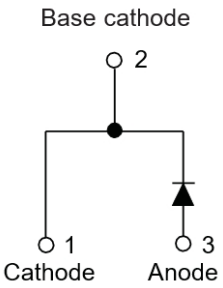
# Ultra-Fast Recovery Diodes 30A FRED Pt




## Features

- Adopt FRED chip
- Low forward Voltage drop
- Fast reverse recovery time
- High frequency operation
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability

## Typical Applications

●Typical applications are in switching power supplies, . converters, freewheeling diodes, and reverse battery protection.

## Mechanical Data

- **Package**: TO-247AC
  Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity**: As marked

## ■Maximum Ratings (Tj=25℃ Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | MURL3060P |
|---|---|---|---|
| Device marking code | | | MURL3060P |
| Repetitive Peak Reverse Voltage | $V_{RRM}$ | V | 600 |
| Average Rectified Output Current @60Hz sine wave, R-load, $T_C$(FIG.1) | $I_O$ | A | 30 |
| Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, $T_j$=25℃ | $I_{FSM}$ | A | 300 |
| Current Squared Time @1ms≤t≤8.3ms Tj=25℃, | $I^2t$ | $A^2s$ | 373 |
| Storage Temperature | Tstg | ℃ | -55 ~ +175 |
| Junction Temperature | Tj | ℃ | -55 ~ +175 |
| Typical Junction capacitance @4V,1MHz | Cj | pF | 197 |

## ■Electrical Characteristics

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | | Min | Typ | Max |
|---|---|---|---|---|---|---|---|
| Instantaneous forward voltage drop per diode | $V_{FM}$ | V | $I_{FM}$=30.0A @Tj=25℃ | | - | 1.25 | 1.80 |
| | | | $I_{FM}$=30.0A @Tj=125℃ | | | 1.11 | 1.50 |
| DC reverse current at rated DC blocking voltage per diode | $I_{RRM1}$ | uA | $V_{RM}$=$V_{RRM}$ Tj=25℃ | | - | - | 5.0 |
| | $I_{RRM2}$ | | $V_{RM}$=$V_{RRM}$ Tj=125℃ | | - | - | 200 |
| Reverse Recovery Time | Trr | ns | $I_F$=0.5A $I_{RM}$=1A $I_{RR}$=0.25A Tj=25℃ | | - | 40 | 75 |
| | | | Tj=25℃ | $I_F$=30A di/dt=-200A/us $V_{RM}$=400V | - | 100 | - |
| | | | Tj=125℃ | | - | 175 | - |
| Peak recovery current | $I_{RRM}$ | A | Tj=25℃ | | - | 7.50 | - |
| | | | Tj=125℃ | | - | 16.76 | - |
| Reverse recovery charge | Qrr | nC | Tj=25℃ | | - | 375 | - |
| | | | Tj=125℃ | | - | 1450 | - |

## ■Thermal Characteristics （Tj=25℃ Unless otherwise specified）

| PARAMETER | | SYMBOL | UNIT | MURL3060P |
|---|---|---|---|---|
| Thermal Resistance | Between junction and case | $R_{\theta J-C}$ | ℃/W | 1.0 |
| | Between junction and Air | $R_{\theta J-A}$ | ℃/W | 50 |

## ■ Characteristics(Typical)

FIG1:Io -Tc Curve

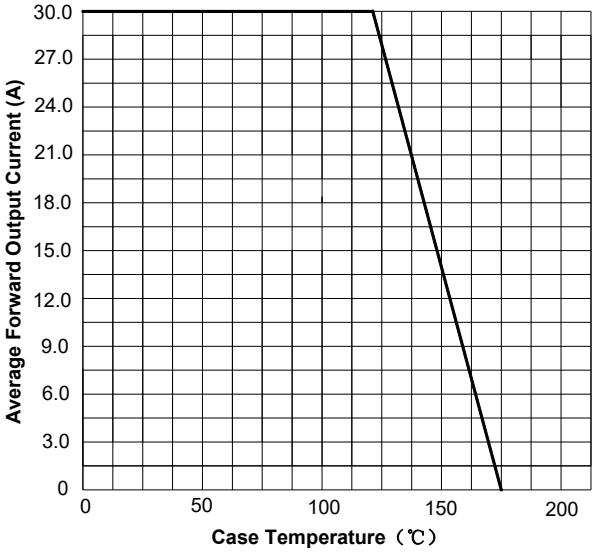



FIG2:Surge Forward Current Capability

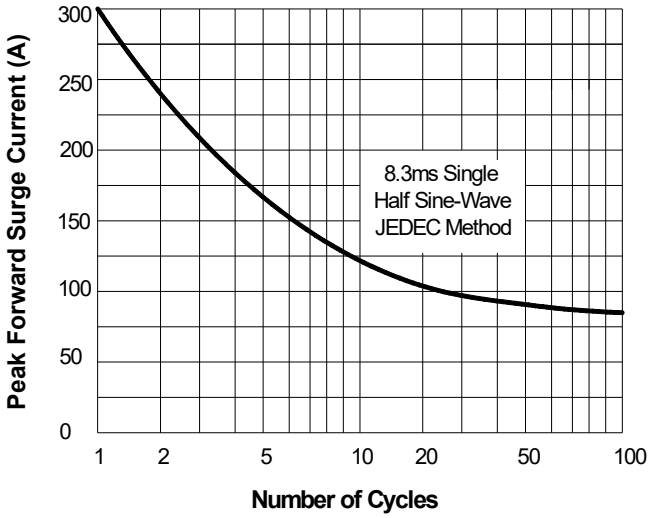


**FIG3: Forward Voltage**

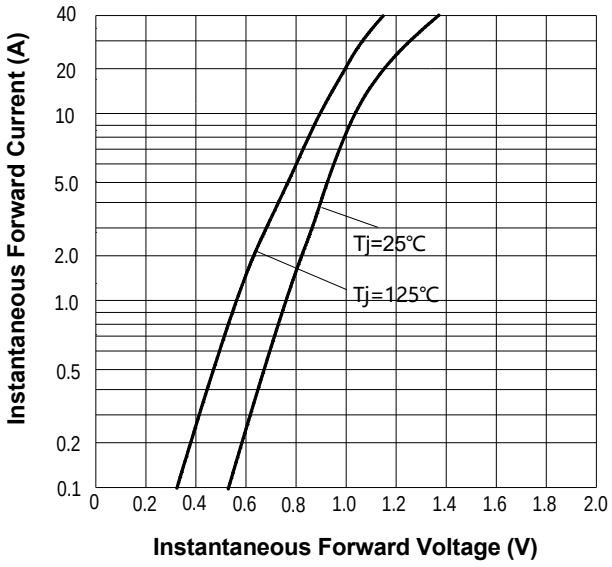



**FIG.4: Instantaneous Reverse Characteristics**

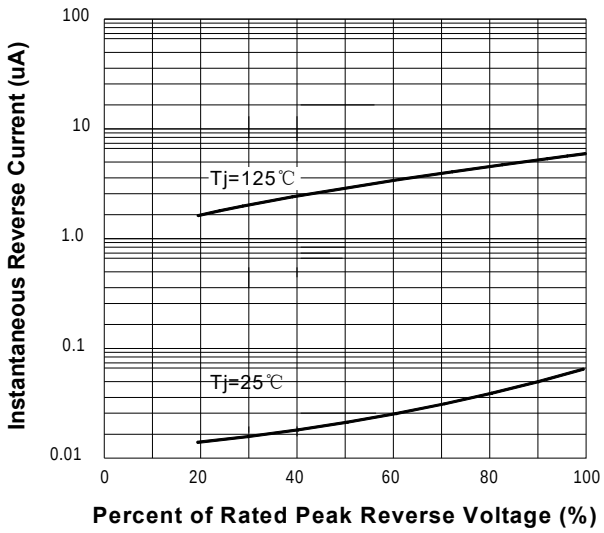
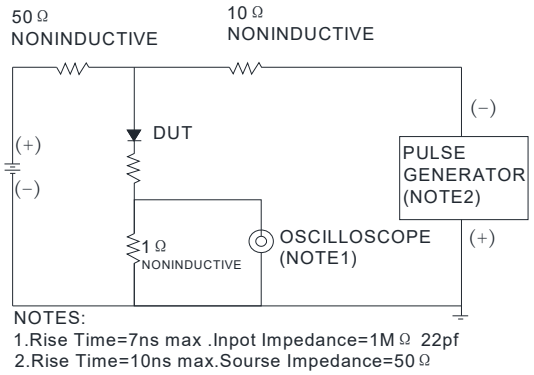
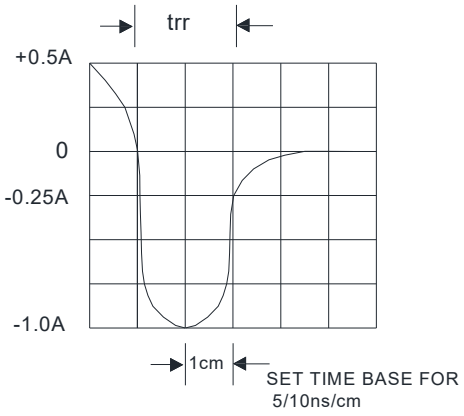
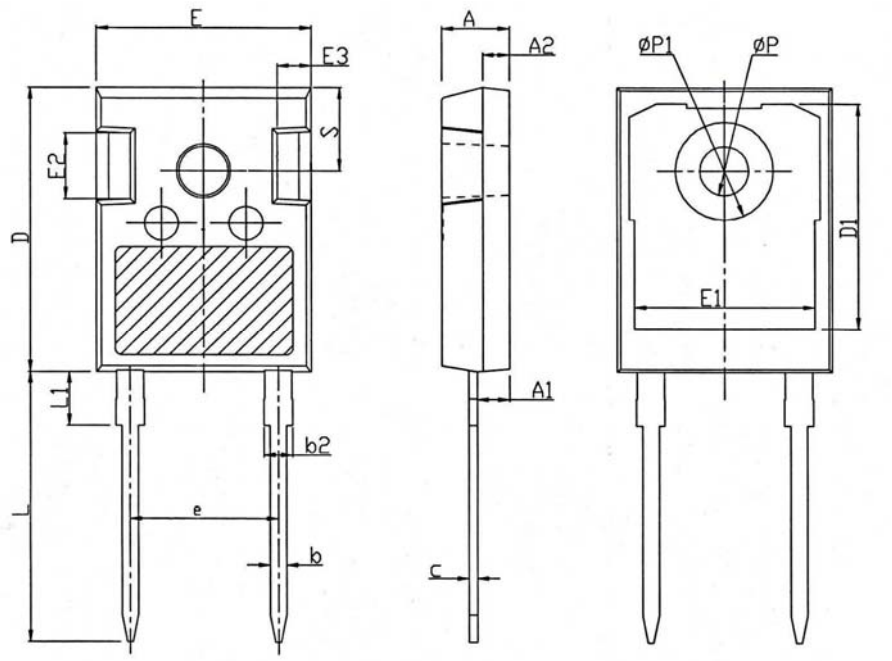



**FIG.5: Diagram of circuit and Testing wave form of reverse recovery time**



## ■ Outline Dimensions




| TO247-AC | | |
|---|---|---|
| Dim | Min | Max |
| A | 4.80 | 5.20 |
| A1 | 2.21 | 2.61 |
| A2 | 1.85 | 2.15 |
| b | 1.11 | 1.36 |
| b2 | 1.91 | 2.21 |
| c | 0.51 | 0.75 |
| D | 20.70 | 21.30 |
| D1 | 16.25 | 16.85 |
| E | 15.50 | 16.10 |
| E1 | 13.00 | 13.60 |
| E2 | 4.80 | 5.20 |
| E3 | 2.30 | 2.70 |
| e | 10.88 TYP | |
| L | 19.62 | 20.22 |
| L1 | - | 4.30 |
| φP | 3.40 | 3.80 |
| φP1 | - | 7.30 |
| S | 6.15 TYP | |

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