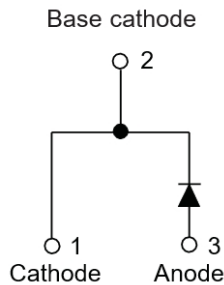


## Ultra-Fast Recovery Diodes 30A FRED Pt



### 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, -
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** As marked

### ■Maximum Ratings (T<sub>j</sub>=25°C Unless otherwise specified)

| PARAMETER                                                                                   | SYMBOL           | UNIT             | MURL3065P  |
|---------------------------------------------------------------------------------------------|------------------|------------------|------------|
| Device marking code                                                                         |                  |                  | MURL3065P  |
| Repetitive Peak Reverse Voltage                                                             | V <sub>RRM</sub> | V                | 650        |
| Average Rectified Output Current<br>@60Hz sine wave, R-load, T <sub>c</sub> (FIG.1)         | I <sub>O</sub>   | A                | 30         |
| Surge(Non-repetitive)Forward Current<br>@60Hz half sine-wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A                | 450        |
| Current Squared Time @1ms≤t≤8.3ms T <sub>j</sub> =25°C                                      | I <sup>2</sup> t | A <sup>2</sup> s | 840        |
| Single Pulse Avalanche Energy<br>@ T <sub>j</sub> =25°C,L=15mH                              | EAS              | mJ               | 261        |
| Storage Temperature                                                                         | T <sub>stg</sub> | °C               | -55 ~ +175 |
| Junction Temperature                                                                        | T <sub>j</sub>   | °C               | -55 ~ +175 |
| Typical Junction capacitance @4V,1MHz                                                       | C <sub>j</sub>   | pF               | 190        |
| Mounting torque<br>@recommend torque: 5kg·cm Tor kg·cm                                      | Tor              | kg·cm            | 8          |

## ■Electrical Characteristics

| PARAMETER                                                 | SYMBOL     | UNIT    | TEST CONDITIONS                                            | Min | Typ   | Max  |
|-----------------------------------------------------------|------------|---------|------------------------------------------------------------|-----|-------|------|
| Instantaneous forward voltage drop per diode              | $V_{FM}$   | V       | $I_{FM}=30.0A$ @ $T_j=25^{\circ}C$                         | -   | 1.55  | 2.00 |
|                                                           |            |         | $I_{FM}=30.0A$ @ $T_j=150^{\circ}C$                        |     | 1.25  | 1.60 |
| DC reverse current at rated DC blocking voltage per diode | $I_{RRM1}$ | $\mu A$ | $V_{RM}=V_{RRM}$<br>$T_j=25^{\circ}C$                      | -   | -     | 5.0  |
|                                                           | $I_{RRM2}$ |         | $V_{RM}=V_{RRM}$<br>$T_j=150^{\circ}C$                     | -   | -     | 200  |
| Reverse Recovery Time                                     | $T_{rr}$   | ns      | $I_F=0.5A$ $I_{RM}=1A$<br>$I_{RR}=0.25A$ $T_j=25^{\circ}C$ | -   | 38    | 50   |
|                                                           |            |         | $T_j=25^{\circ}C$                                          | -   | 100   | -    |
|                                                           |            |         | $T_j=125^{\circ}C$                                         | -   | 162   | -    |
| Peak recovery current                                     | $I_{RRM}$  | A       | $T_j=25^{\circ}C$                                          | -   | 5.15  | -    |
|                                                           |            |         | $T_j=125^{\circ}C$                                         | -   | 12.88 | -    |
| Reverse recovery charge                                   | $Q_{rr}$   | nC      | $T_j=25^{\circ}C$                                          | -   | 262   | -    |
|                                                           |            |         | $T_j=125^{\circ}C$                                         | -   | 1043  | -    |

## ■Thermal Characteristics ( $T_j=25^{\circ}C$ Unless otherwise specified )

| PARAMETER          |                           | SYMBOL           | UNIT          | MURL3065P |
|--------------------|---------------------------|------------------|---------------|-----------|
| Thermal Resistance | Between junction and case | $R_{\theta J-C}$ | $^{\circ}C/W$ | 1.0       |
|                    | Between junction and Air  | $R_{\theta J-A}$ | $^{\circ}C/W$ | 50        |

## ■ Characteristics(Typical)

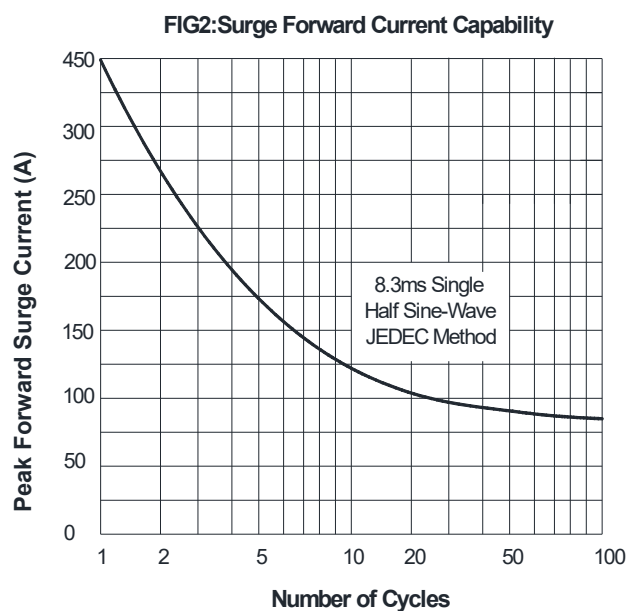
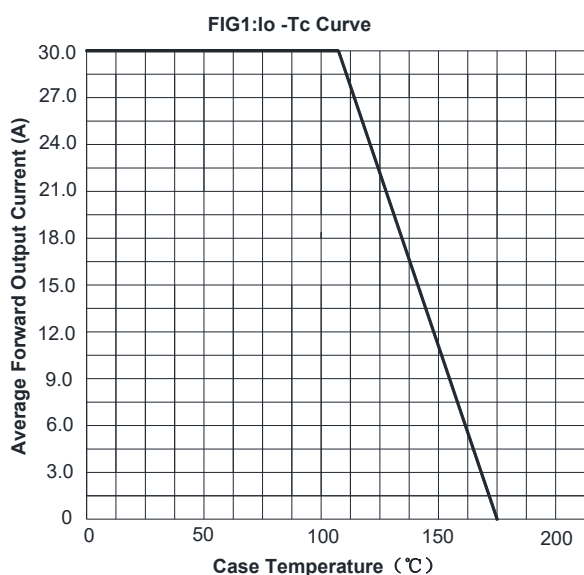


FIG3: Forward Voltage

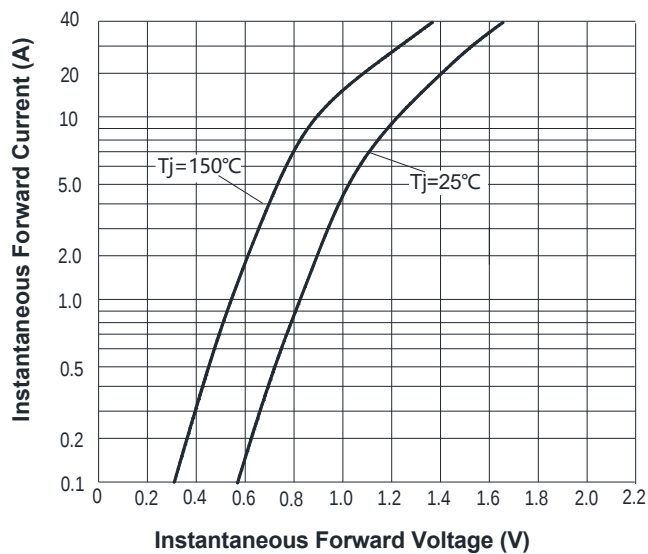


FIG.4: Instantaneous Reverse Characteristics

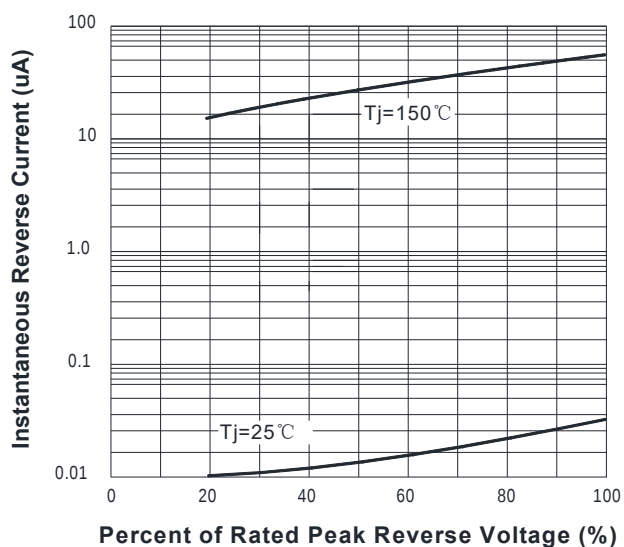
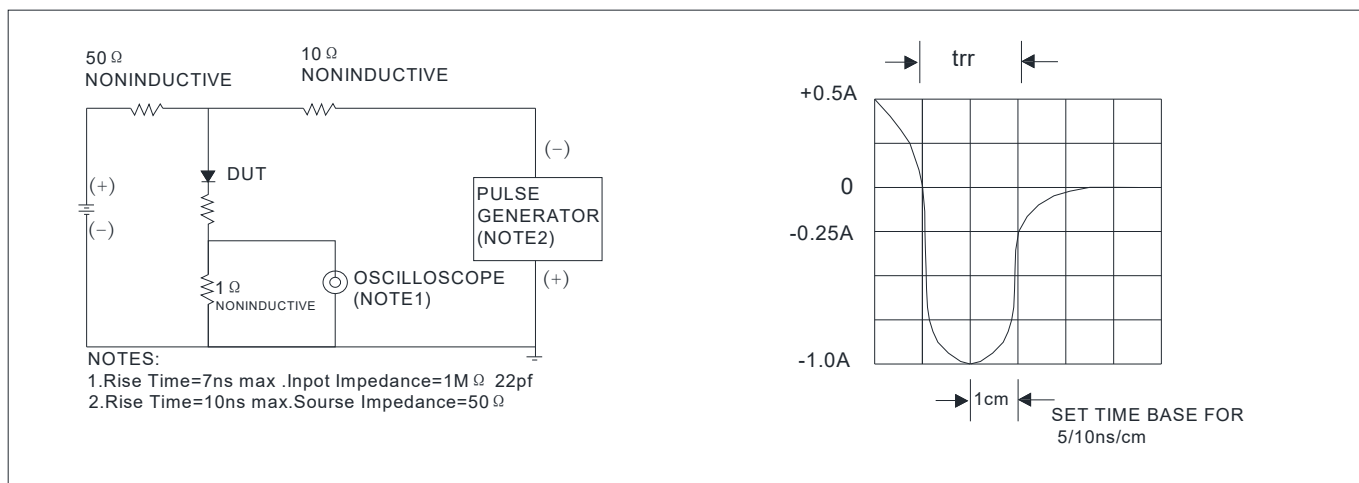
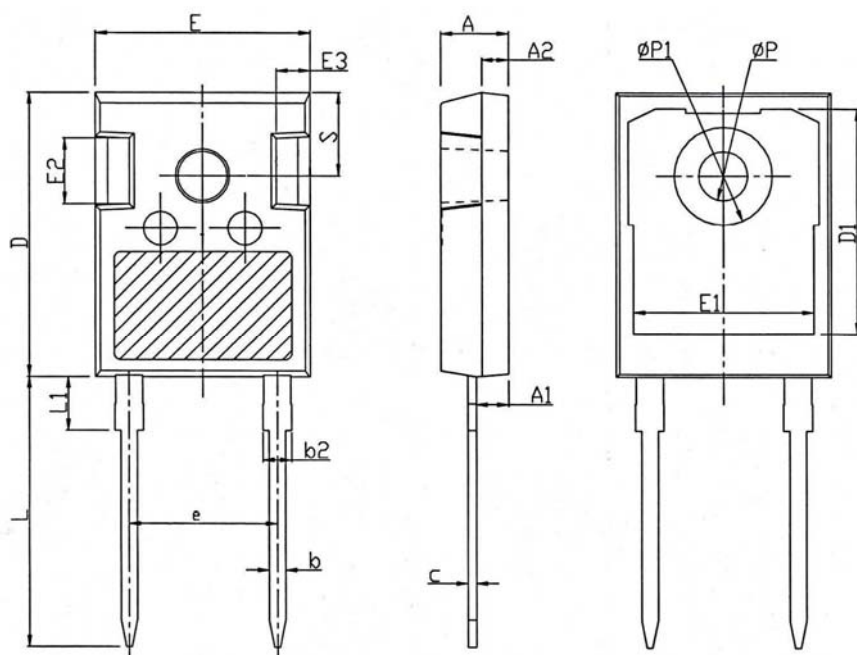


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■ Outline Dimensions



| TO-247AC |           |       |
|----------|-----------|-------|
| 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  |
| ØP       | 3.40      | 3.80  |
| ØP1      | -         | 7.30  |
| S        | 6.15 TYP  |       |

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