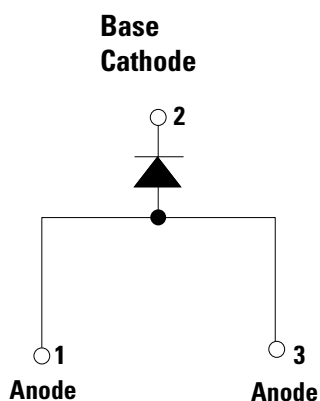


# DURD560A



### Circuit Diagram



### 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 surface
- mount TO-252 (DPAK) 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)

### 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                                  | $V_{RWM}$   | -                                                                  | 600  | V    |
| Average Forward Current (per device)                  | $I_{O(AV)}$ | 50% duty cycle @ $T_c = 100^\circ\text{C}$ , rectangular wave form | 5    | A    |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | $I_{FSM}$   | 8.3 ms, half sine pulse                                            | 60   | A    |

### Electrical Characteristics

| Characteristics                               | Symbol    | Conditions                                                             | Typ. | Max. | Unit          |
|-----------------------------------------------|-----------|------------------------------------------------------------------------|------|------|---------------|
| Forward Voltage Drop ( Per Leg ) <sup>1</sup> | $V_{F1}$  | @5A, Pulse, $T_j = 25^\circ\text{C}$                                   | 1.50 | 1.70 | V             |
|                                               | $V_{F2}$  | @5A, Pulse, $T_j = 125^\circ\text{C}$                                  | 1.41 | 1.50 | V             |
| Reverse Current ( Per Leg ) <sup>1</sup>      | $I_{R1}$  | @ $V_R$ = Rated $V_R$ , $T_j = 25^\circ\text{C}$                       | 0.10 | 5    | $\mu\text{A}$ |
|                                               | $I_{R2}$  | @ $V_R$ = Rated $V_R$ , $T_j = 125^\circ\text{C}$                      | 52   | 500  | $\mu\text{A}$ |
| Reverse Recovery Time ( Per Leg )             | $t_{rr1}$ | $I_F = 500\text{mA}$ , $I_R = 1\text{A}$ , and $I_{rm} = 250\text{mA}$ | -    | 35   | 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 | $R_{\theta JC}$ | -             | 4.5           | °C/W |
| Approximate Weight                          | wt              | -             | 0.39          | g    |
| Case Style                                  | -               | DPAK (TO-252) | -             | -    |

Figure 1: Typical Forward Characteristics

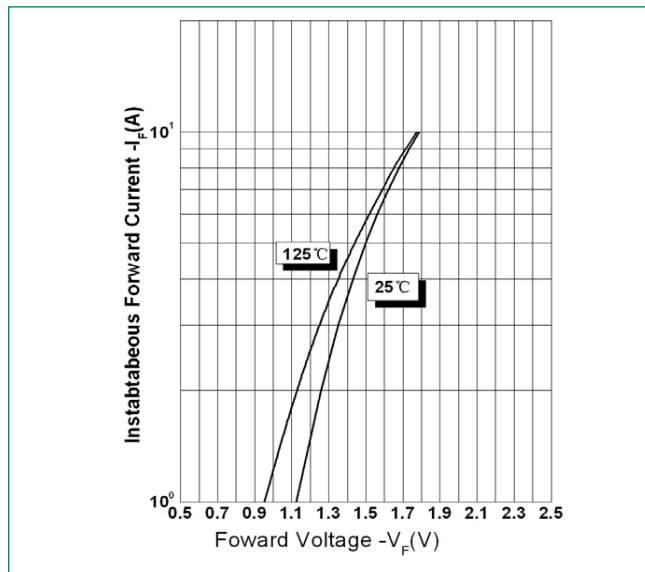


Figure 2: Typical Reverse Characteristics

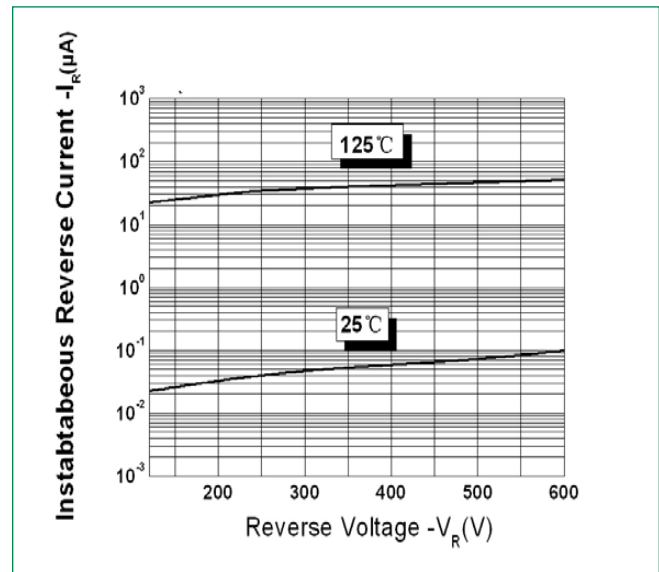
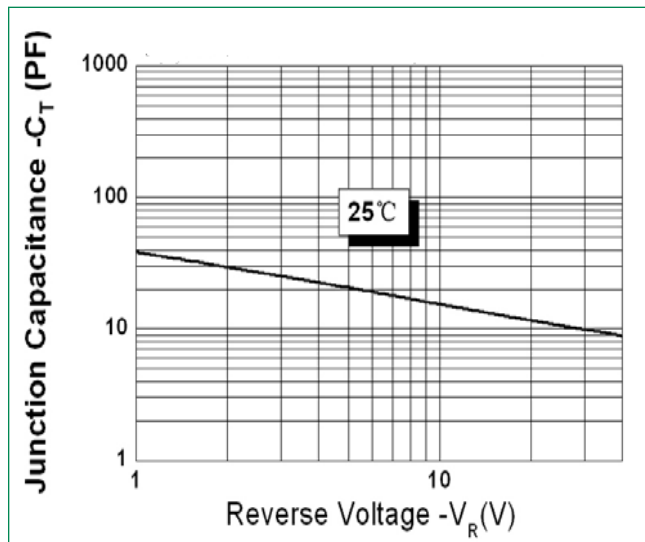
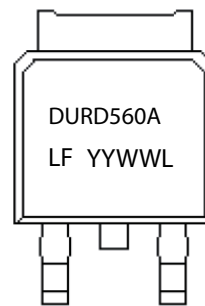


Figure 3: Typical Junction Capacitance



Part Numbering and Marking System

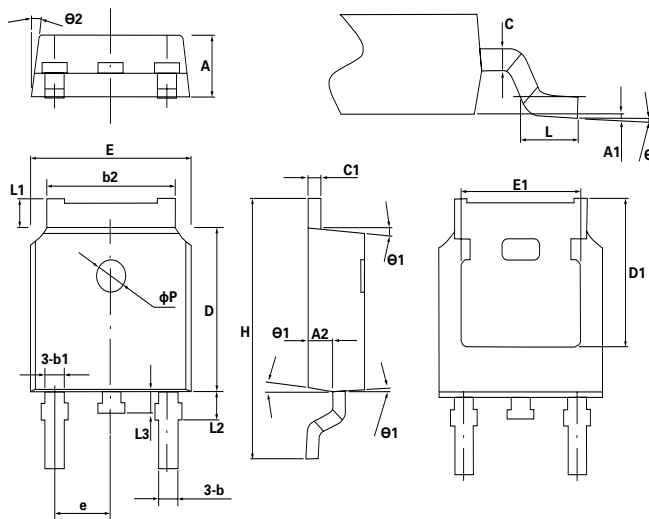


|     |                          |
|-----|--------------------------|
| DUR | = Device Type            |
| D   | = Package type           |
| 5   | = Forward Current (5A)   |
| 60  | = Reverse Voltage (600V) |
| A   | = A                      |
| LF  | = Littelfuse             |
| YY  | = Year                   |
| WW  | = Week                   |
| L   | = Lot Number             |

## Packing Options

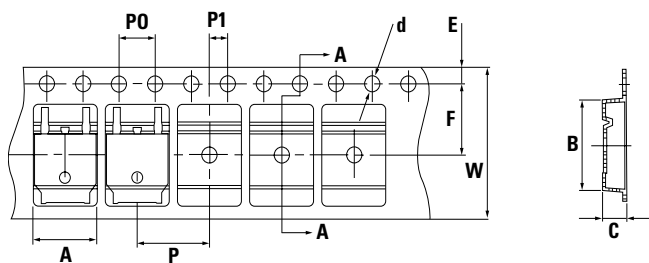
| Part Number | Marking  | Packing Mode   | M.O.Q |
|-------------|----------|----------------|-------|
| DURD560A    | DURD560A | 2500pcs / reel | 2500  |

## Dimensions-DPAK(TO-252)



| Symbol    | Min.     | Typ. | Max.. |
|-----------|----------|------|-------|
| <b>A</b>  | 2.2      | 2.3  | 2.38  |
| <b>A1</b> | 0        | -    | 0.1   |
| <b>A2</b> | 0.9      | 1.01 | 1.1   |
| <b>b</b>  | 0.71     | 0.76 | 0.86  |
| <b>b1</b> |          | 0.76 |       |
| <b>b2</b> | 5.13     | 5.33 | 5.46  |
| <b>c</b>  | 0.47     | 0.5  | 0.6   |
| <b>c1</b> | 0.47     | 0.5  | 0.6   |
| <b>D</b>  | 6        | 6.1  | 6.2   |
| <b>D1</b> | -        | 5.3  | -     |
| <b>E</b>  | 6.5      | 6.6  | 6.7   |
| <b>E1</b> | -        | 4.8  | -     |
| <b>e</b>  | 2.286BSC |      |       |
| <b>H</b>  | 9.7      | 10.1 | 10.4  |
| <b>L</b>  | 1.4      | 1.5  | 1.7   |
| <b>L1</b> | 0.9      | -    | 1.25  |
| <b>L2</b> |          | 1.05 |       |
| <b>L3</b> |          | 0.8  |       |
| <b>øP</b> |          | 1.2  |       |
| <b>Ø</b>  | 0°       | -    | 8°    |
| <b>Ø1</b> | 5°       | 7°   | 9°    |
| <b>Ø2</b> | 5°       | 7°   | 9°    |

## Carrier Tape & Reel Specification



| Symbol | Millimeters |       |
|--------|-------------|-------|
|        | Min         | Max   |
| A      | 6.80        | 7.00  |
| B      | 10.40       | 10.60 |
| C      | 2.60        | 2.80  |
| d      | ø1.45       | ø1.65 |
| E      | 1.65        | 1.85  |
| F      | 7.40        | 7.60  |
| P0     | 3.90        | 4.10  |
| P      | 7.90        | 8.10  |
| P1     | 1.90        | 2.10  |
| W      | 15.50       | 16.50 |