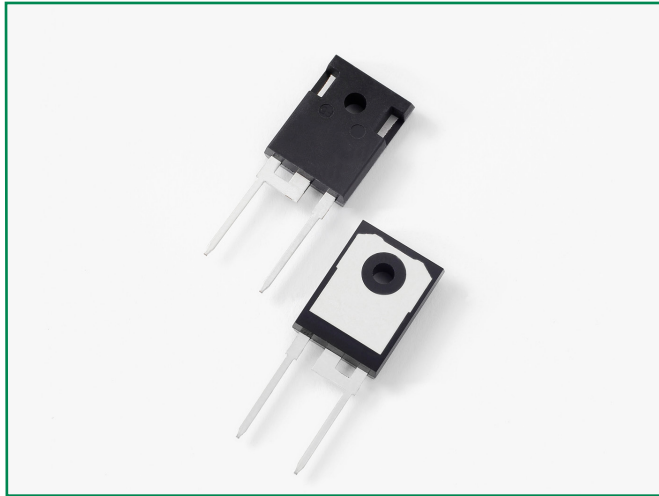


### DUR75120W



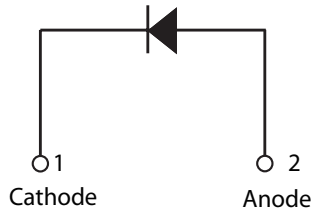
#### Description

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 two-lead TO-247AC package
- 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 Rectified Forward Current (Per Device)        | $I_{F(AV)}$ | 50% duty cycle @ $T_c = 90^\circ\text{C}$ , rectangular wave form | 75   | A    |
| Peak One Cycle Non-Repetitive Surge Current (Per Leg) | $I_{FSM}$   | 8.3 ms, half sine pulse                                           | 500  | A    |

#### Electrical Characteristics

| Characteristics                             | Symbol    | Conditions                                                             | Typ. | Max. | Unit          |
|---------------------------------------------|-----------|------------------------------------------------------------------------|------|------|---------------|
| Forward Voltage Drop (Per Leg) <sup>1</sup> | $V_{F1}$  | @60A, Pulse, $T_J = 25^\circ\text{C}$                                  | -    | 3.5  | V             |
| Reverse Current (Per Leg) <sup>1</sup>      | $I_{R1}$  | @ $V_R = \text{Rated } V_R$ , $T_J = 25^\circ\text{C}$                 | 2.5  | 650  | $\mu\text{A}$ |
|                                             | $I_{R2}$  | @ $V_R = \text{Rated } V_R$ , $T_J = 125^\circ\text{C}$                | 1.4  | -    | $\mu\text{A}$ |
| Reverse Recovery Time (Per Leg)             | $t_{rr1}$ | $I_F = 500\text{mA}$ , $I_R = 1\text{A}$ , and $I_{rm} = 250\text{mA}$ | -    | 100  | ns            |

Footnote <sup>1</sup>: 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 | 0.65          | °C/W |
| Approximate Weight                          | wt              | -            | 6.7           | g    |
| Case Style                                  | -               | TO-247AC     | -             | -    |

Figure 1: Typical Forward Characteristics

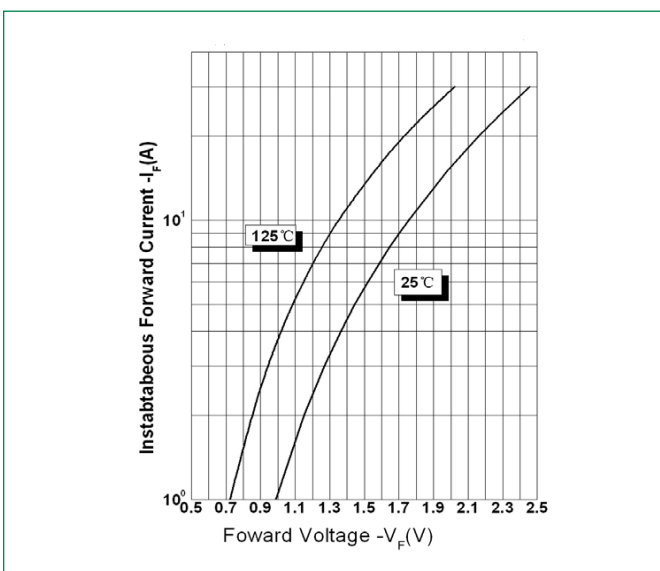


Figure 2: Typical Reverse Characteristics

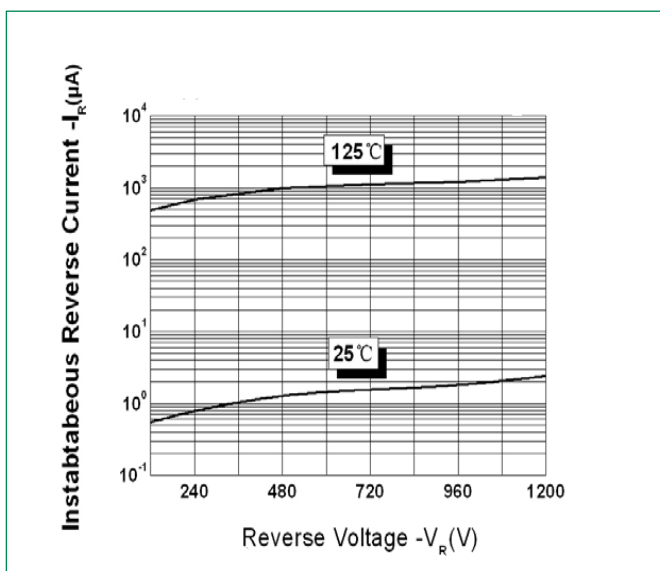
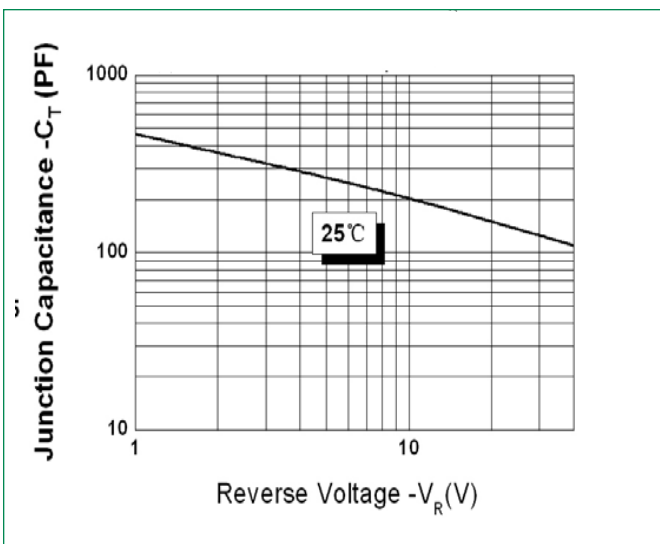
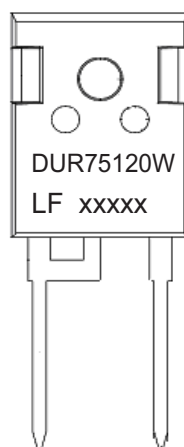


Figure 3: Typical Junction Capacitance



Part Numbering and Marking System



Where XXXXX is YYWWL

DUR = Device Type  
75 = Forward Current (75A)  
120 = Reverse Voltage (1200V)  
W = Configuration  
LF = Littelfuse  
YY = Year  
WW = Week  
L = Lot Number

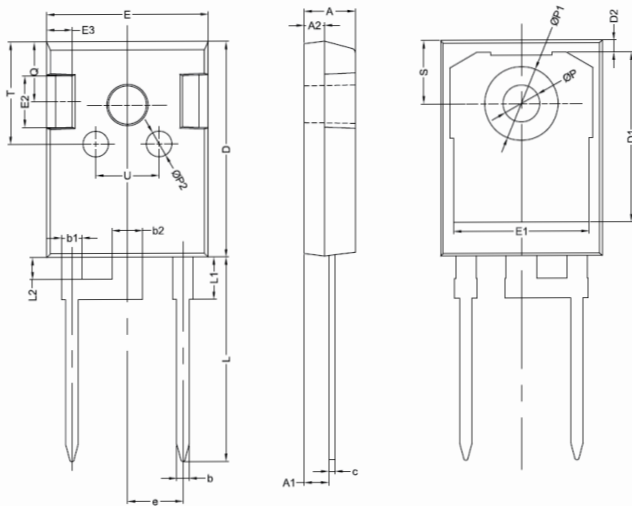
# Ultrafast Recovery Rectifier

## DUR75120W, 75A, 1200V, TO-247AC

### Packing Options

| Part Number | Marking   | Packing Mode | M.O.Q |
|-------------|-----------|--------------|-------|
| DUR75120W   | DUR75120W | 30 pcs/Tube  | 300   |

### Dimensions-Package TO-247AC



| Symbol | Millimeters |       |       |
|--------|-------------|-------|-------|
|        | Min         | Typ   | Max   |
| A      | 4.80        | 5.00  | 5.20  |
| A1     | 2.21        | 2.41  | 2.61  |
| A2     | 1.90        | 2.00  | 2.10  |
| b      | 1.10        | 1.20  | 1.35  |
| b1     | -           | 2.00  | -     |
| b2     | -           | 3.00  | -     |
| c      | 0.55        | 0.60  | 0.75  |
| D      | 20.80       | 21.00 | 21.20 |
| D1     | -           | 16.55 | -     |
| D2     | -           | 1.20  | -     |
| E      | 15.60       | 15.80 | 16.00 |
| E1     | -           | 13.30 | -     |
| E2     | -           | 5.00  | -     |
| E3     | -           | 2.50  | -     |
| e      | -           | 5.44  | -     |
| L      | 19.42       | 19.92 | 20.42 |
| L1     | -           | 4.13  | -     |
| L2     | -           | 2.15  | -     |
| P      | 3.50        | 3.60  | 3.70  |
| P1     | -           | -     | 7.40  |
| P2     | -           | 2.50  | -     |
| Q      | -           | 5.80  | -     |
| S      | 6.05        | 6.15  | 6.25  |
| T      | -           | 10.00 | -     |
| U      | -           | 6.20  | -     |

### Tube Specification TO-247AC

