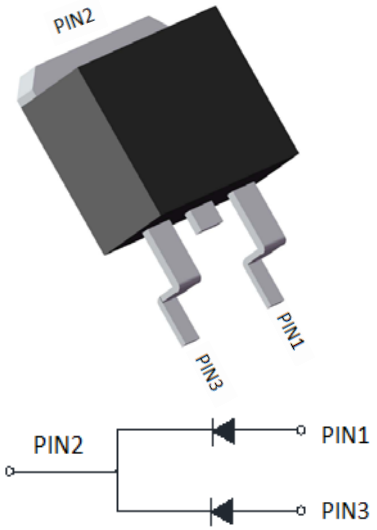
# Ultra-Fast Recovery Diodes 8A*2 FRED




## 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-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℃ Unless otherwise specified）

| PARAMETER | SYMBOL | UNIT | MURB1620CT |
|---|---|---|---|
| Device marking code | | | MURB1620CT |
| Repetitive Peak Reverse Voltage | $V_{RRM}$ | V | 200 |
| Average Rectified Output Current @60Hz sine wave, R-load, $T_C$(FIG.1) | $I_O$ | A | 16 |
| Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, $T_j$=25℃ | $I_{FSM}$ | A | 100 |
| Current Squared Time @1ms≤t≤8.3ms Tj=25℃， | $I^2t$ | $A^2s$ | 41 |
| Storage Temperature | Tstg | ℃ | -55 ~ +175 |
| Junction Temperature | Tj | ℃ | -55 ~ +175 |
| Typical Junction capacitance @4V,1MHz | Cj | pF | 70 |

## ■Electrical Characteristics

| PARAMETER | SYMBOL | UNIT | TEST CONDITIONS | | Min | Typ | Max |
|---|---|---|---|---|---|---|---|
| Instantaneous forward voltage drop per diode | $V_{FM}$ | V | IFM=8.0A @Tj=25℃ | | - | 0.90 | 1.0 |
| | | | IFM=8.0A @Tj=150℃ | | | 0.78 | 0.9 |
| DC reverse current at rated DC blocking voltage per diode | $I_{RRM1}$ | uA | VRM=VRRM Tj=25℃ | | - | - | 5 |
| | $I_{RRM2}$ | | VRM=VRRM Tj=150℃ | | - | 20 | 50 |
| Reverse Recovery Time | Trr | ns | $I_F$=0.5A $I_{RM}$=1A $I_{RR}$=0.25A Tj=25℃ | | - | 25 | 35 |
| | | | Tj=25℃ | IF=8A di/dt=-200A/us $V_{RM}$=100V | - | 19.7 | - |
| | | | Tj=125℃ | | - | 35.9 | - |
| Peak recovery current | $I_{RRM}$ | A | Tj=25℃ | | - | 3.73 | - |
| | | | Tj=125℃ | | - | 6.61 | - |
| Reverse recovery charge | Qrr | nC | Tj=25℃ | | - | 42.7 | - |
| | | | Tj=125℃ | | - | 120 | - |

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

| PARAMETER | | SYMBOL | UNIT | MURB1620CT |
|---|---|---|---|---|
| Thermal Resistance | Between junction and case | $R_{\theta J-C}$ | ℃/W | 2.0 |
| Thermal Resistance | Between junction and Air | $R_{\theta J-A}$ | ℃/W | 50 |

## ■Ordering Information (Example)

| PREFERED P/N | UNIT WEIGHT(g) | MINIIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---|---|---|---|---|---|
| MURB1620CT | Approximate 1.43 | 50 | 2000 | 8000 | Tube |
| MURB1620CT | Approximate 1.43 | 1000 | 2000 | 10000 | Reel |

## ■Characteristics (Typical)

FIG1:Io -Tc Curve

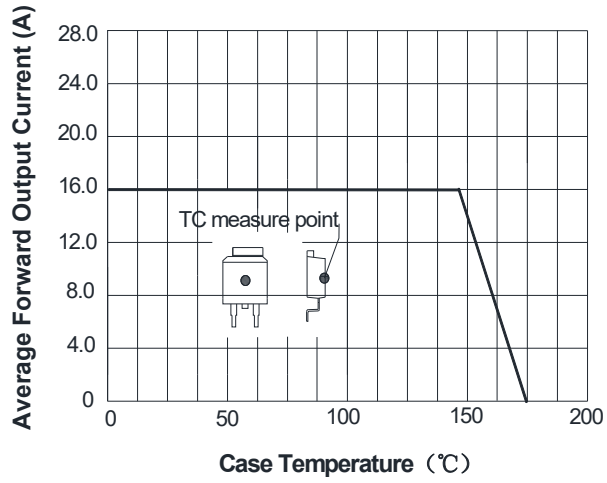



FIG2:Surge Forward Current Capability

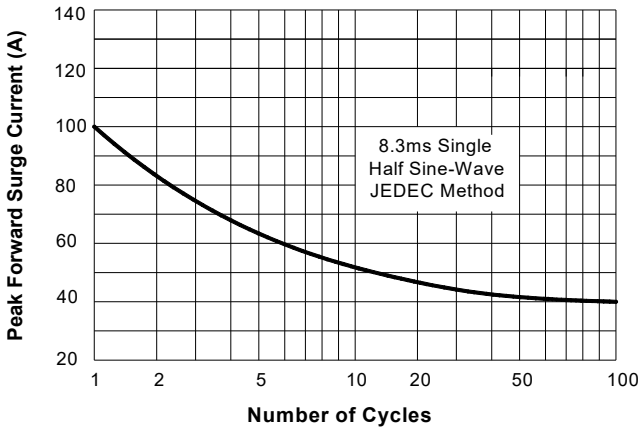



FIG3: Forward Voltage

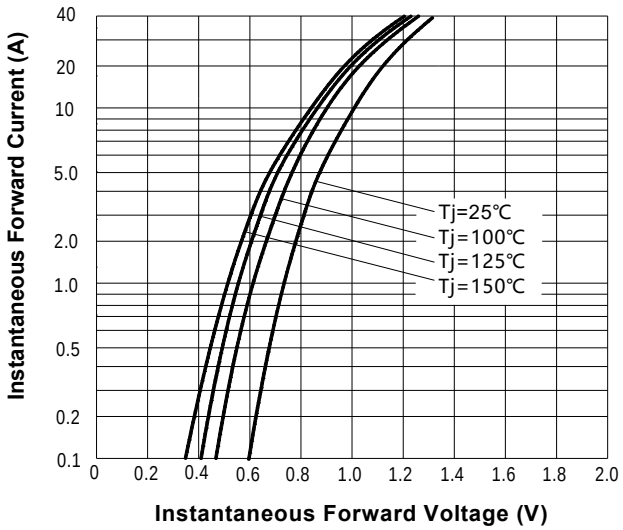



FIG.4: Instantaneous Reverse Characteristics

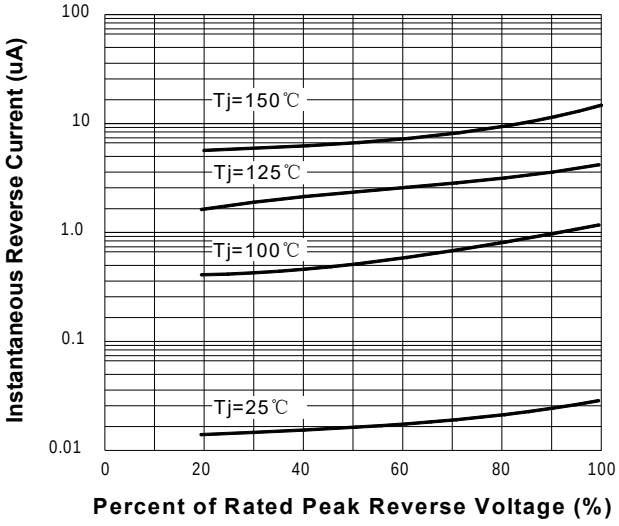
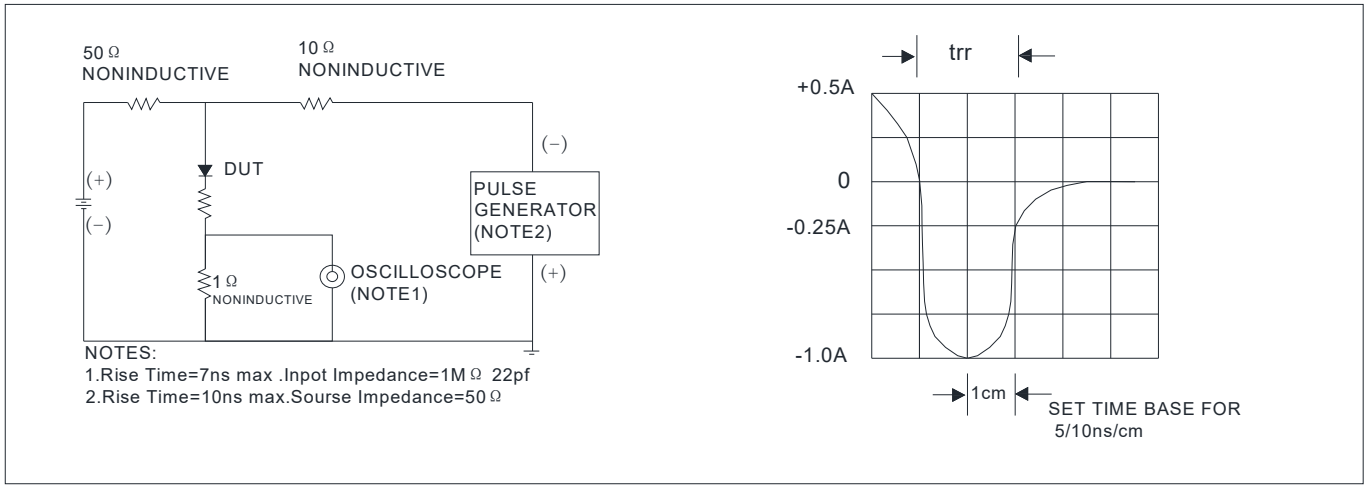
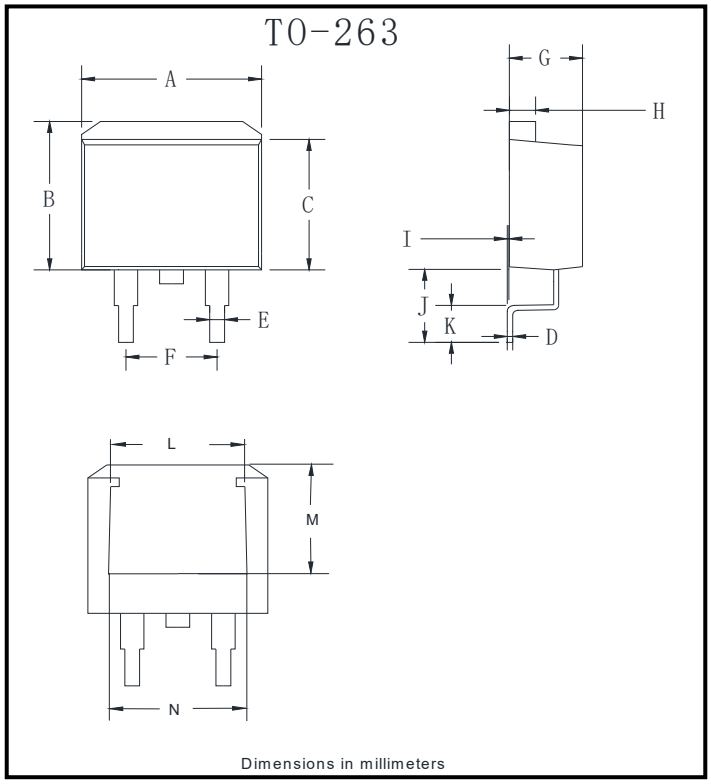



FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

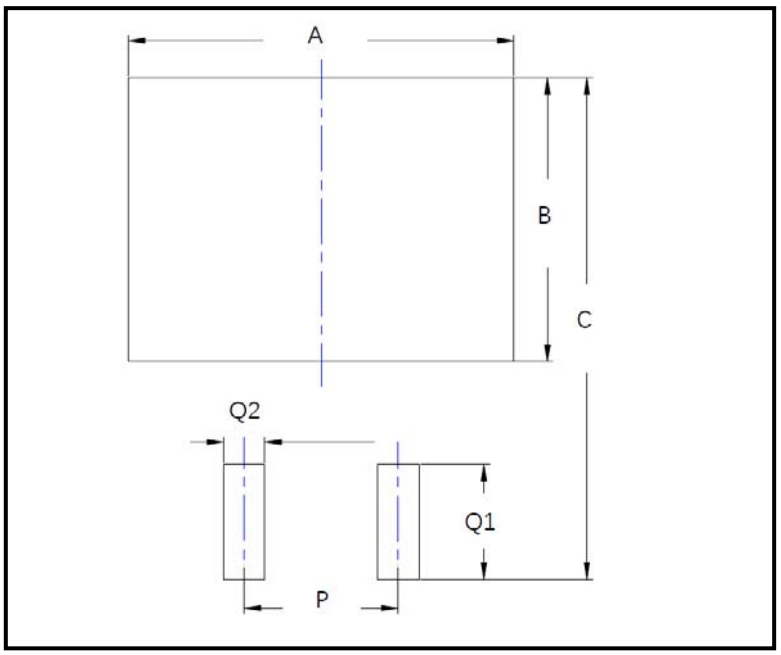


## ■Outline Dimensions




| 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 |

## Notice

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.