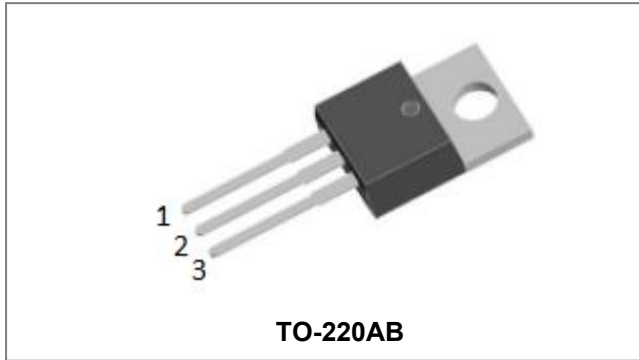


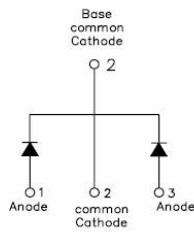
# SDUR1620CT ULTRAFAST RECTIFIER



## 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 @ $T_c=75^\circ\text{C}$ ,<br>rectangular wave form | 8(Per Leg)<br>16(Per Device) | A     |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg)                                   | $I_{FSM}$                       | 8.3ms, Half Sine pulse   | 80                           | A     |

## Electrical Characteristics:

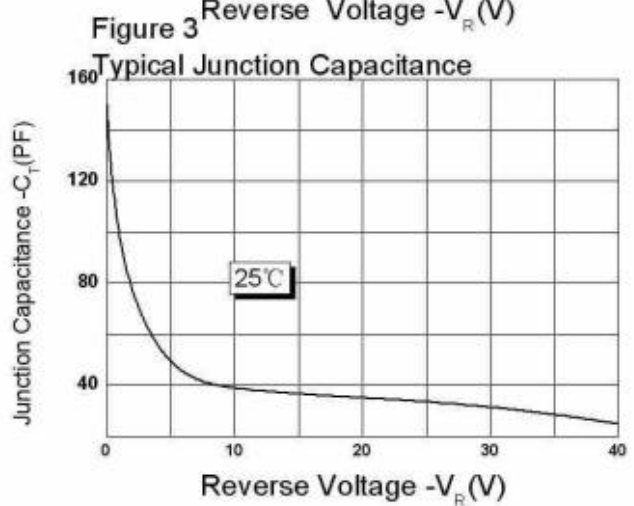
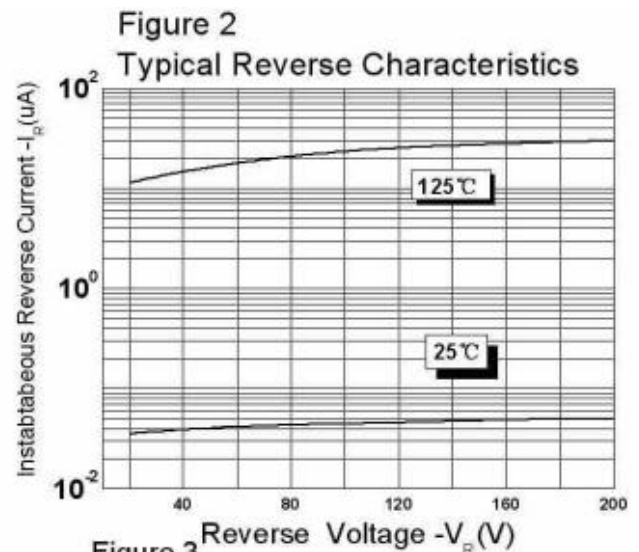
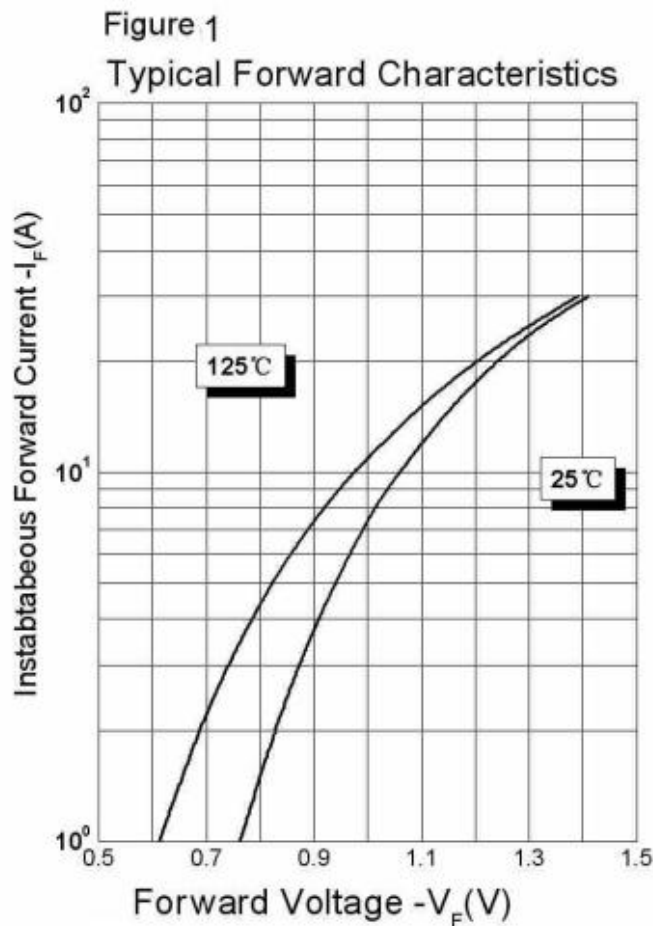
| Characteristics                | Symbol   | Condition   | Typ. | Max. | Units         |
|--------------------------------|----------|---|------|------|---------------|
| Forward Voltage Drop(Per Leg)* | $V_{F1}$ | @8A, Pulse, $T_J = 25^\circ\text{C}$                          | 1.01 | 1.2  | V             |
|                                | $V_{F2}$ | @8A, Pulse, $T_J = 125^\circ\text{C}$                         | 0.91 | 1.1  | V             |
| Reverse Current(Per Leg)*      | $I_{R1}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 25^\circ\text{C}$       | 0.05 | 5    | $\mu\text{A}$ |
|                                | $I_{R2}$ | @ $V_R = \text{rated } V_R$<br>$T_J = 125^\circ\text{C}$      | 30   | 500  | $\mu\text{A}$ |
| Reverse Recovery Time(Per Leg) | $t_{rr}$ | $I_F=500\text{mA}$ , $I_R=1\text{A}$ , and $I_m=250\text{mA}$ | 31   | 35   | ns            |

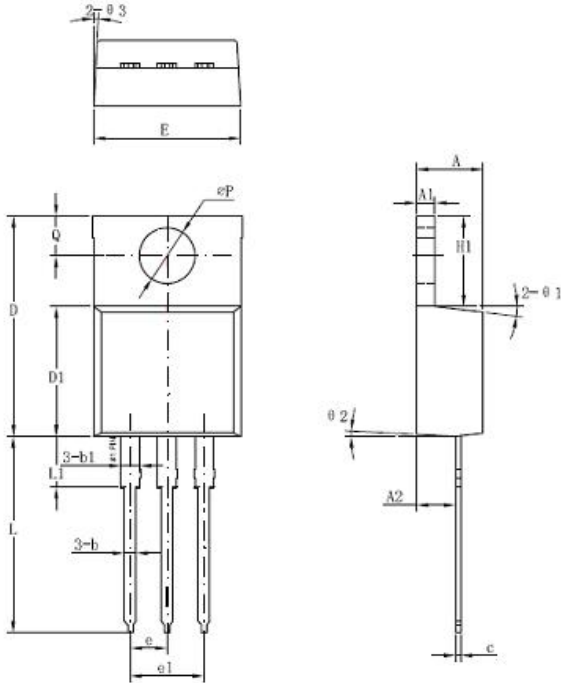
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications:**

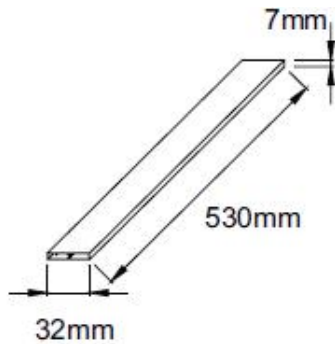
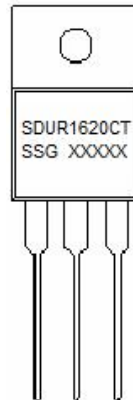
| Characteristics                             | Symbol          | Condition    | Specification | Units |
|---|-----------------|--------------|---------------|-------|
| Junction Temperature                        | $T_J$           | -            | -55 to +150   | °C    |
| Storage Temperature                         | $T_{stg}$       | -            | -55 to +150   | °C    |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | DC operation | 5             | °C/W  |
| Approximate Weight                          | wt              | -            | 2             | g     |
| Case Style                                  | TO-220AB        |              |               |       |

**Ratings and Characteristics Curves**



**Mechanical Dimensions TO-220AB**


| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min                       | Typical | Max   |
| A      | 4.42                      | 4.57    | 4.72  |
| A1     | 1.17                      | 1.27    | 1.37  |
| A2     | 2.52                      | 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  |
| D      | 14.94                     | 15.24   | 15.54 |
| D1     | 8.85                      | 9.00    | 9.15  |
| E      | 10.01                     | 10.16   | 10.31 |
| e      |                           | 2.54    |       |
| e1     | 4.98                      | 5.06    | 5.18  |
| H1     | 6.04                      | 6.24    | 6.44  |
| L      | 12.7                      | 13.56   | 13.80 |
| L1     | 3.56                      | 3.5     | 3.96  |
| ΦP     | 3.74                      | 3.84    | 4.04  |
| Q      | 2.54                      | 2.74    | 2.94  |
| Θ1     |                           | 7°      |       |
| Θ2     |                           | 3°      |       |
| Θ3     |                           | 4°      |       |

**Tube Specification**

**Marking Diagram**


Where XXXXX is YYWWL

SDUR = Device Type  
 16 = Forward Current (16A)  
 20 = Reverse Voltage(200V)  
 CT = Configuration  
 SSG = SSG  
 YY = Year  
 WW = Week  
 L = Lot Number

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

**Ordering Information**

| Device     | Package            | Shipping     |
|------------|--------------------|--------------|
| SDUR1620CT | TO-220AB (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.

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