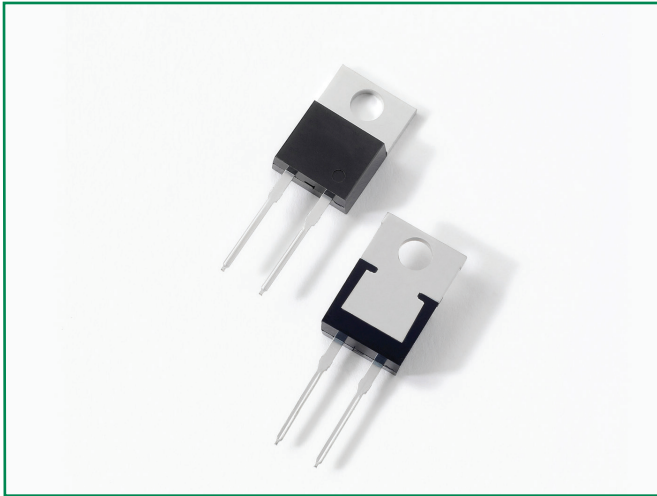


### DUR30120



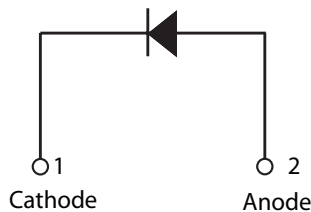
#### Description

Littelfuse DUR series Ultrafast Recovery Rectifier is designed to meet the general requirements of commercial applications by providing low  $T_{rr}$ , high-temperature, low-leakage and low forward voltage drop products. It is suitable for output rectifier, free-wheeling or boost diode in high-frequency power switching application such as switch mode power supply and DC-DC converters.

#### Features

- Ultra-fast switching
- Low reverse leakage current
- High surge current capability
- Low forward voltage drop
- Single die in true two-leaded TO-220AC
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)

#### Circuit Diagram



#### Applications

- Output rectifiers in switch mode power supplies (SMPS) and DC to DC converters
- Free-wheeling diode or boost diode in converters and motor control circuits
- Anti-parallel diode for high frequency switching devices such as IGBT
- Uninterruptible Power Supplies (UPS)
- Inductive heating and melting
- Ultrasonic cleaners and welders

#### Maximum Ratings

| Characteristics  | Symbol      | Conditions   | Max. | Unit |
|--|-------------|--|------|------|
| Peak Inverse Voltage                                   | $V_{RWM}$   | -  | 1200 | V    |
| Average Forward Current (Per Device)                   | $I_{F(AV)}$ | 50% duty cycle @ $T_c = 115^\circ\text{C}$ , rectangular wave form | 30   | A    |
| Peak One Cycle Non-Repetitive Surge Current ( Per Leg) | $I_{FSM}$   | 8.3 ms, half sine pulse  | 80   | A    |

#### Electrical Characteristics

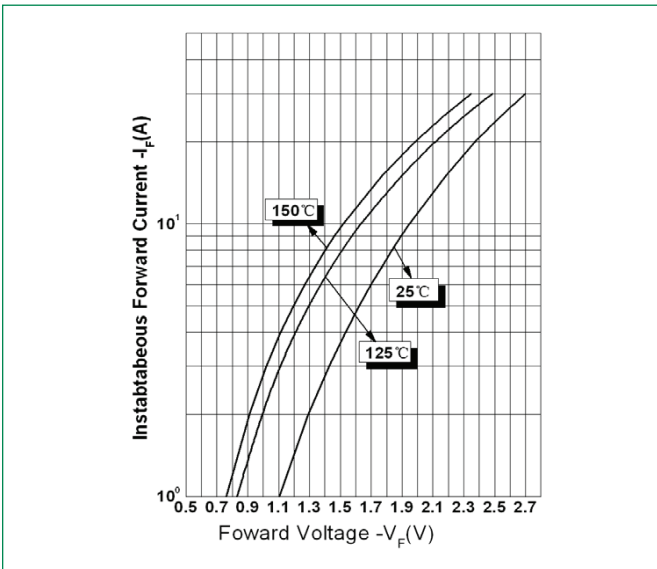
| Characteristics                             | Symbol    | Conditions  | Typ. | Max. | Unit          |
|---|-----------|---|------|------|---------------|
| Forward Voltage Drop (Per Leg) <sup>1</sup> | $V_{F1}$  | @30A, Pulse, $T_j = 25^\circ\text{C}$                                     | 2.7  | 2.75 | V             |
|   | $V_{F2}$  | @30A, Pulse, $T_j = 125^\circ\text{C}$                                    | 2.5  | -    | V             |
|   | $V_{F3}$  | @30A, Pulse, $T_j = 150^\circ\text{C}$                                    | 2.3  | -    | V             |
| Reverse Current (Per Leg) <sup>1</sup>      | $I_{R1}$  | @ $V_R = \text{Rated } V_R, T_j = 25^\circ\text{C}$                       | 0.77 | 250  | $\mu\text{A}$ |
|   | $I_{R2}$  | @ $V_R = \text{Rated } V_R, T_j = 125^\circ\text{C}$                      | 550  | 4000 | $\mu\text{A}$ |
|   | $I_{R3}$  | @ $V_R = \text{Rated } V_R, T_j = 150^\circ\text{C}$                      | 2174 | -    | $\mu\text{A}$ |
| Reverse Recovery Time                       | $t_{rr1}$ | $I_F = 500\text{mA}, I_R = 1\text{A}, \text{ and } I_{rm} = 250\text{mA}$ | -    | 100  | ns            |

Footnote 1: Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

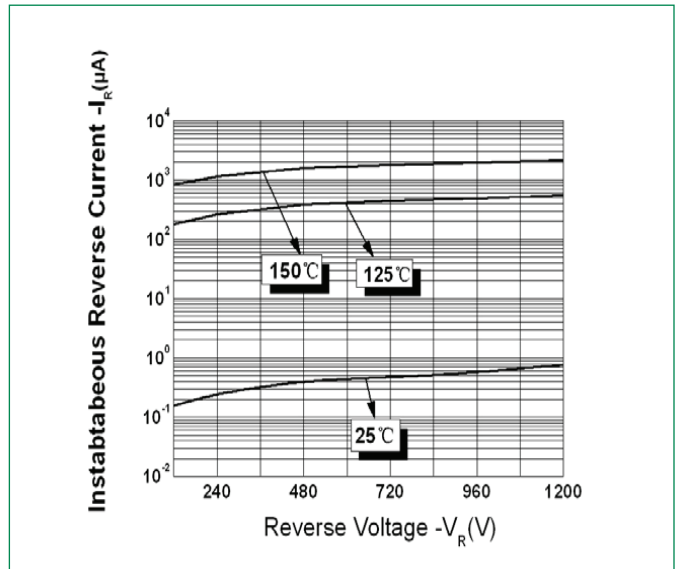
**Thermal-Mechanical Specifications**

| Characteristics                             | Symbol          | Conditions   | Specification | Unit |
|---|-----------------|--------------|---------------|------|
| 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              | -            | 1.6           | g    |
| Case Style                                  | -               | TO-220AC     | -             | -    |

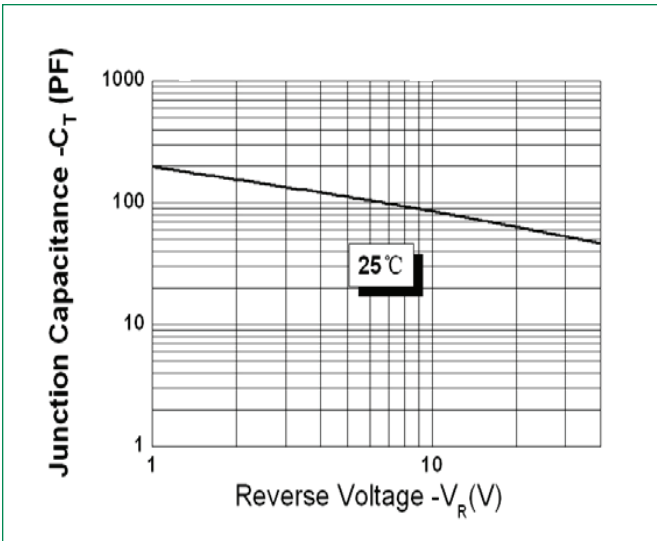
**Figure 1: Typical Forward Characteristics**



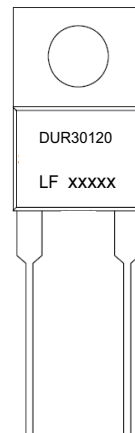
**Figure 2: Typical Reverse Characteristics**



**Figure 3: Typical Junction Capacitance**



**Part Numbering and Marking System**



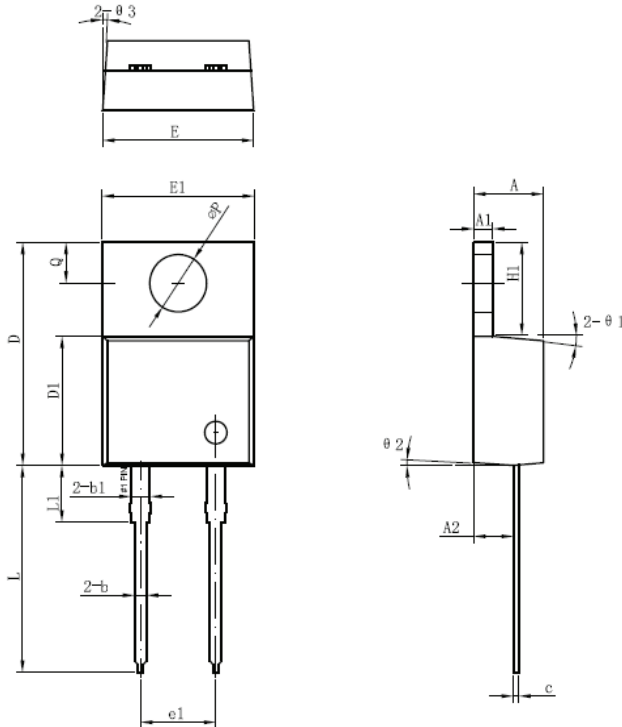
\*xxxxx is YYWWL

- DUR = Device Type
- 30 = Forward Current (30A)
- 120 = Reverse Voltage (1200V)
- LF = Littelfuse
- YY = Year
- WW = Week
- L = Lot Number

### Packing Options

| Part Number | Marking  | Packing Mode | M.O.Q |
|-------------|----------|--------------|-------|
| DUR30120    | DUR30120 | 50pcs /Tube  | 1000  |

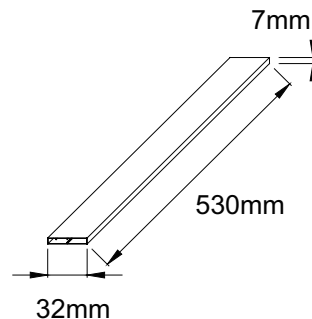
### Dimensions-Package TO-220AC



| Symbol   | Millimeters |       |
|----------|-------------|-------|
|          | Min         | 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        | 9.02  |
| E        | 9.65        | 10.67 |
| H1       | 5.84        | 6.86  |
| L        | 12.70       | 14.73 |
| L1       | -           | 6.35  |
| $\phi$ P | 3.53        | 4.09  |
| Q        | 2.54        | 3.43  |

Footnote \*: The spec. does not comply with JEDEC spec.

### Tube Specification TO-220AC



**Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics).**