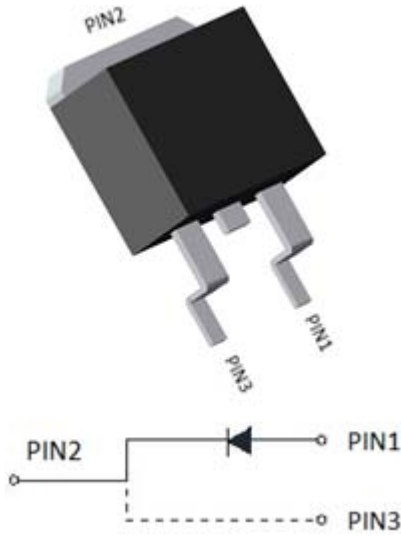


Ultra-Fast Recovery Diodes 15A FRED



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-263
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 | MURB15120L |
|--|------------------|------------------|------------|
| Device marking code | | | MURB15120L |
| Repetitive Peak Reverse Voltage | V _{RRM} | V | 1200 |
| Average Rectified Output Current @60Hz sine wave, R-load, T _c (FIG.1) | I _O | A | 15 |
| Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, T _j =25°C | I _{FSM} | A | 110 |
| Current Squared Time @1ms≤t≤8.3ms T _j =25°C, | I ² t | A ² s | 45.6 |
| Storage Temperature | T _{stg} | °C | -55 ~ +175 |
| Junction Temperature | T _j | °C | -55 ~ +175 |
| Junction capacitance @4V,1MHz | C _j | pF | 55 |



MURB15120L

■Electrical Characteristics

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | Min | Typ | Max |
|---|------------|------|--|-----|------|------|
| Instantaneous forward voltage drop per diode | V_{FM} | V | $I_{FM}=15.0A$ @ $T_j=25^{\circ}C$ | - | 2.40 | 3.20 |
| | | | $I_{FM}=15.0A$ @ $T_j=125^{\circ}C$ | | 1.90 | 2.50 |
| DC reverse current at rated DC blocking voltage per diode | I_{RRM1} | uA | $V_{RM}=V_{RRM}$ $T_j=25^{\circ}C$ | - | - | 5.0 |
| | I_{RRM2} | | $V_{RM}=V_{RRM}$ $T_j=125^{\circ}C$ | - | - | 200 |
| Reverse Recovery Time | T_{rr} | ns | $I_F=0.5A$ $I_{RM}=1A$ $I_{RR}=0.25A$ $T_j=25^{\circ}C$ | - | 37 | 60 |
| | | | $T_j=25^{\circ}C$ | - | 220 | - |
| | | | $T_j=125^{\circ}C$ | - | 324 | - |
| Peak recovery current | I_{RRM} | A | $T_j=25^{\circ}C$ | - | 4 | - |
| | | | $T_j=125^{\circ}C$ | - | 9 | - |
| Reverse recovery charge | Q_{rr} | nC | $T_j=25^{\circ}C$ | - | 481 | - |
| | | | $T_j=125^{\circ}C$ | - | 1508 | - |

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

| PARAMETER | SYMBOL | UNIT | MURB15120L | |
|--------------------|---------------------------|------------------|---------------|-----|
| Thermal Resistance | Between junction and case | $R_{\theta J-C}$ | $^{\circ}C/W$ | 2.0 |
| | Between junction and Air | $R_{\theta J-A}$ | $^{\circ}C/W$ | 50 |

■Ordering Information (Example)

| PREFERED P/N | UNIT WEIGHT(g) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|--------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| MURB15120L | Approximate 1.43 | 50 | 2000 | 8000 | Tube |
| MURB15120L | Approximate 1.43 | 1000 | 2000 | 10000 | Reel |



■ Characteristics (Typical)

FIG1: I_o - T_c Curve

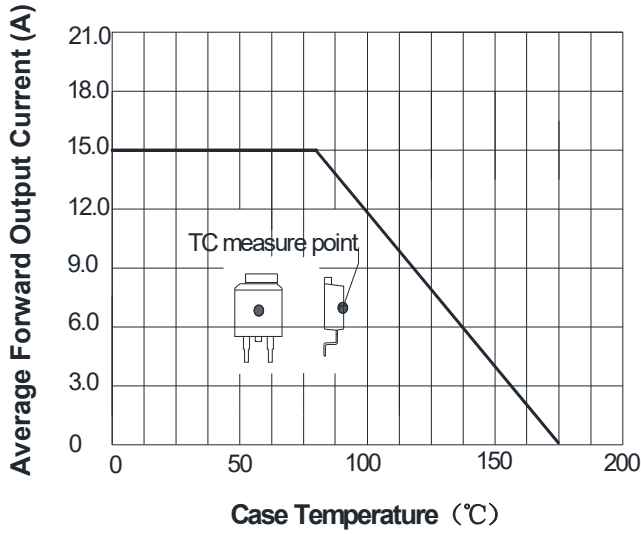


FIG2: Surge Forward Current Capability

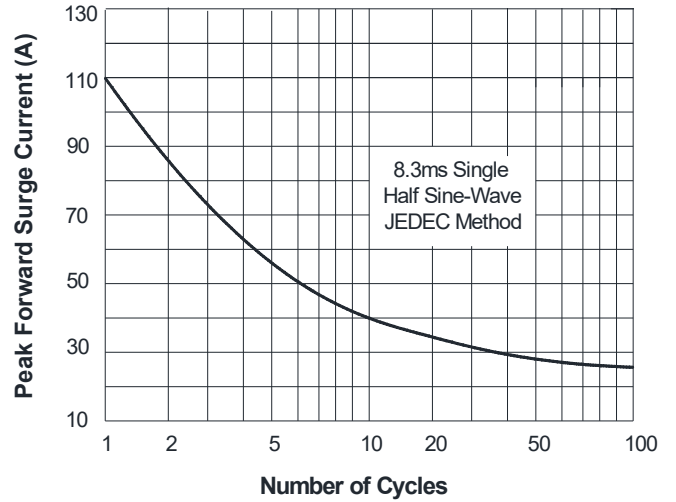


FIG3: Forward Voltage

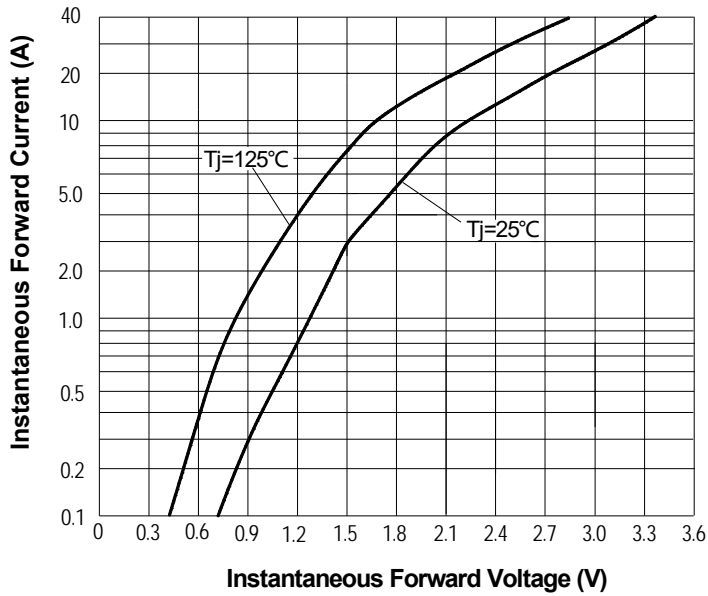
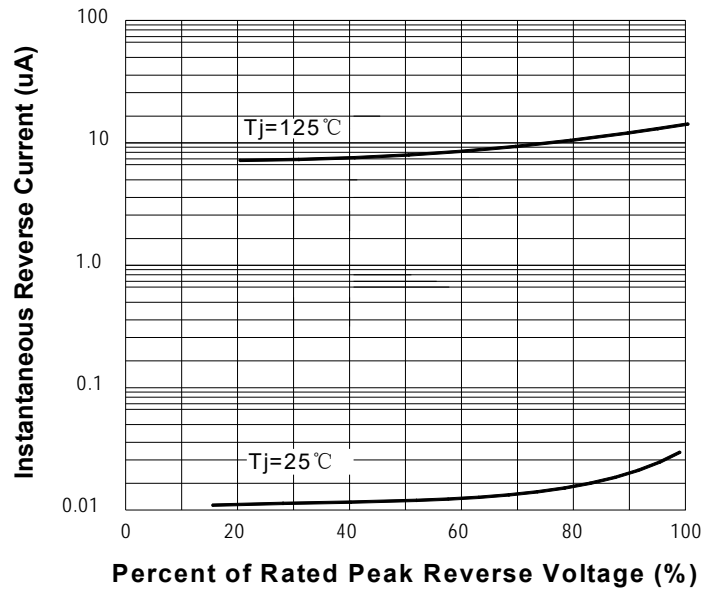


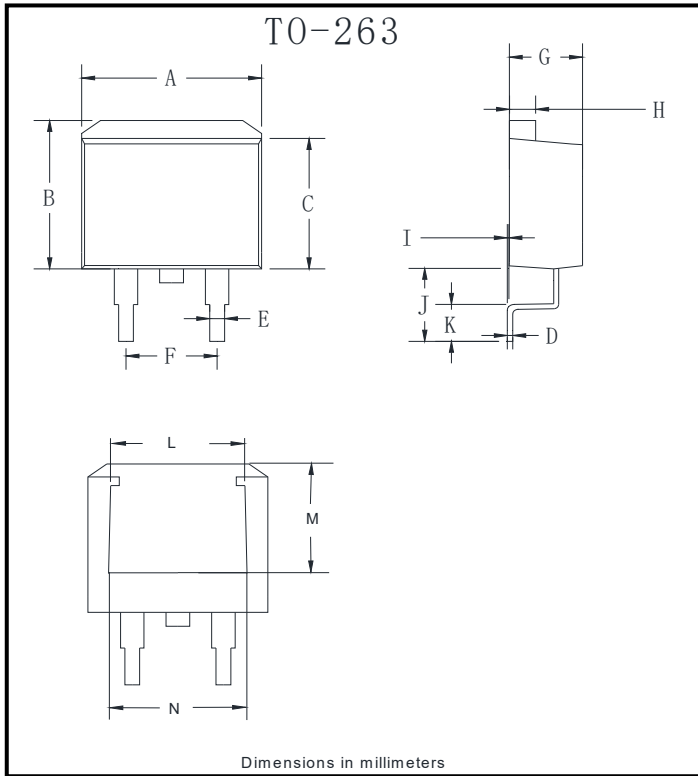
FIG4: Instantaneous Reverse Characteristics





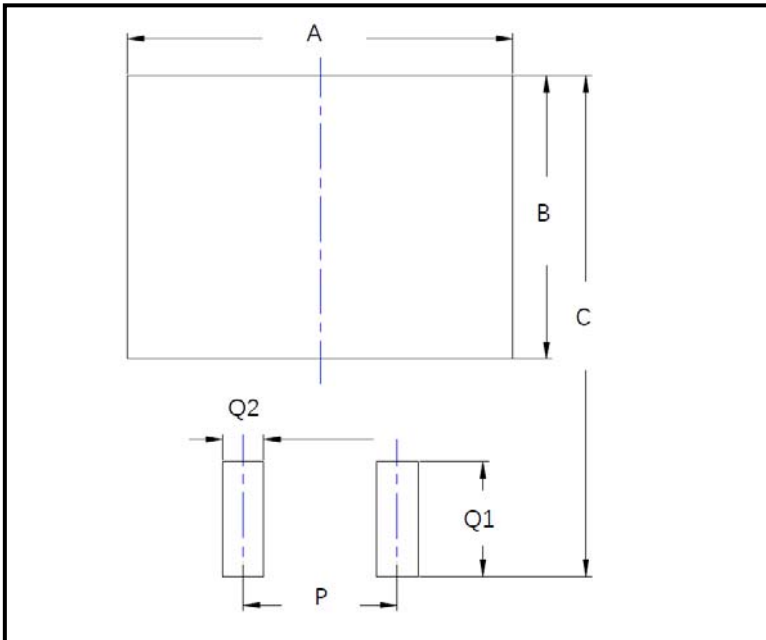
MURB15120L

■ Outline Dimensions



| TO-263 | | |
|--------|------|------|
| Dim | Min | Max |
| A | 9.5 | 11.5 |
| B | 9.7 | 10.5 |
| C | 8.4 | 9.0 |
| D | 0.28 | 0.64 |
| E | 0.68 | 0.94 |
| F | 4.55 | 5.6 |
| G | 4.04 | 5.10 |
| H | 1.14 | 1.4 |
| I | 0 | 0.2 |
| J | 4.9 | 6.05 |
| K | 1.79 | 2.79 |
| L | 7.3 | 7.9 |
| M | 6.2 | 6.8 |
| N | 7.6 | 8.2 |

■ Suggested Pad Layout



| Dim | Millimeters |
|-----|-------------|
| A | 12.7 |
| B | 9.4 |
| C | 16.6 |
| P | 5.08 |
| Q1 | 3.8 |
| Q2 | 1.35 |



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