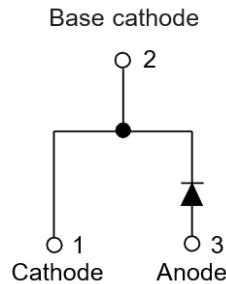


Ultra-Fast Recovery Rectifier Diodes



Features

- High frequency operation
- High surge forward current capability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Guard ring for enhanced ruggedness and long term reliability
- Solder dip 275 °C max. 7 s, per JESD 22-B106

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 (T_j=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | MUR30120PL |
|--|------------------|-------------------|------------|
| Device marking code | | | MUR30120PL |
| Repetitive Peak Reverse Voltage | VRRM | V | 1200 |
| Average Rectified Output Current @60Hz half 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°C | I _{FSM} | A | 210 |
| Current Squared Time @1ms≤t≤8.3ms T _j =25°C | I ² t | A ² s. | 183 |
| Single Pulse Avalanche Energy @ T _p =40uS, T _j =25°C, L=15mH | EAS | mJ | 2.7 |
| Storage Temperature | T _{stg} | °C | -55 ~ +175 |
| Junction Temperature | T _j | °C | -55 ~ +175 |
| Typical Junction capacitance @4V, 1MHz | C _j | pF | 97 |



MUR30120PL

■Electrical Characteristics (T_j=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | Min | Typ | Max |
|---|-------------------|------|---|--|------|------|
| instantaneous forward voltage drop per diode | V _{FM} | V | I _{FM} =30.0A T _j =25°C | - | 2.8 | 3.3 |
| | | | I _{FM} =30.0A T _j =125°C | - | 2.1 | 2.8 |
| DC reverse current at rated DC blocking voltage per diode | I _{RRM1} | μA | V _{RM} =V _R RM T _j =25°C | - | - | 5.0 |
| | I _{RRM2} | | V _{RM} =V _R RM T _j =125°C | - | - | 200 |
| Reverse Recovery Time | T _{rr} | ns | I _F =0.5A I _{RM} =1A I _{RR} =0.25A T _j =25°C | - | 38 | 70 |
| | | | T _j =25°C | - | 185 | - |
| | | | T _j =125°C | - | 272 | - |
| Peak recovery current | I _{RRM} | A | T _j =25°C | - | 5.4 | - |
| | | | T _j =125°C | I _F =30A di/dt=-200A/μs V _{RM} =400V | - | 12.6 |
| Reverse recovery charge | Q _{rr} | nC | T _j =25°C | - | 509 | - |
| | | | T _j =125°C | - | 1722 | - |

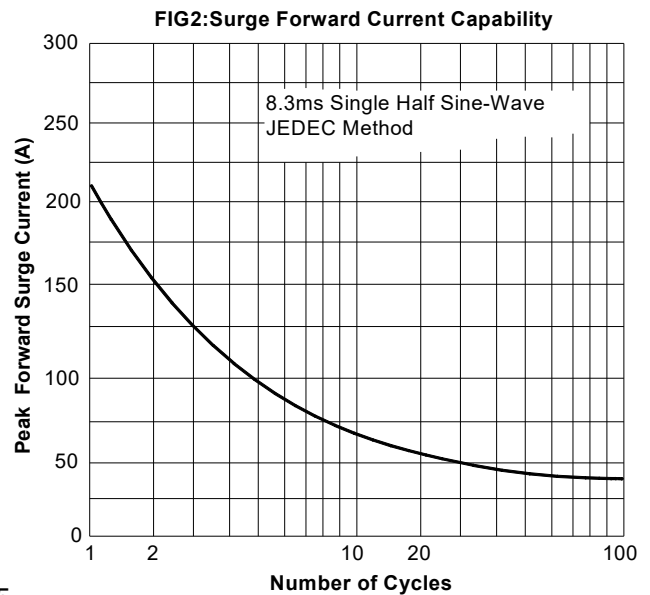
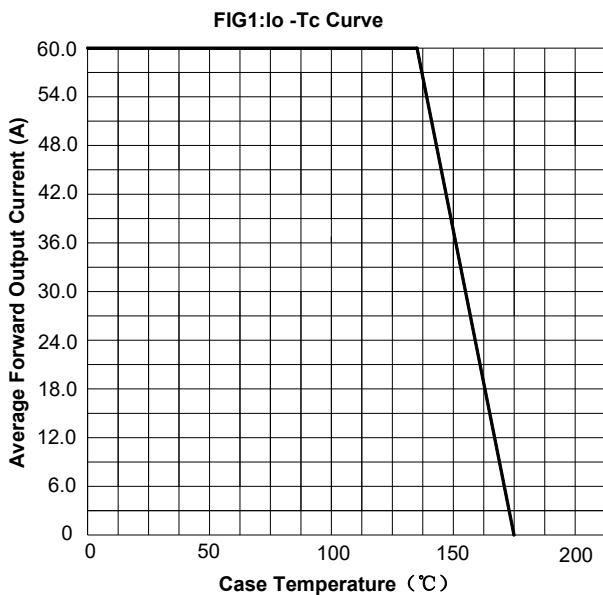
■Thermal Characteristics (T_j=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | MUR30120PL |
|---|------------------|------|------------|
| Thermal Resistance Between junction and case | R _{θJC} | °CW | 0.4 |

■Ordering Information (Example)

| PREFERRED P/N | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|-----------------|----------------------|-------------------------|----------------------------|---------------|
| MUR30120PL | Approximate 6.0 | 30 | 360 | 1800 | Tube |

■Characteristics (Typical)





MUR30120PL

FIG3: Forward Voltage

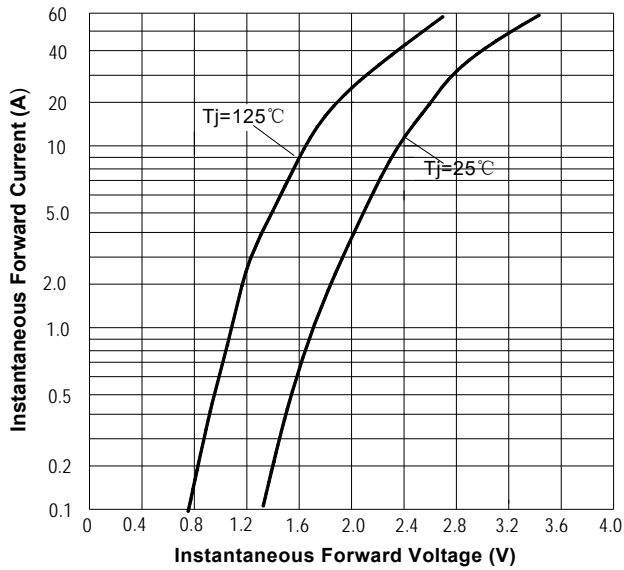


FIG4: Typical Reverse Characteristics

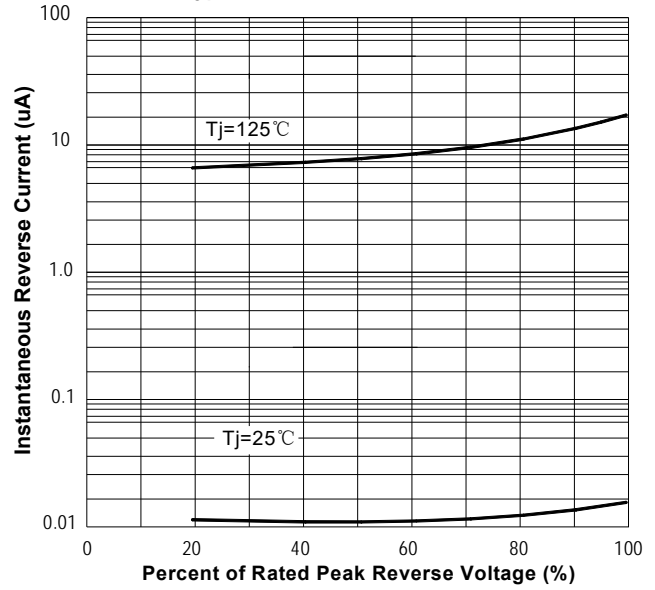
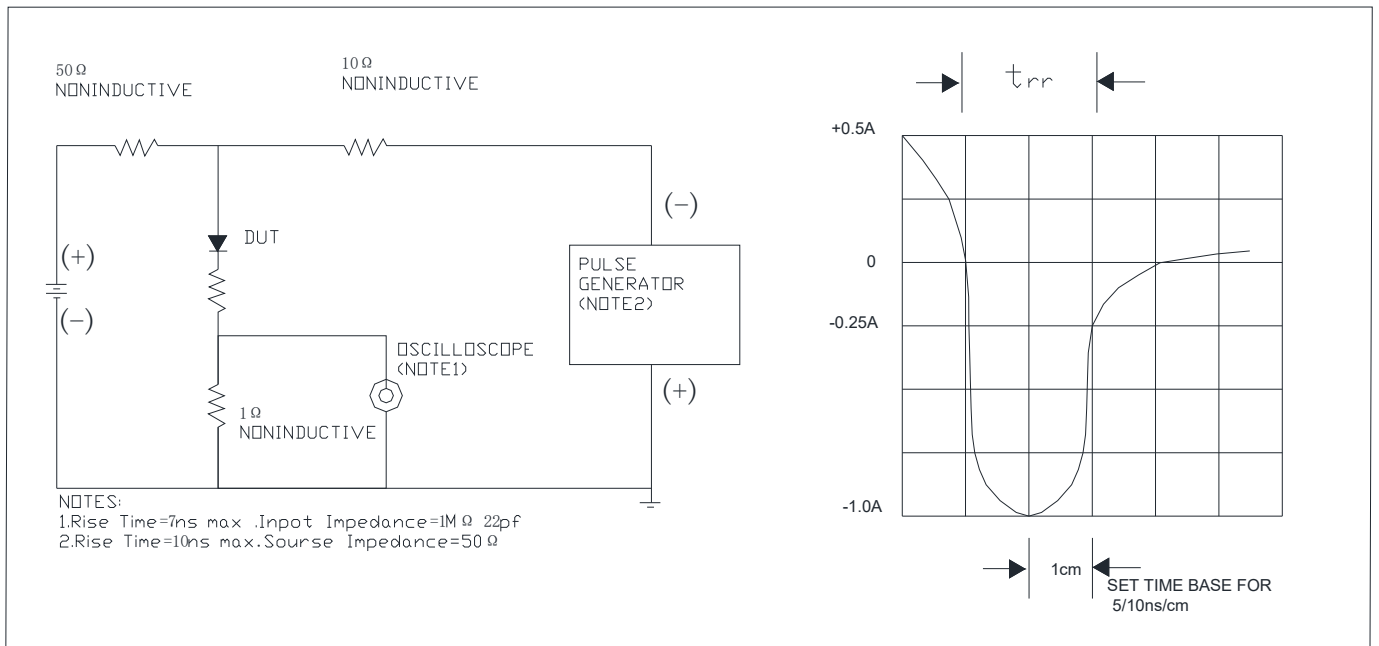


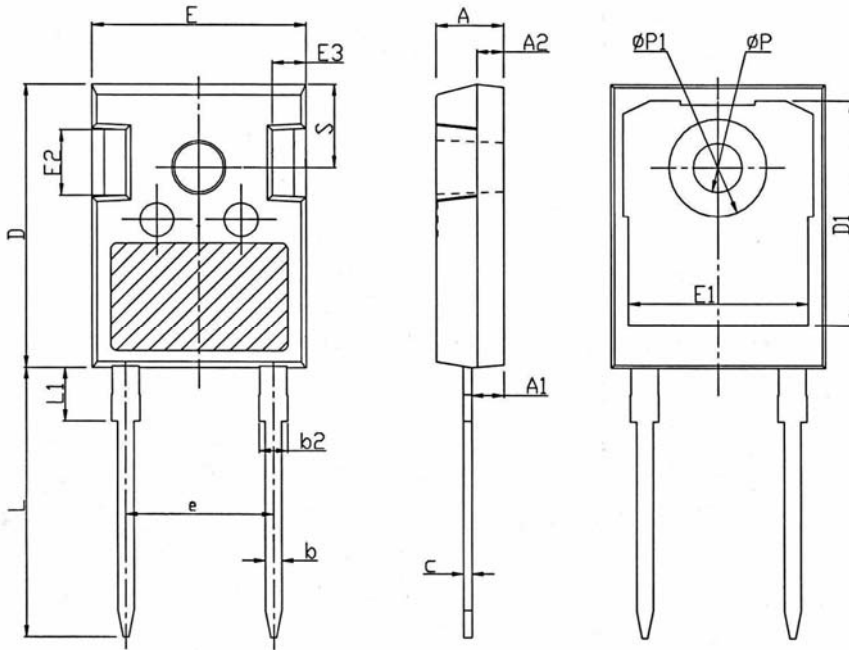
FIG.5 Diagram of circuit and Testing wave form of reverse recovery time





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■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 | 10.88BSC | |
| L | 19.62 | 20.22 |
| L1 | - | 4.30 |
| ϕP | 3.40 | 3.80 |
| $\phi P1$ | - | 7.30 |
| S | 6.15BSC | |



MUR30120PL

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