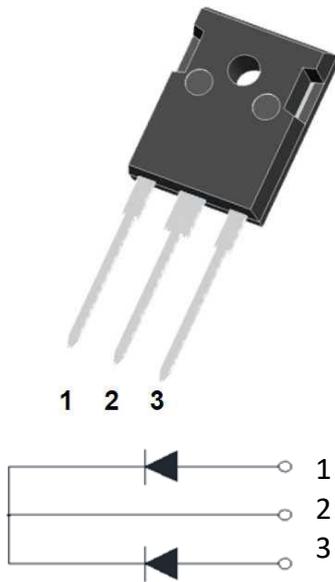


Ultra-Fast Recovery Diodes 40A*2 FRED



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-247AB
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 | MUR8040PT |
|--|------------------|------------------|------------|
| Device marking code | | | MUR8040PT |
| Repetitive Peak Reverse Voltage | VRRM | V | 400 |
| Average Rectified Output Current @60Hz sine wave, R-load, T _c (FIG.1) | I _O | A | 80 |
| Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, T _j =25°C | I _{FSM} | A | 500 |
| Current Squared Time @1ms≤t≤8.3ms T _j =25°C, | I ² t | A ² s | 1037.5 |
| Single Pulse Avalanche Energy @ T _p =40uS, T _j =25°C,L=15mH | EAS | mJ | 485 |
| Storage Temperature | T _{stg} | °C | -55 ~ +175 |
| Junction Temperature | T _j | °C | -55 ~ +175 |
| Typical Junction capacitance @4V,1MHz | C _j | pF | 295 |



MUR8040PT

■ Electrical Characteristics

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | Min | Typ | Max | |
|---|------------|------|--|--------------------|------|------|---|
| Instantaneous forward voltage drop per diode | V_{FM} | V | $I_{FM}=40.0A @ T_j=25^{\circ}C$ | - | 1.25 | 1.5 | |
| | | | $I_{FM}=40.0A @ T_j=125^{\circ}C$ | | 1.1 | 1.35 | |
| 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 | $I_F=0.5A$ $I_{RM}=1A$ $I_{RR}=0.25A$ $T_j=25^{\circ}C$ | - | 36 | 50 | |
| | | | | $T_j=25^{\circ}C$ | - | 14.2 | - |
| | | | | $T_j=125^{\circ}C$ | - | 48.2 | - |
| Peak recovery current | I_{RRM} | A | $I_F=40A$ $di/dt=-1000A/us$ $V_{RM}=300V$ | $T_j=25^{\circ}C$ | - | 3.8 | - |
| | | | | $T_j=125^{\circ}C$ | - | 24.5 | - |
| Reverse recovery charge | Q_{rr} | nC | $T_j=25^{\circ}C$ | - | 270 | - | |
| | | | | $T_j=125^{\circ}C$ | - | 783 | - |

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

| PARAMETER | SYMBOL | UNIT | MUR8040PT | |
|--------------------|---------------------------|------------------|---------------|-----|
| 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)

FIG1: $I_o - T_c$ Curve

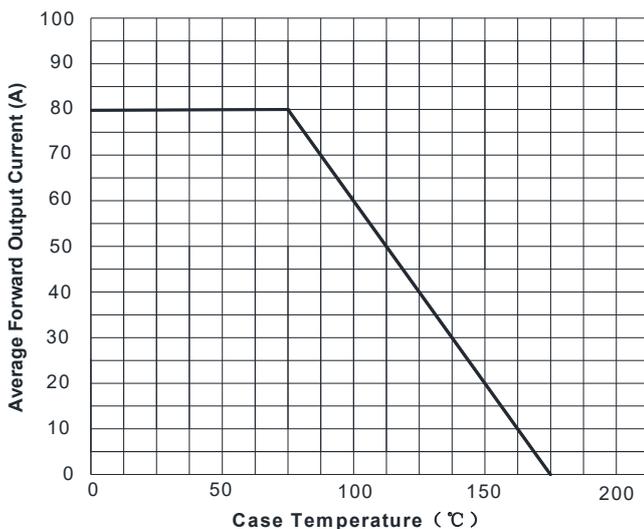


FIG2: Surge Forward Current Capability

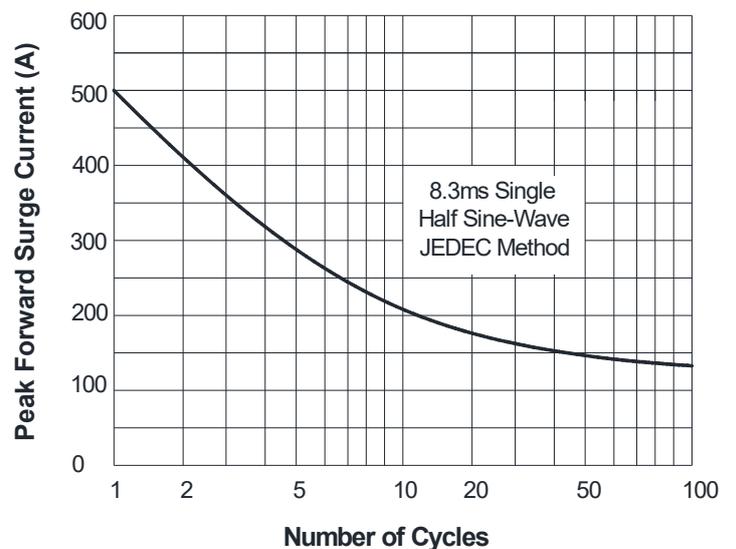


FIG3: Forward Voltage

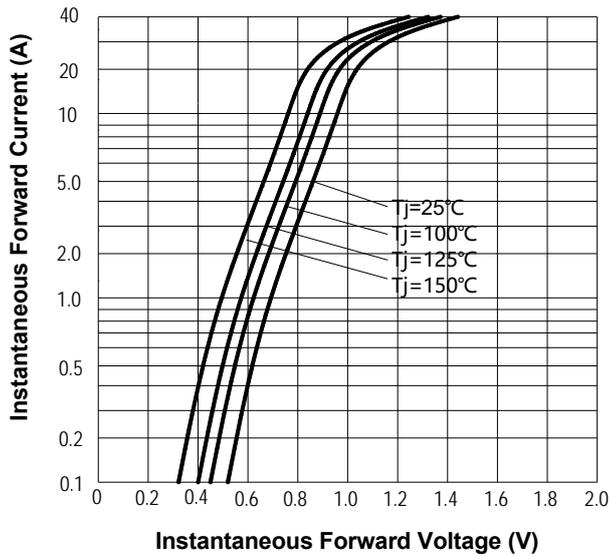


FIG.4: Instantaneous Reverse Characteristics

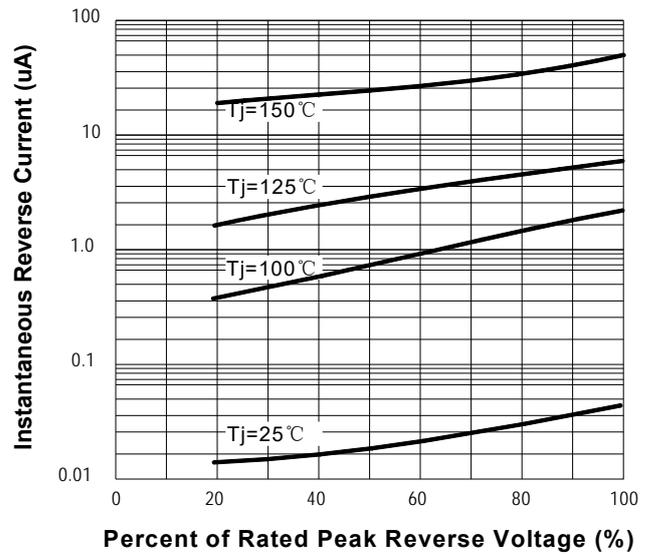
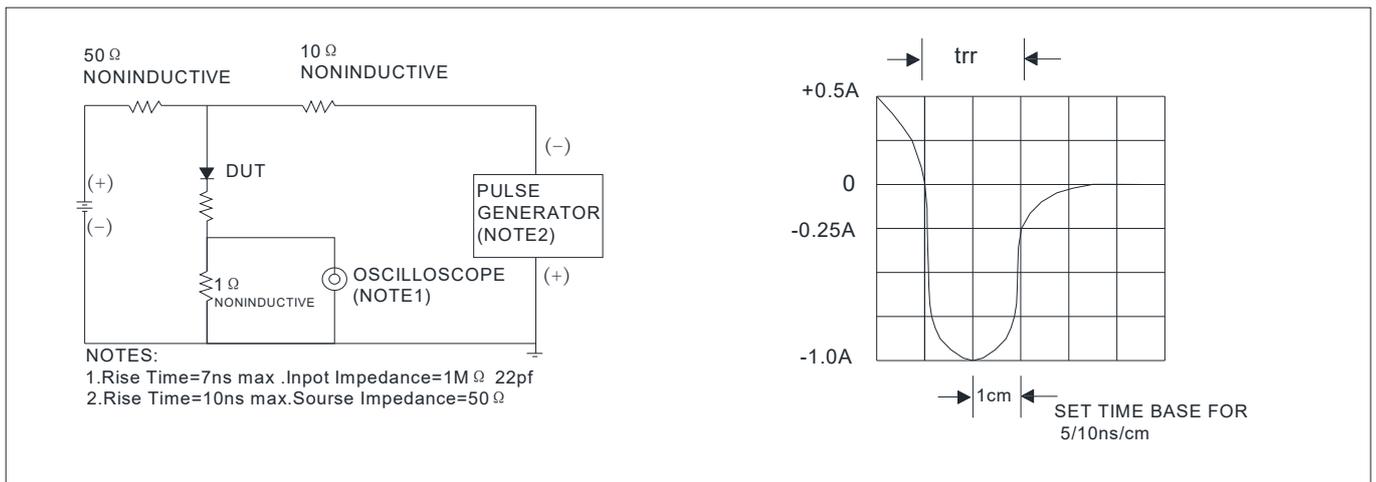


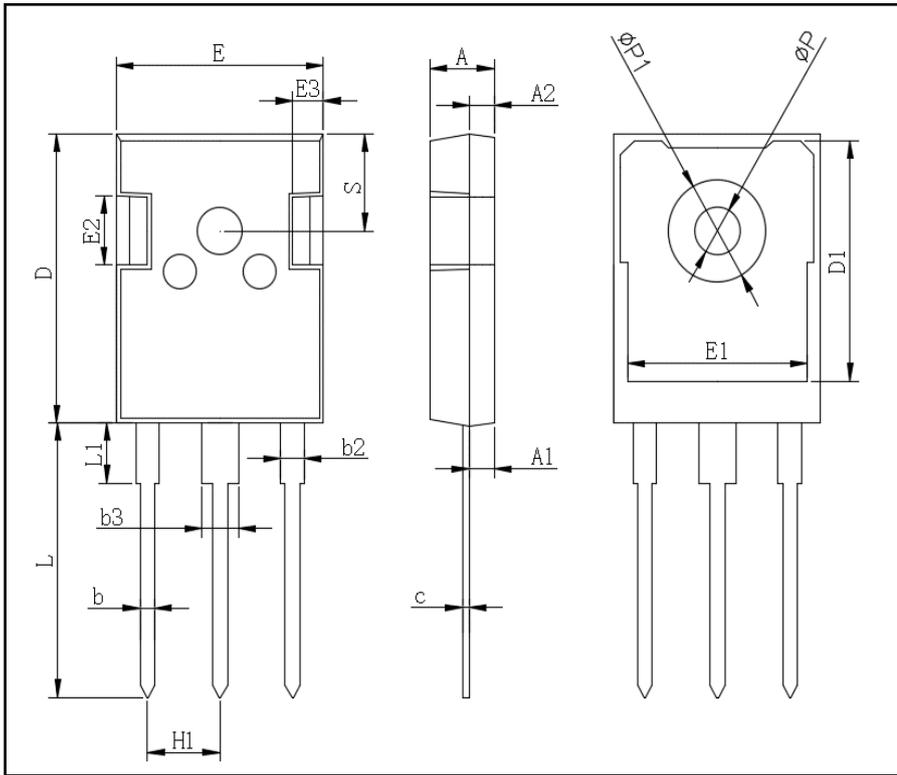
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time





MUR8040PT

■ Outline Dimensions



| TO-247AB | | |
|-----------|---------|-------|
| Dim | Min | Max |
| A | 4.80 | 5.20 |
| A1 | 2.21 | 2.61 |
| A2 | 1.85 | 2.15 |
| b | 1.0 | 1.4 |
| b2 | 1.91 | 2.21 |
| C | 0.5 | 0.7 |
| D | 20.70 | 21.30 |
| D1 | 16.25 | 16.85 |
| E | 15.50 | 16.10 |
| E1 | 13.0 | 13.6 |
| E2 | 4.80 | 5.20 |
| E3 | 2.30 | 2.70 |
| L | 19.62 | 20.22 |
| L1 | - | 4.30 |
| ΦP | 3.40 | 3.80 |
| $\Phi P1$ | - | 7.30 |
| S | 6.15TYP | |
| H1 | 5.44TYP | |
| b3 | 2.80 | 3.20 |



MUR8040PT

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