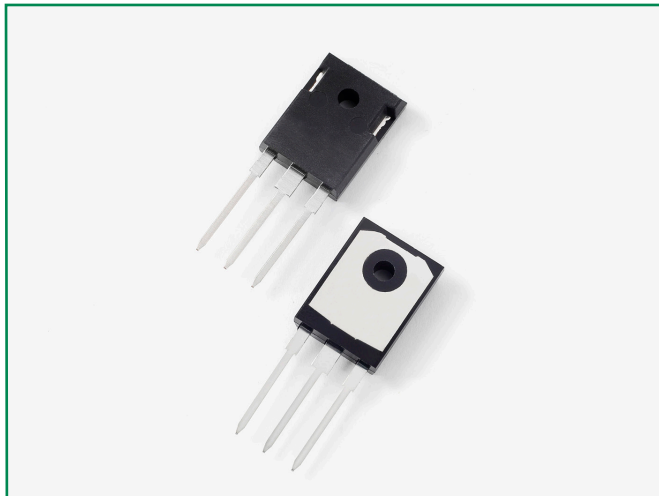


# Ultrafast Recovery Rectifier

DUR6030WT, 2x 30A, 300V, TO-247AD, Common Cathode

DUR6030WT



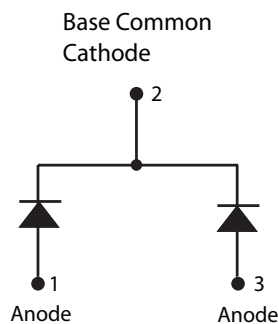
## Description

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
- Common Cathode configuration in TO-247AD 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                                  | $V_{RWM}$   | -  | 300                                | V    |
| Average Rectifier Forward Current                     | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 100^\circ\text{C}$ , rectangular wave form | 30 ( Per Leg)<br>60 (Total Device) | A    |
| Peak One Cycle Non-Repetitive Surge Current (Per Leg) | $I_{FSM}$   | 8.3 ms, half sine pulse  | 400                                | A    |

## Electrical Characteristics

| Characteristics                             | Symbol    | Conditions  | Max. | Unit          |
|---|-----------|---|------|---------------|
| Forward Voltage Drop (Per Leg) <sup>1</sup> | $V_{F1}$  | @30A, Pulse, $T_J = 25^\circ\text{C}$                                     | 1.3  | V             |
|   | $V_{F2}$  | @30A, Pulse, $T_J = 125^\circ\text{C}$                                    | 1.2  | V             |
|   | $V_{F3}$  | @30A, Pulse, $T_J = 150^\circ\text{C}$                                    | 1.1  | V             |
| Reverse Current (Per Leg) <sup>1</sup>      | $I_{R1}$  | @ $V_R = \text{Rated } V_R, T_J = 25^\circ\text{C}$                       | 5.0  | $\mu\text{A}$ |
|   | $I_{R2}$  | @ $V_R = \text{Rated } V_R, T_J = 125^\circ\text{C}$                      | 1.0  | mA            |
| Reverse Recovery Time                       | $t_{rr1}$ | $I_F = 500\text{mA}, I_R = 1\text{A}, \text{ and } I_{rm} = 250\text{mA}$ | 45   | 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 | 2.0           | °C/W |
| Approximate Weight                          | wt              | -            | 6.28          | g    |
| Case Style                                  | -               | TO-247AD     | -             | -    |

Figure 1: Typical Forward Characteristics

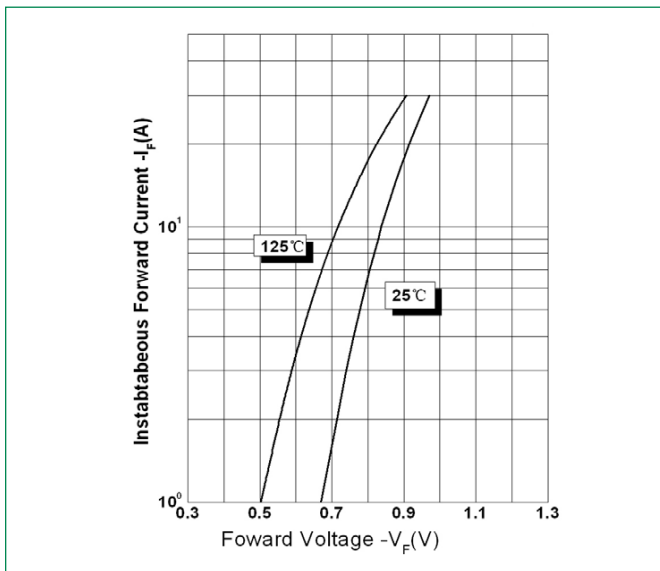


Figure 2: Typical Reverse Characteristics

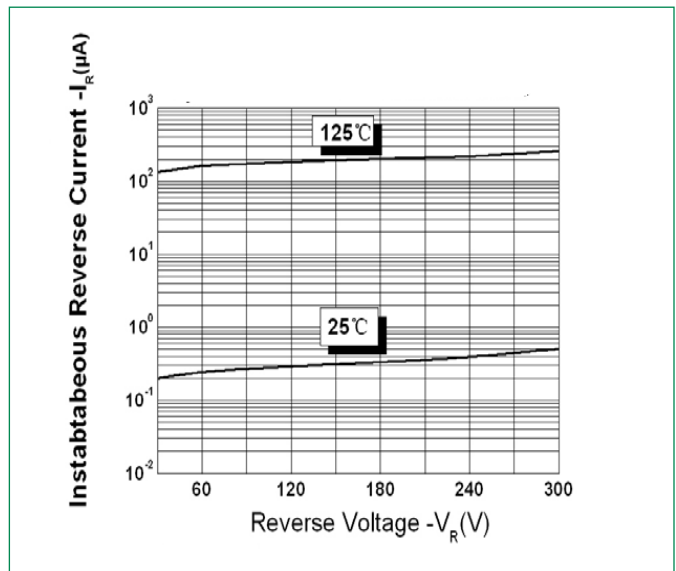
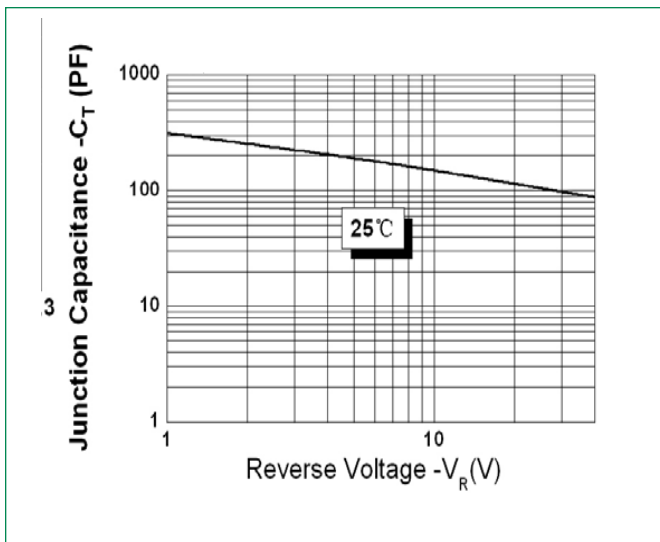
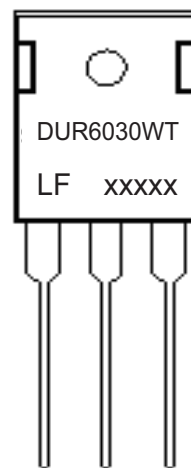


Figure 3: Typical Junction Capacitance



Part Numbering and Marking System



Where XXXXX is YYWWL

- DUR = Device Type
- 60 = Forward Current (60A)
- 30 = Reverse Voltage (300V)
- WT = Configuration
- LF = Littelfuse
- YY = Year
- WW = Week
- L = Lot Number

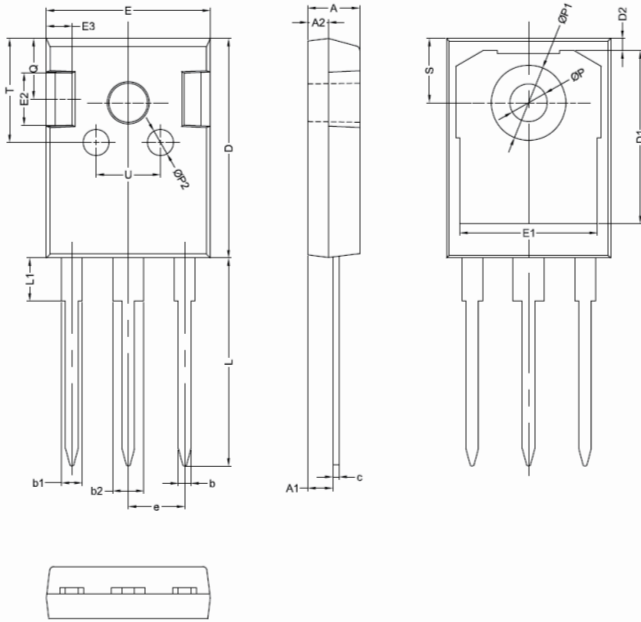
# Ultrafast Recovery Rectifier

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## Packing Options

| Part Number | Marking   | Packing Mode | M.O.Q |
|-------------|-----------|--------------|-------|
| DUR6030WT   | DUR6030WT | 30 pcs/Tube  | 300   |

## Dimensions-Package TO-247AD



| Symbol | Millimeters |         |
|--------|-------------|---------|
|        | Min         | Max     |
| A      | 4.70        | 5.31    |
| A1     | 2.21        | 2.61 *  |
| A2     | 1.50        | 2.49    |
| b      | 0.99        | 1.40    |
| b1     | 1.65        | 2.39    |
| b2     | 2.59        | 3.43    |
| c      | 0.38        | 0.89    |
| D      | 20.30 *     | 21.46   |
| D1     | 13.08       | -       |
| D2     | 0.51        | 1.35    |
| E      | 14.80 *     | 16.26   |
| E1     | 13.46       | -       |
| E2     | 4.32        | 5.49    |
| E3     | 1.45 *      | 2.74    |
| e      | 5.461 BSC   |         |
| L      | 19.42 *     | 20.85 * |
| L1     | -           | 4.60 *  |
| P      | 3.35 *      | 3.70 *  |
| P1     | -           | 7.40 *  |
| Q      | 5.38        | 6.20    |
| S      | 5.83 *      | 6.25 *  |

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

## Tube Specification TO-247AD

