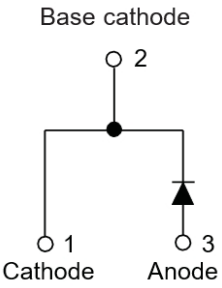
# MUR60120P

## Ultra-Fast Recovery Rectifier Diodes

### Features

- Adopt FRD 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-247-2L
  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 (Ta=25℃ Unless otherwise specified)

| | $V_{RSM}$ V | $V_{RRM}$ V |
|---|---|---|
| **MUR60120P** | 1200 | 1200 |

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## Ultra-Fast Recovery Rectifier Diodes

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

| PARAMETER | SYMBOL | UNIT | MUR60120P |
|---|---|---|---|
| Device marking code | | | MUR60120P |
| Repetitive Peak Reverse Voltage | $V_{RRM}$ | V | 1200 |
| Average Rectified Output Current @60Hz half sine-wave, R-load, Tc(FIG.1) | $I_o$ | A | 60 |
| Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, Tj=25℃ | $I_{FSM}$ | A | 450 |
| Current Squared Time @1ms≤t≤8.3ms Tj=25℃ | $I^2t$ | $A^2s$. | 664 |
| Storage Temperature | Tstg | ℃ | -55 ~ +175 |
| Junction Temperature | Tj | ℃ | -55 ~ +175 |
| Typical Junction capacitance @4V,1MHz | Cj | pF | 170 |

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

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | | Min | Typ | Max |
|---|---|---|---|---|---|---|---|
| instantaneous forward voltage drop per diode | $V_{FM}$ | V | $I_{FM}$=60.0A Tj=25℃ | | - | 3.0 | 3.3 |
| | | | $I_{FM}$=60.0A Tj=125℃ | | - | 2.3 | 2.8 |
| 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℃ | | - | 45 | 70 |
| | | | Tj=25℃ | $I_F$=30A di/dt=-200A/us $V_{RM}$=200V | - | 130 | - |
| | | | Tj=125℃ | | - | 192 | - |
| Peak recovery current | $I_{RRM}$ | A | Tj=25℃ | | - | 4.7 | - |
| | | | Tj=125℃ | | - | 14.5 | - |
| Reverse recovery charge | Qrr | nC | Tj=25℃ | | - | 300 | - |
| | | | Tj=125℃ | | - | 1350 | - |

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

| PARAMETER | | SYMBOL | UNIT | MUR60120P |
|---|---|---|---|---|
| Thermal Resistance | Between junction and case | $R_{\theta J-C}$ | ℃/W | 0.4 |

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## Ultra-Fast Recovery Rectifier Diodes

## ■Characteristics (Typical)

FIG1:Io -Tc Curve

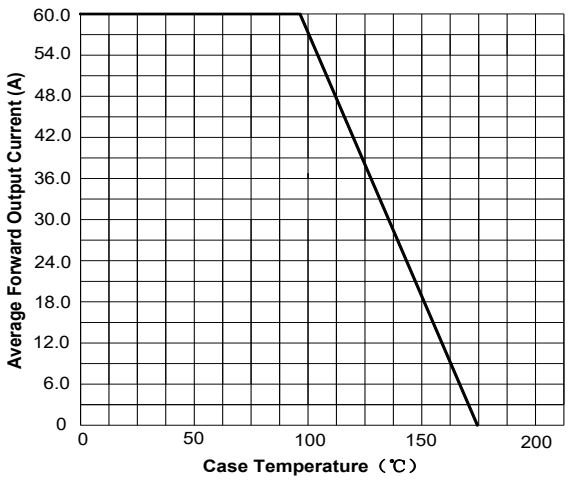



FIG2:Surge Forward Current Capability

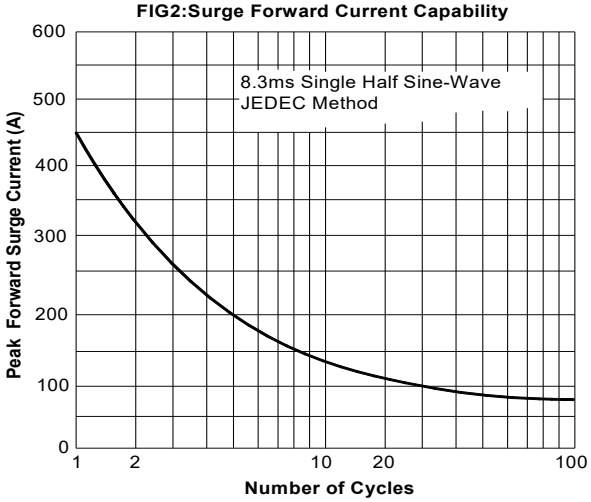



FIG3: Forward Voltage

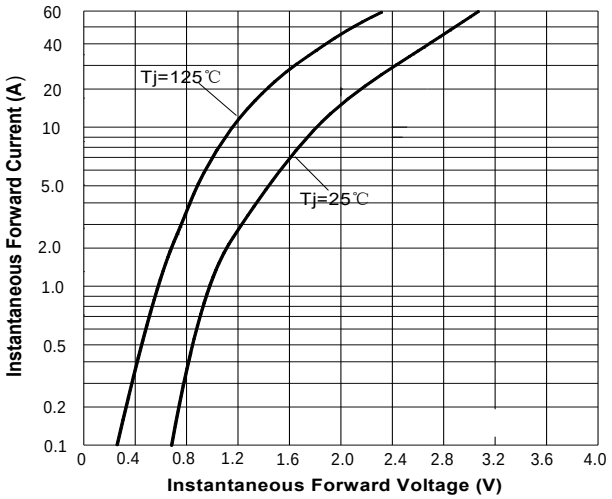



FIG4: Typical Reverse Characteristics

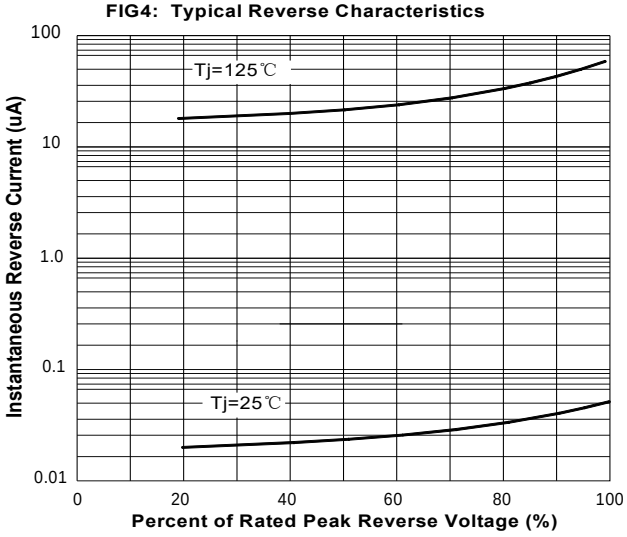
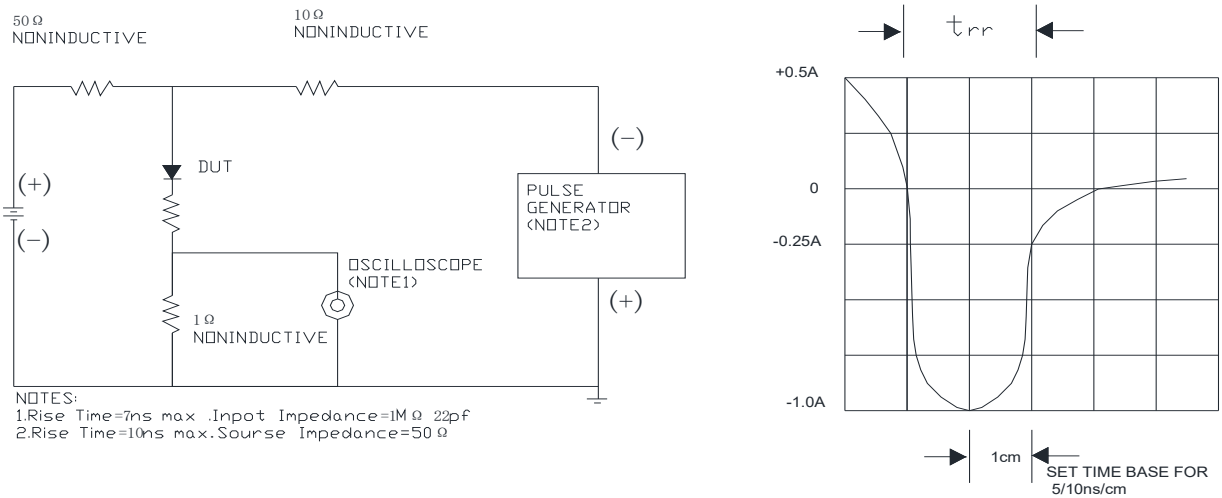



FIG.5 Diagram of circuit and Testing wave form of reverse recovery time



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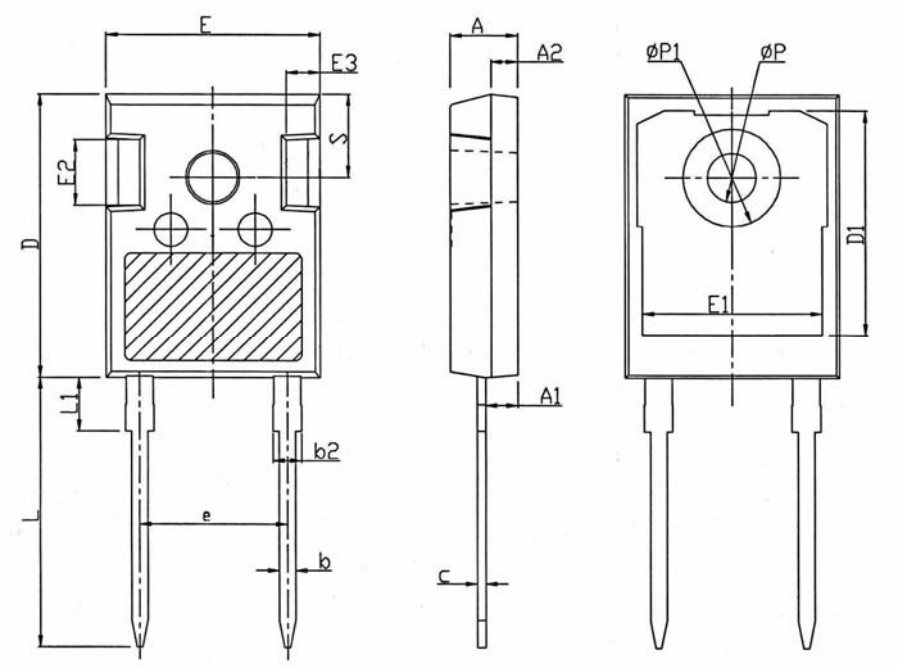
## Ultra-Fast Recovery Rectifier Diodes

### ■Outline Dimensions




| TO-247-2L | | |
|---|---|---|
| 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 |
| ϕP1 | - | 7.30 |
| S | 6.15BSC | |

## ■Ordering Information

| PREFERED P/N | UNIT WEIGHT(g) | MINIIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|
| MUR60120P | Approximate 6.0 | 30 | 360 | 1800 | Tube |