

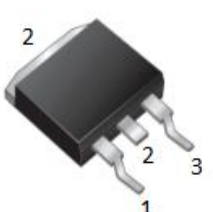
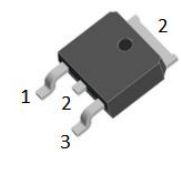
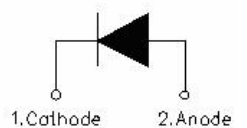
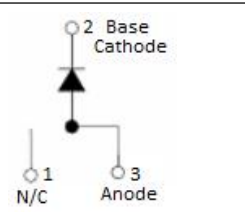
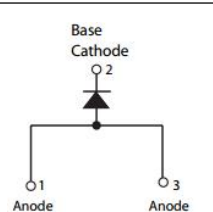
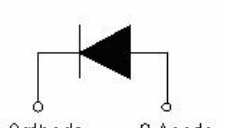
## SDUR1530/SDURB1530/SDURD1530/SDURF1530 ULTRAFAST RECTIFIER

### 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

### Features

- Ultra-Fast Switching
- High Current Capability
- Low Reverse Leakage Current
- High Surge Current Capability
- Plastic Material has UL Flammability Classification 94V-O
- “-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

| SDUR1530                                                                            | SDURB1530                                                                           | SDURD1530                                                                            | SDURF1530                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|   |   |   |   |
|  |  |  |  |
| TO-220AC                                                                            | D <sup>2</sup> PAK                                                                  | DPAK                                                                                 | ITO-220AC                                                                             |

### 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>$V_R$ | -                                                             | 300  | V     |
| Average Rectified Forward Current                                                      | $I_F (AV)$                      | 50% duty cycle @ $T_c=75^{\circ}C$ ,<br>rectangular wave form | 15   | A     |
| Peak One Cycle Non-Repetitive Surge Current                                            | $I_{FSM}$                       | 8.3ms, Half Sine pulse                                        | 240  | A     |

## Electrical Characteristics:

| Characteristics       | Symbol   | Condition                                                          | Typ. | Max. | Units         |
|-----------------------|----------|--------------------------------------------------------------------|------|------|---------------|
| Forward Voltage Drop* | $V_{F1}$ | @ 15A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$                   | 0.93 | 1.26 | V             |
|                       | $V_{F2}$ | @ 15A, Pulse, $T_J = 150\text{ }^{\circ}\text{C}$                  | -    | 1.01 | V             |
| Reverse Current*      | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25\text{ }^{\circ}\text{C}$  | 0.04 | 10   | $\mu\text{A}$ |
|                       | $I_{R2}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 150\text{ }^{\circ}\text{C}$ | -    | 500  | $\mu\text{A}$ |
| Reverse Recovery Time | $t_{rr}$ | $I_F=500\text{mA}$ , $I_R=1\text{A}$ , and $I_{rm}=250\text{mA}$   | 42   | 45   | ns            |

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

## Thermal-Mechanical Specifications:

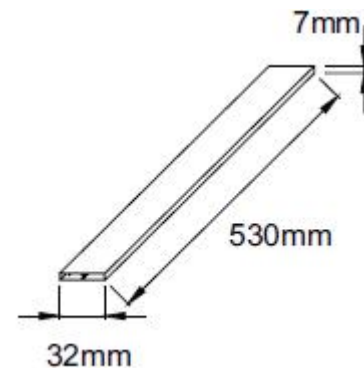
| Characteristics                                | Symbol                                        | SDUR1530    | SDURB1530 | SDURD1530 | SDURF1530 | Units                |
|------------------------------------------------|-----------------------------------------------|-------------|-----------|-----------|-----------|----------------------|
| Junction Temperature                           | $T_J$                                         | -55 to +150 |           |           |           | $^{\circ}\text{C}$   |
| Storage Temperature                            | $T_{stg}$                                     | -55 to +150 |           |           |           | $^{\circ}\text{C}$   |
| Typical Thermal Resistance<br>Junction to Case | $R_{\theta JC}$                               | 2.3         | 2.3       | 1.7       | 4.2       | $^{\circ}\text{C/W}$ |
| Case Style                                     | TO-220AC/ D <sup>2</sup> PAK/ DPAK/ ITO-220AC |             |           |           |           |                      |

## Tube Specification

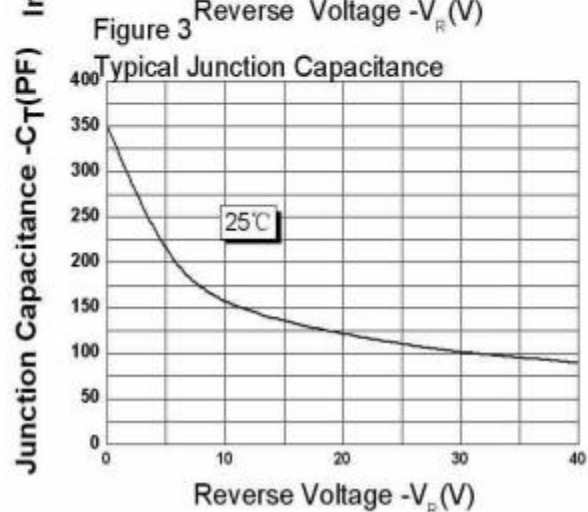
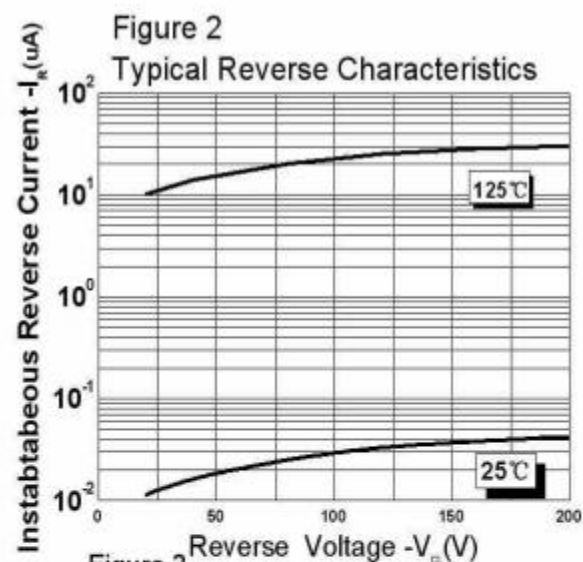
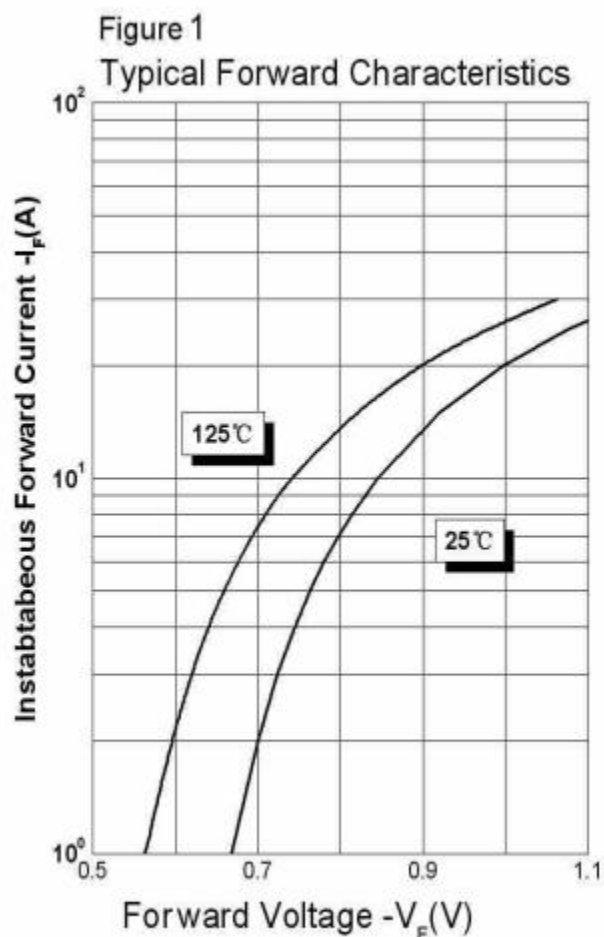
| Device      | Package            | Weight | Shipping       |
|-------------|--------------------|--------|----------------|
| SDUR1530    | TO-220AC           | 1.6g   | 50pcs / tube   |
| SDURB1530   | D <sup>2</sup> PAK | 1.85g  | 800pcs / reel  |
| SDURB1530TR | D <sup>2</sup> PAK | 1.85g  | 800pcs / reel  |
| SDURD1530   | DPAK               | 0.39g  | 2500pcs / reel |
| SDURD1530TR | DPAK               | 0.39g  | 2500pcs / reel |
| SDURF1530   | ITO-220AC          | 1.6g   | 50pcs / tube   |

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

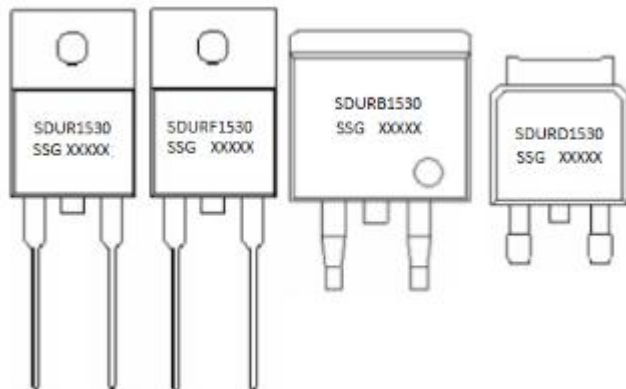
## Tube Specification(TO-220AC/ITO-220AC)



## Ratings and Characteristics Curves



## Marking Diagram

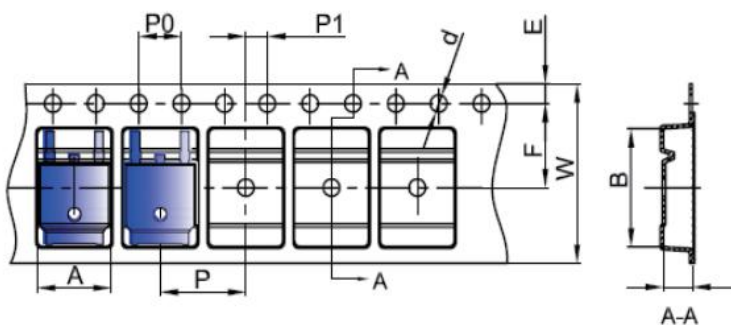


Where XXXXX is YYWWL

SDUR = Device Type  
B/D/F = Package type  
15 = Forward Current (15A)  
30 = Reverse Voltage (300V)  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

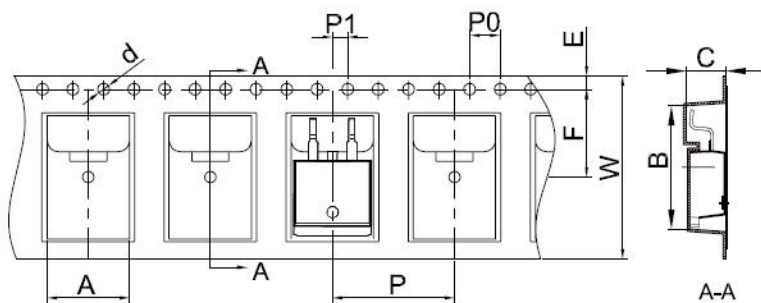
**Cautions:** Molding resin  
Epoxy resin UL:94V-0

## Carrier Tape & Reel Specification DPAK



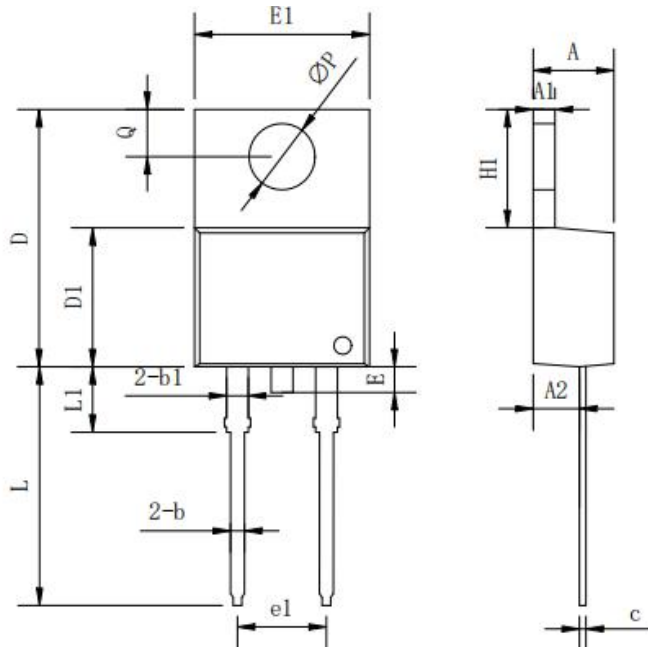
| SYMBOL | Millimeters |       |
|--------|-------------|-------|
|        | Min.        | Max.  |
| A      | 6.80        | 7.00  |
| B      | 10.40       | 10.60 |
| C      | 2.60        | 2.80  |
| d      | Φ1.45       | Φ1.65 |
| E      | 1.65        | 1.85  |
| F      | 7.40        | 7.60  |
| P0     | 3.90        | 4.10  |
| P      | 7.90        | 8.10  |
| P1     | 1.90        | 2.10  |
| W      | 15.90       | 16.30 |

## Carrier Tape & Reel Specification D<sup>2</sup>PAK



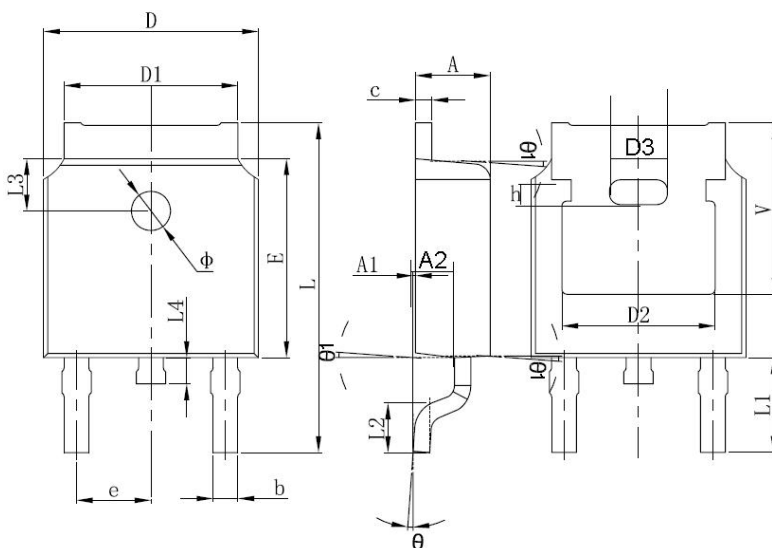
| SYMBOL | Millimeters |       |
|--------|-------------|-------|
|        | Min.        | Max.  |
| A      | 10.70       | 10.90 |
| B      | 16.03       | 16.23 |
| C      | 5.11        | 5.31  |
| d      | 1.45        | 1.65  |
| E      | 1.65        | 1.85  |
| F      | 11.40       | 11.60 |
| P0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

## Mechanical Dimensions TO-220AC



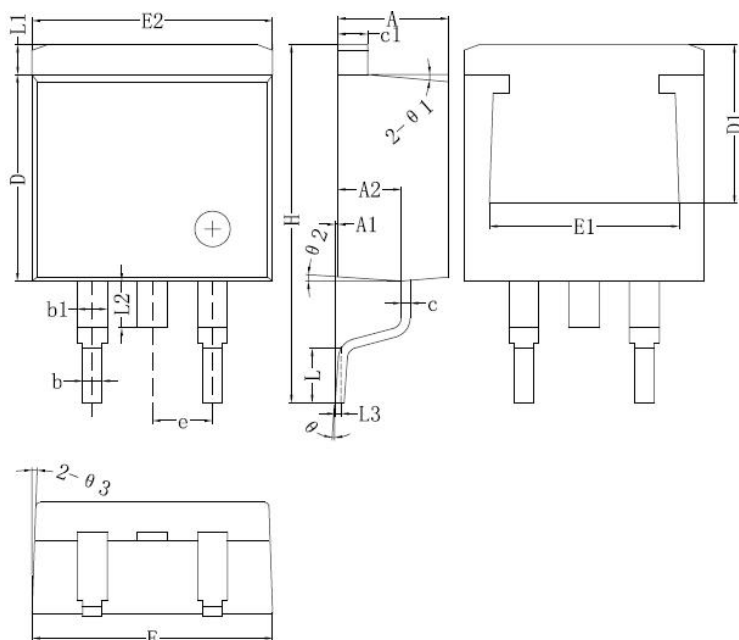
| Symbol   | Dimensions in millimeters |         |       |
|----------|---------------------------|---------|-------|
|          | Min.                      | Typical | Max.  |
| A        | 3.56                      | -       | 4.83  |
| A1       | 0.51                      | -       | 1.40  |
| A2       | 2.03                      | -       | 2.92  |
| b        | 0.38                      | -       | 1.02  |
| b1       | 1.14                      | -       | 1.78  |
| c        | 0.31                      | -       | 0.61  |
| D        | 14.22                     | -       | 16.51 |
| D1       | 8.38                      | -       | 9.42  |
| E        | -                         | -       | 1.78  |
| E1       | 9.65                      | 10.16   | 10.67 |
| e1       | -                         | 5.08    | -     |
| H1       | 5.84                      | -       | 6.86  |
| L        | 12.70                     | -       | 14.73 |
| L1       | -                         | -       | 6.35  |
| $\Phi P$ | -                         | 3.56    | -     |

## Mechanical Dimensions DPAK



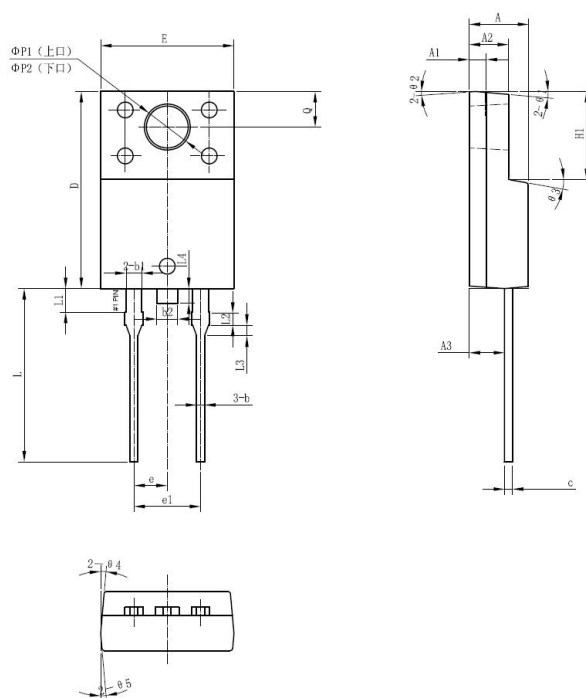
| SYMBOL   | Dimensions in millimeters |      |       |
|----------|---------------------------|------|-------|
|          | Min.                      | Typ. | Max.  |
| A        | 2.18                      | -    | 2.39  |
| A1       | -                         | -    | 0.13  |
| b        | 0.64                      | -    | 0.89  |
| c        | 0.46                      | -    | 0.89  |
| D        | 6.35                      | -    | 6.73  |
| D2       | 4.32                      | -    | -     |
| E        | 5.97                      | 6.10 | 6.22  |
| e        | 2.29BSC                   |      |       |
| L        | 9.40                      | -    | 10.41 |
| L2       | 1.40                      | 1.52 | 1.78  |
| L4       | -                         | -    | 1.02  |
| $\theta$ | 0°                        | -    | 10°   |
| V        | 5.21                      | -    | -     |

## Mechanical Dimensions D<sup>2</sup>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                      | 8.65  |
| D1     | 6.86                      |       |
| E1     | 6.22                      |       |
| E2     | 9.65                      | 10.67 |
| e      | 2.54BSC                   |       |
| H      | 14.60                     | 15.88 |
| L      | 1.78                      | 2.80  |
| L1     | -                         | 1.68  |
| L2     | -                         | 1.78  |
| L3     | 0.255BSC                  |       |
| Θ      | 0                         | 8°    |

## Mechanical Dimensions ITO-220AC



| SYMBOL  | Millimeters |       |       |
|---------|-------------|-------|-------|
|         | 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       | 0.50        | 0.60  | 0.75  |
| D       | 14.80       | 15.00 | 15.20 |
| E       | 9.96        | 10.16 | 10.36 |
| e       | -           | 2.55  | -     |
| e1      | 5.00        | 5.10  | 5.16  |
| 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  |
| ΦP1(上□) | 3.30        | 3.50  | 3.70  |
| ΦP2(下□) | 2.99        | 3.19  | 3.39  |
| Q       | 2.50        | 2.70  | 2.90  |
| Θ1      |             | 5°    |       |
| Θ2      |             | 4°    |       |
| Θ3      |             | 10°   |       |
| Θ4      |             | 5°    |       |
| Θ5      |             | 5°    |       |

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