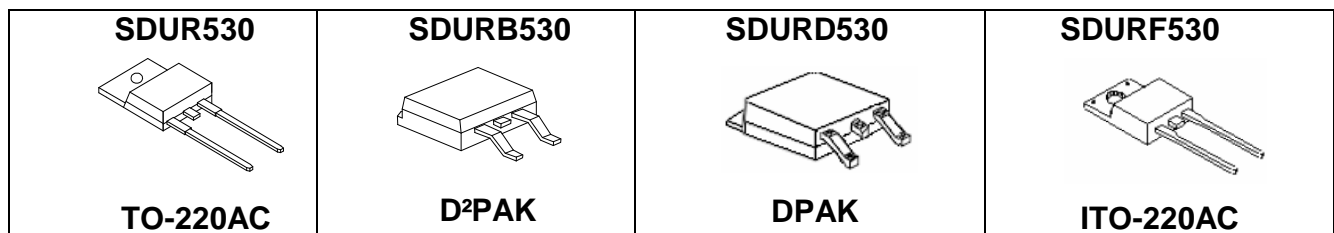
## SDUR530/SDURB530/SDURD530/SDURF530 ULTRAFAST PLASTIC RECTIFIER

### Applications:

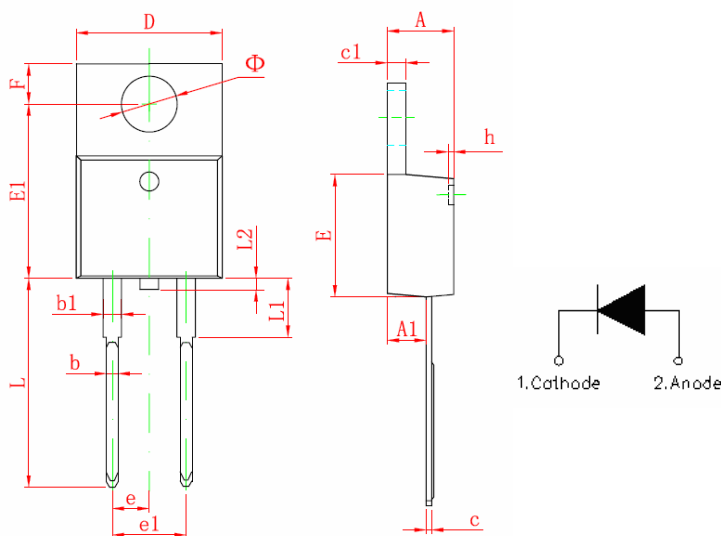
- Antiparallel diode for high frequency switching devices
- Anti saturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating and melting
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

### Features:

- Ultra-Fast Switching
- High Current Capability
- Low Reverse Leakage Current
- High Surge Current Capability
- Plastic Material has UL Flammability Classification 94V-0
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request



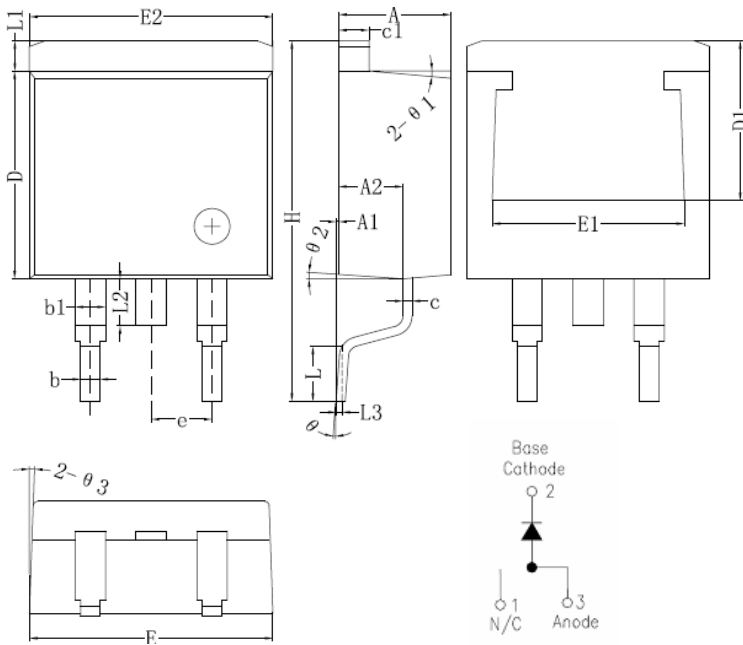
Mechanical Dimensions: In mm



| Symbol | Dimensions In Millimeters |        |
|--------|---------------------------|--------|
|        | Min                       | Max    |
| A      | 4.470                     | 4.670  |
| A1     | 2.520                     | 2.820  |
| b      | 0.710                     | 0.910  |
| b1     | 1.170                     | 1.370  |
| c      | 0.310                     | 0.530  |
| c1     | 1.170                     | 1.370  |
| D      | 10.010                    | 10.310 |
| E      | 8.500                     | 8.900  |
| E1     | 12.060                    | 12.460 |
| e      | 2.540 TYP                 |        |
| e1     | 4.980                     | 5.180  |
| F      | 2.590                     | 2.890  |
| h      | 0.000                     | 0.300  |
| L      | 13.400                    | 13.800 |
| L1     | 3.560                     | 3.960  |
| L2     |                           | 1.000  |
| Φ      | 3.735                     | 3.935  |

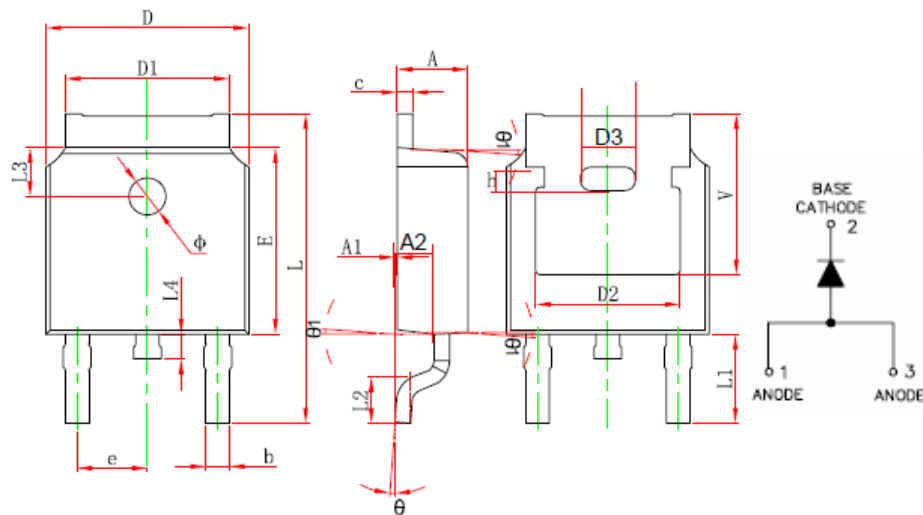
### TO-220AC

**Technical Data  
Data Sheet N1262, Rev. -**



| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min.                      | Typical | Max.  |
| A      | 4.55                      | 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     |                           | 1.27    |       |
| c      | 0.36                      | 0.38    | 0.61  |
| c1     | 1.17                      | 1.27    | 1.37  |
| D      | 8.55                      | 8.70    | 8.85  |
| D1     | 6.40                      |         |       |
| E      | 10.01                     | 10.16   | 10.31 |
| E1     | 7.6                       |         |       |
| E2     | 9.98                      | 10.08   | 10.18 |
| e      |                           | 2.54    |       |
| H      | 14.6                      | 15.1    | 15.6  |
| L      | 2.00                      | 2.30    | 2.70  |
| L1     | 1.17                      | 1.27    | 1.40  |
| L2     |                           |         | 2.20  |
| L3     |                           | 0.25BSC |       |
| e      | 0                         | -       | 8°    |
| e1     |                           | 5°      |       |
| e2     |                           | 4°      |       |
| e3     |                           | 4°      |       |

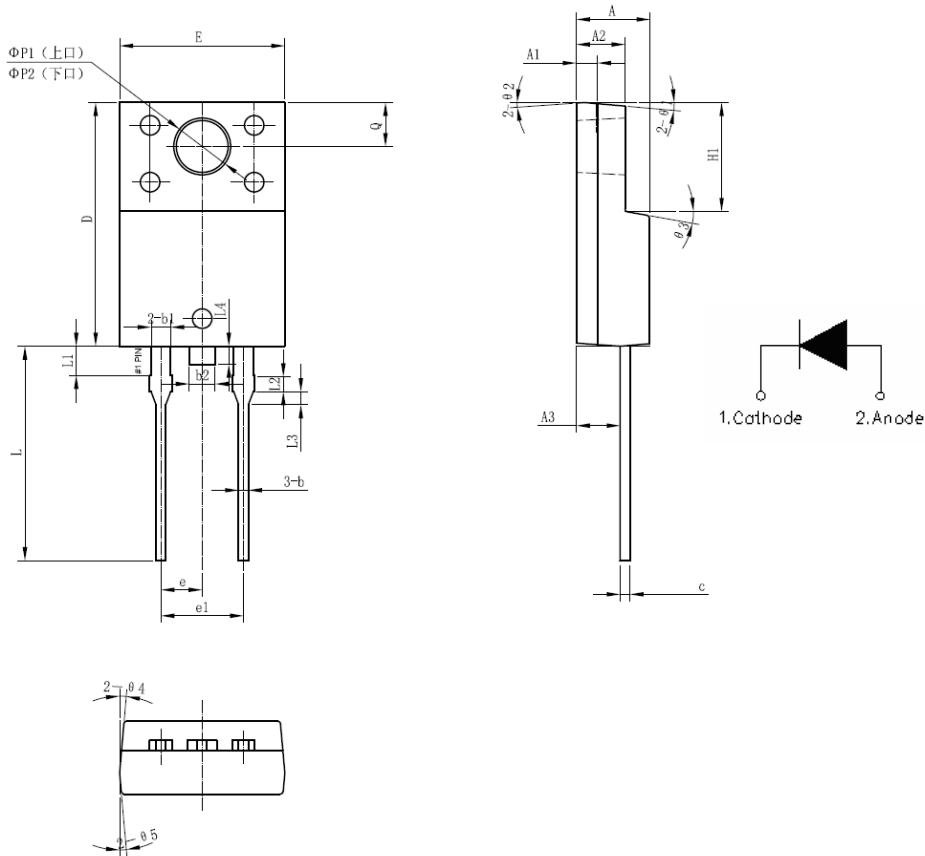
**D<sup>2</sup> PAK**



| Symbol  | Dimensions In Millimeters |        | Dimensions In Inches |       |
|---------|---------------------------|--------|----------------------|-------|
|         | Min.                      | Max.   | Min.                 | Max.  |
| A       | 2.200                     | 2.380  | 0.087                | 0.094 |
| A10.000 | 0.000                     | 0.100  | 0.000                | 0.004 |
| b       | 0.710                     | 0.810  | 0.028                | 0.032 |
| c       | 0.460                     | 0.560  | 0.018                | 0.022 |
| D       | 6.500                     | 6.700  | 0.256                | 0.264 |
| D1      | 5.130                     | 5.460  | 0.202                | 0.215 |
| D2      | 4.830 REF.                |        | 0.190 REF.           |       |
| E       | 6.000                     | 6.200  | 0.236                | 0.244 |
| e       | 2.186                     | 2.386  | 0.086                | 0.094 |
| L       | 9.800                     | 10.400 | 0.386                | 0.409 |
| L1      | 2.900 REF.                |        | 0.114 REF.           |       |
| L2      | 1.400                     | 1.700  | 0.055                | 0.067 |
| L3      | 1.600 REF.                |        | 0.063 REF.           |       |
| L4      | 0.600                     | 1.000  | 0.024                | 0.039 |
| ϕ       | 1.100                     | 1.300  | 0.043                | 0.051 |
| θ       | 0°                        | 8°     | 0°                   | 8°    |
| A2      | 0.910                     | 1.110  | 0.036                | 0.044 |
| V       | 5.350 REF.                |        | 0.211 REF.           |       |
| D3      | 1.778 REF.                |        | 0.070 REF.           |       |
| h       | 0.762 REF.                |        | 0.030 REF.           |       |
| θ1      | 7°                        |        | 7°                   |       |

**DPAK**

Technical Data  
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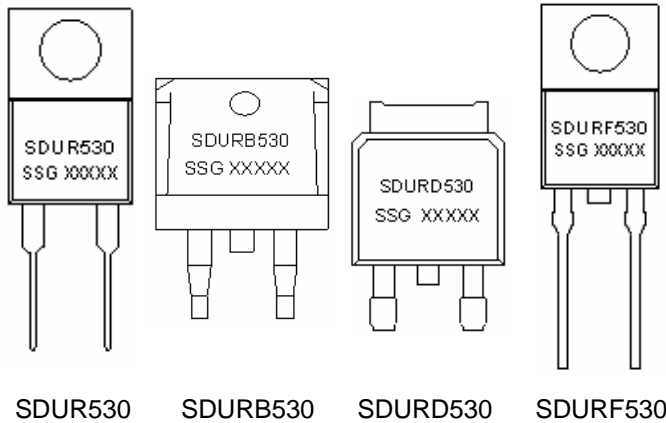


| SYMBOL         | MIN.  | TYP.  | MAX.  |
|----------------|-------|-------|-------|
| A              | 4.30  | 4.50  | 4.70  |
| A1             | 1.10  | 1.30  | 1.50  |
| A2             | 2.80  | 3.00  | 3.20  |
| A3             | 2.50  | 2.70  | 2.90  |
| b              | 0.50  | 0.60  | 0.75  |
| b1             | 1.10  | 1.20  | 1.35  |
| b2             | 1.50  | 1.60  | 1.75  |
| c              | 0.55  | 0.60  | 0.75  |
| D              | 14.80 | 15.00 | 15.20 |
| E              | 9.96  | 10.16 | 10.36 |
| e              | -     | 2.55  | -     |
| e1             | -     | 5.10  | -     |
| 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  |
| $\Phi P1$ (上口) | 3.30  | 3.50  | 3.70  |
| $\Phi P2$ (下口) | 2.99  | 3.19  | 3.39  |
| Q              | 2.50  | 2.70  | 2.90  |
| $\theta 1$     |       | 5°    |       |
| $\theta 2$     |       | 4°    |       |
| $\theta 3$     |       | 10°   |       |
| $\theta 4$     |       | 5°    |       |
| $\theta 5$     |       | 5°    |       |

**ITO-220AC(HD)**

**Technical Data**  
Data Sheet N1262, Rev. -

**Marking Diagram:**



Where XXXXX is YYWWL

SDUR = Device Type  
B/D/F = Package type  
5 = Forward Current (5A)  
30 = Reverse Voltage (300V)  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

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

**Ordering Information:**

| Device   | Package                         | Shipping       |
|----------|---------------------------------|----------------|
| SDUR530  | TO-220AC<br>(Pb-Free)           | 50pcs / tube   |
| SDURB530 | D <sup>2</sup> PAK<br>(Pb-Free) | 800pcs / reel  |
| SDURD530 | DPAK<br>(Pb-Free)               | 2500pcs / reel |
| SDURF530 | ITO-220AC<br>(Pb-Free)          | 50 pcs / tube  |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

**Maximum Ratings:**

| Characteristics                                  | Symbol      | Condition                                | Max. | Units |
|--|-------------|--|------|-------|
| Peak Inverse Voltage                             | $V_{RWM}$   | -  | 300  | V     |
| Max. Average Forward                             | $I_{O(AV)}$ | 50Hz, Sine wave, $T_C=105^\circ\text{C}$ | 5    | A     |
| Max. Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$   | 50Hz, Half Sine wave                     | 80   | A     |

**Electrical Characteristics:**

| Characteristics            | Symbol   | Condition  | Max. | Units         |
|----------------------------|----------|--|------|---------------|
| Max. Forward Voltage Drop* | $V_{F1}$ | @ 5A, Pulse, $T_J = 25^\circ\text{C}$                                  | 1.3  | V             |
| Max. Reverse Current*      | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25^\circ\text{C}$                | 30   | $\mu\text{A}$ |
| Max. Reverse Recovery Time | $t_{rr}$ | $I_F = 500\text{mA}$ , $I_R = 1\text{A}$ , and $I_{rm} = 250\text{mA}$ | 45   | ns            |

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

**Thermal-Mechanical Specifications:**

| Characteristics                                       | Symbol          | SDUR530                                       | SDURB530 | SDURD530 | SDURF530 | Units            |
|---|-----------------|---|----------|----------|----------|------------------|
| Junction Temperature                                  | $T_J$           | -55 to +150                                   |          |          |          | $^\circ\text{C}$ |
| Storage Temperature                                   | $T_{stg}$       | -55 to +150                                   |          |          |          | $^\circ\text{C}$ |
| Maximum Thermal Resistance Junction to Case(per leg)* | $R_{\theta JC}$ | 2.3   | 2.3      | 1.7      | 4.2      | K/W              |
| Approximate Weight                                    | wt              | 1.8   | 1.85     | 0.39     | 1.8      | g                |
| Case Style  |                 | TO-220AC/ D <sup>2</sup> PAK/ DPAK/ ITO-220AC |          |          |          |                  |

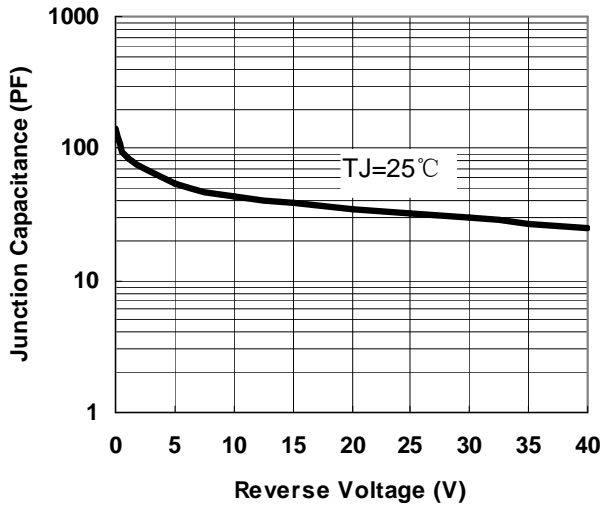


Fig.1-Typical Junction Capacitance

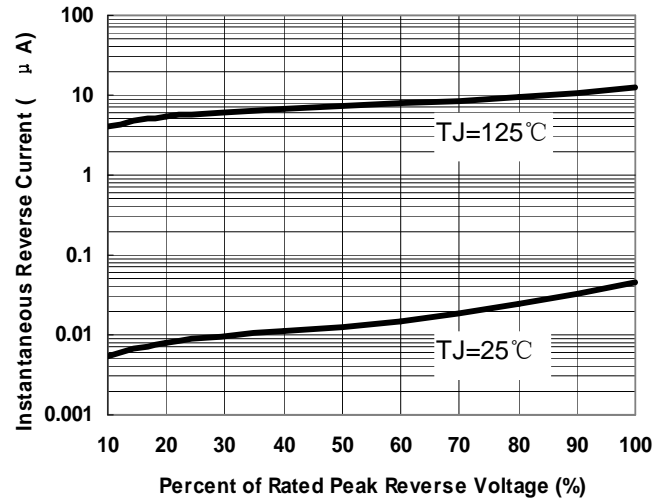


Fig.2-Typical Reverse Characteristics

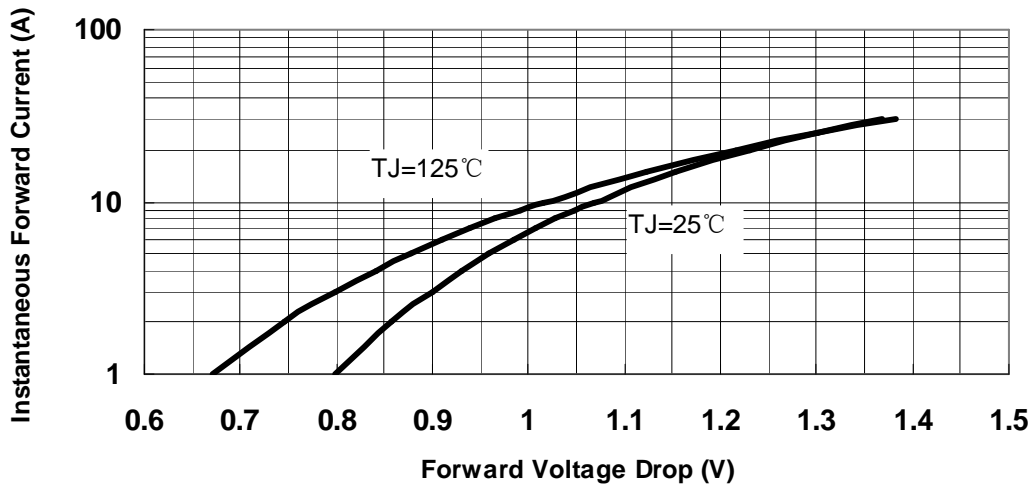


Fig.3-Typical Instantaneous Forward Voltage Characteristics

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