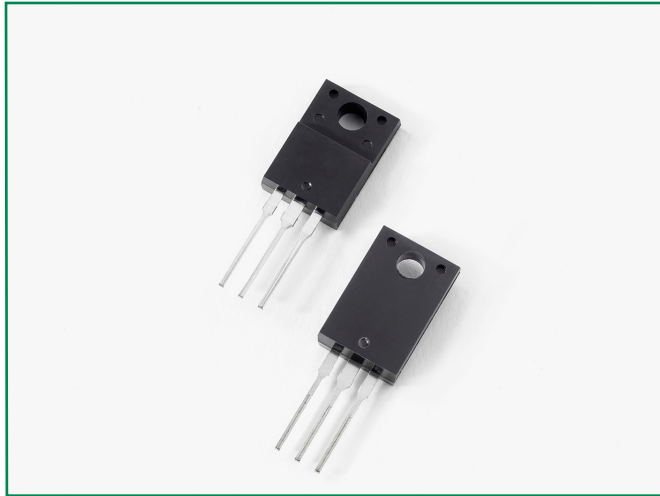


# Ultrafast Recovery Rectifier

DURF1030CT, 2x 5A, 300V, ITO-220AB, Common Cathode

DURF1030CT



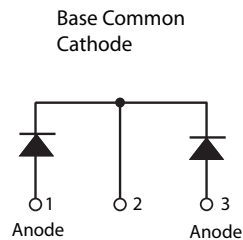
## Description

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 electrically isolated ITO-220AB 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 Forward Current                     | $I_{F(AV)}$ | 50% duty cycle @ $T_c = 112^\circ\text{C}$ , rectangular wave form | 5 ( Per Leg)<br>10 ( Total Device) | A    |
| Peak One Cycle Non-Repetitive Surge Current | $I_{FSM}$   | 8.3 ms, half sine pulse                                            | 80                                 | A    |

## Electrical Characteristics

| Characteristics                 | Symbol    | Conditions                                                             | Max. | Unit          |
|---------------------------------|-----------|------------------------------------------------------------------------|------|---------------|
| Forward Voltage Drop ( Per Leg) | $V_F$     | @ $I_F = 5\text{A}$ , Pulse, $T_J = 25^\circ\text{C}$                  | 1.3  | V             |
| Reverse Current                 | $I_{R1}$  | @ $V_R = \text{Rated } V_R$ , $T_J = 25^\circ\text{C}$                 | 30   | $\mu\text{A}$ |
|                                 | $I_{R2}$  | @ $V_R = \text{Rated } V_R$ , $T_J = 125^\circ\text{C}$                | 250  |               |
| Max. Reverse Recovery Time      | $t_{rr1}$ | $I_F = 500\text{mA}$ , $I_R = 1\text{A}$ , 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 | 3.5           | °C/W |
| Approximate Weight                          | wt              | -            | 2.0           | g    |
| Case Style                                  | -               | ITO-220AB    | -             | -    |

Figure 1: Typical Forward Characteristics

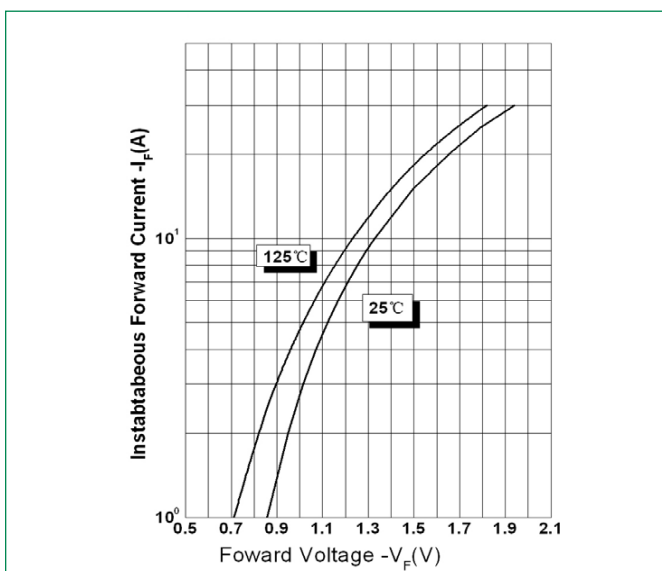


Figure 2: Typical Reverse Characteristics

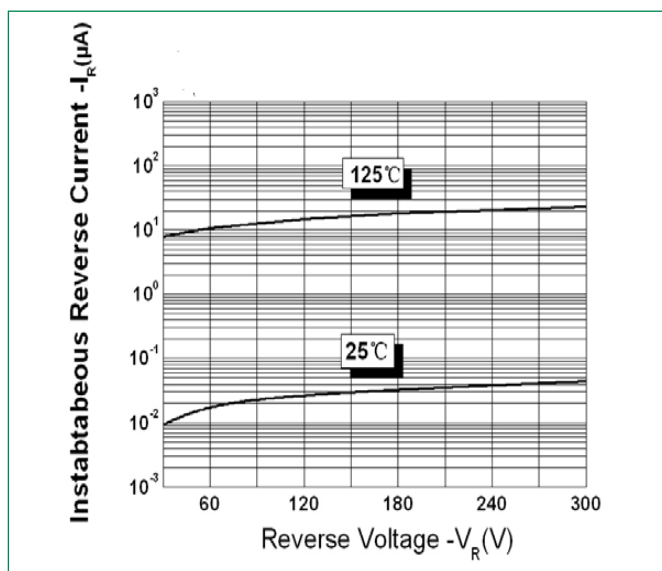
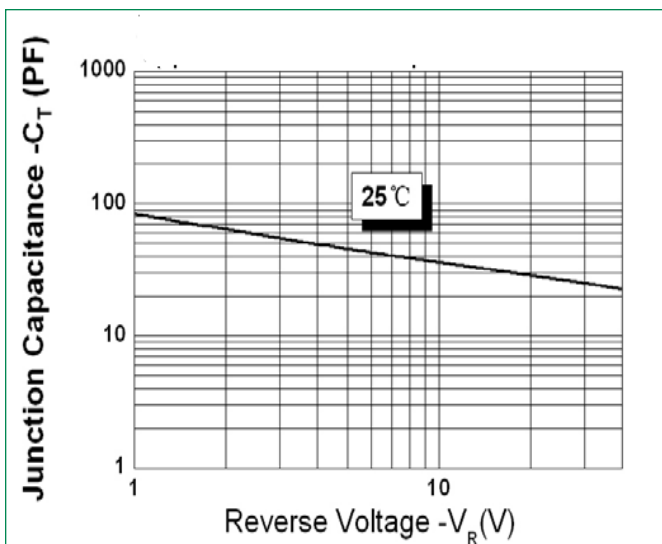
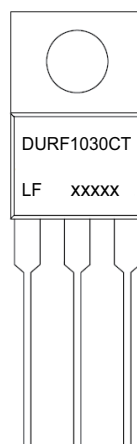


Figure 3: Typical Junction Capacitance



Part Numbering and Marking System



\*xxxxx is YYWWL

DUR = Device Type  
 F = Package type  
 10 = Forward Current (10A)  
 30 = Reverse Voltage (300V)  
 CT = Configuration  
 LF = Littelfuse  
 YY = Year  
 WW = Week  
 L = Lot Number

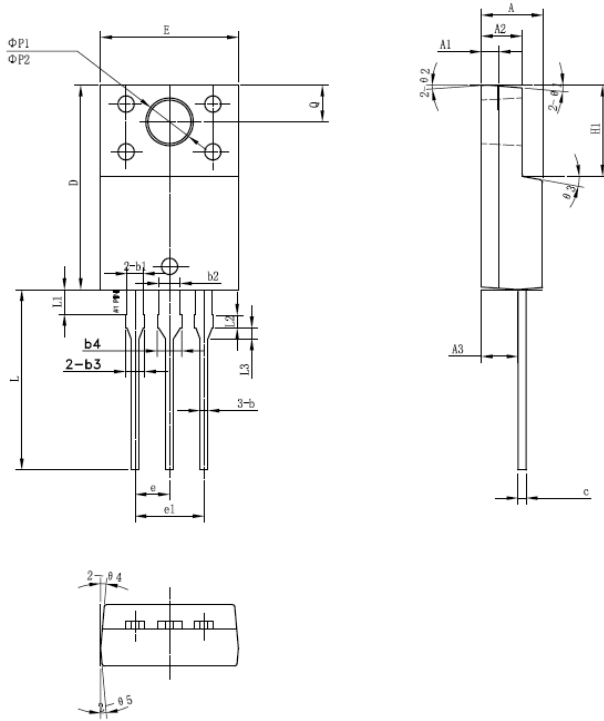
# Ultrafast Recovery Rectifier

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## Packing Options

| Part Number | Marking    | Packing Mode | M.O.Q |
|-------------|------------|--------------|-------|
| DURF1030CT  | DURF1030CT | 50pcs /Tube  | 1000  |

## Dimensions-Package ITO-220AB



| 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  |
| b3     | 1.20        | 1.30  | 1.45  |
| b4     | 1.60        | 1.70  | 1.85  |
| c      | 0.55        | 0.60  | 0.75  |
| D      | 14.80       | 15.00 | 15.20 |
| E      | 9.96        | 10.16 | 10.36 |
| e      |             | 2.55  |       |
| e1     |             | 5.10  |       |
| 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  |
| øP1    | 3.30        | 3.50  | 3.70  |
| øP2    | 2.99        | 3.19  | 3.39  |
| Q      | 2.50        | 2.70  | 2.90  |
| θ1     |             | 5°    |       |
| θ2     |             | 4°    |       |
| θ3     |             | 10°   |       |
| θ4     |             | 5°    |       |
| θ5     |             | 5°    |       |

## Tube Specification ITO-220AB

