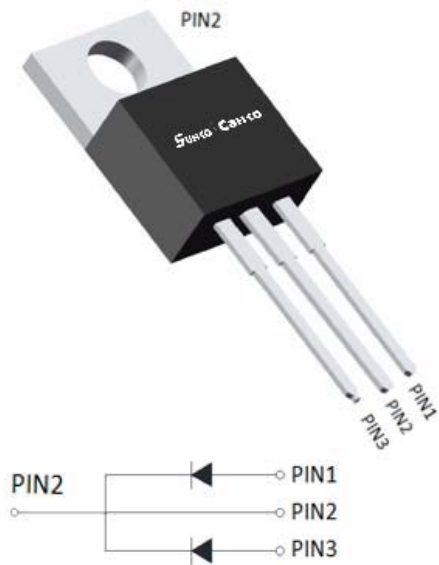


## Ultra-Fast Recovery Diodes 10A\*2 FRED



### 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-220AB  
Molding compound meets UL 94 V-0 flammability rating, -
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** As marked

### ■Maximum Ratings (T<sub>j</sub>=25°C Unless otherwise specified)

| PARAMETER                                                                                | SYMBOL           | UNIT             | MUR2020CT  |
|------------------------------------------------------------------------------------------|------------------|------------------|------------|
| Device marking code                                                                      |                  |                  | MUR2020CT  |
| Repetitive Peak Reverse Voltage                                                          | V <sub>RRM</sub> | V                | 200        |
| Average Rectified Output Current @60Hz sine wave, R-load, T <sub>c</sub> (FIG.1)         | I <sub>O</sub>   | A                | 20         |
| Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A                | 120        |
| Current Squared Time @1ms≤t≤8.3ms T <sub>j</sub> =25°C,                                  | I <sup>2</sup> t | A <sup>2</sup> s | 60         |
| Storage Temperature                                                                      | T <sub>stg</sub> | °C               | -55 ~ +175 |
| Junction Temperature                                                                     | T <sub>j</sub>   | °C               | -55 ~ +175 |
| Typical Junction capacitance @4V,1MHz                                                    | C <sub>j</sub>   | pF               | 150        |

## ■Electrical Characteristics

| PARAMETER                                                 | SYMBOL     | UNIT | TEST CONDITIONS                                            | Min | Typ   | Max |
|-----------------------------------------------------------|------------|------|------------------------------------------------------------|-----|-------|-----|
| Instantaneous forward voltage drop per diode              | $V_{FM}$   | V    | $I_{FM}=10.0A$ @ $T_J=25^{\circ}C$                         | -   | 0.90  | 1.0 |
|                                                           |            |      | $I_{FM}=10.0A$ @ $T_J=150^{\circ}C$                        |     | 0.78  | 0.9 |
| DC reverse current at rated DC blocking voltage per diode | $I_{RRM1}$ | uA   | $V_{RM}=V_{RRM}$<br>$T_J=25^{\circ}C$                      | -   | -     | 5   |
|                                                           | $I_{RRM2}$ |      | $V_{RM}=V_{RRM}$<br>$T_J=150^{\circ}C$                     | -   | 30    | 100 |
| Reverse Recovery Time                                     | $T_{rr}$   | ns   | $I_F=0.5A$ $I_{RM}=1A$<br>$I_{RR}=0.25A$ $T_J=25^{\circ}C$ | -   | 25    | 35  |
|                                                           |            |      | $T_J=25^{\circ}C$                                          | -   | 34.5  | -   |
|                                                           |            |      | $T_J=125^{\circ}C$                                         | -   | 50.0  | -   |
| Peak recovery current                                     | $I_{RRM}$  | A    | $T_J=25^{\circ}C$                                          |     | 5.35  | -   |
|                                                           |            |      | $T_J=125^{\circ}C$                                         | -   | 8.25  | -   |
| Reverse recovery charge                                   | $Q_{rr}$   | nC   | $T_J=25^{\circ}C$                                          | -   | 90.5  | -   |
|                                                           |            |      | $T_J=125^{\circ}C$                                         | -   | 200.0 | -   |

## ■Thermal Characteristics (T<sub>J</sub>=25°C Unless otherwise specified)

| PARAMETER          |                           | SYMBOL            | UNIT | MUR2020CT |
|--------------------|---------------------------|-------------------|------|-----------|
| Thermal Resistance | Between junction and case | R <sub>θJ-C</sub> | °C/W | 2.0       |
| Thermal Resistance | Between junction and Air  | R <sub>θJ-A</sub> | °C/W | 50        |

## ■Ordering Information (Example)

| PREFERRED P/N | UNIT WEIGHT(g)   | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| MUR2020CT     | Approximate 1.88 | 50                   | 1000                    | 5000                       | Tube          |

## ■Characteristics (Typical)

FIG1:I<sub>o</sub> -T<sub>c</sub> Curve

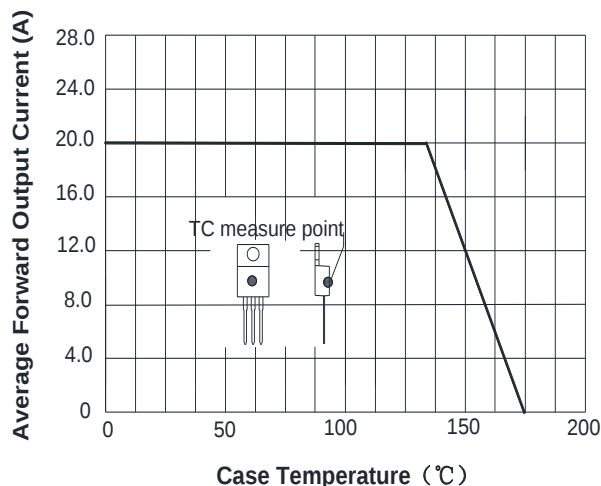


FIG2:Surge Forward Current Capability

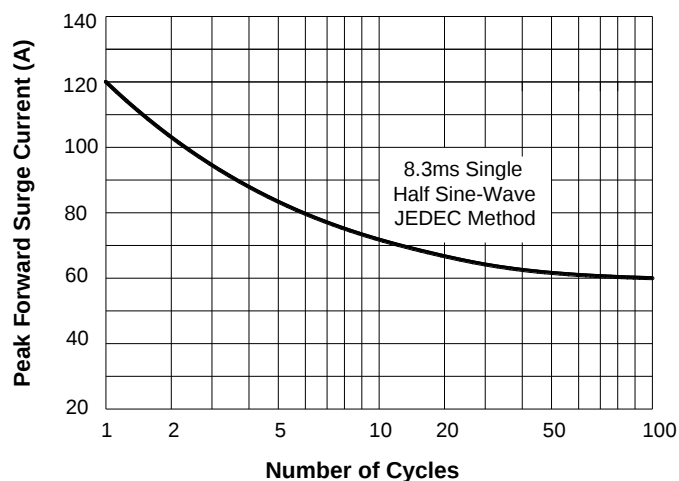


FIG3: Forward Voltage

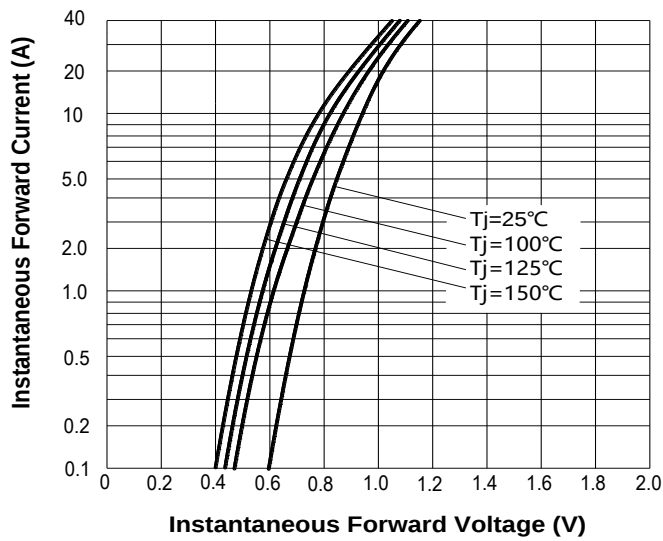


FIG.4: Instantaneous Reverse Characteristics

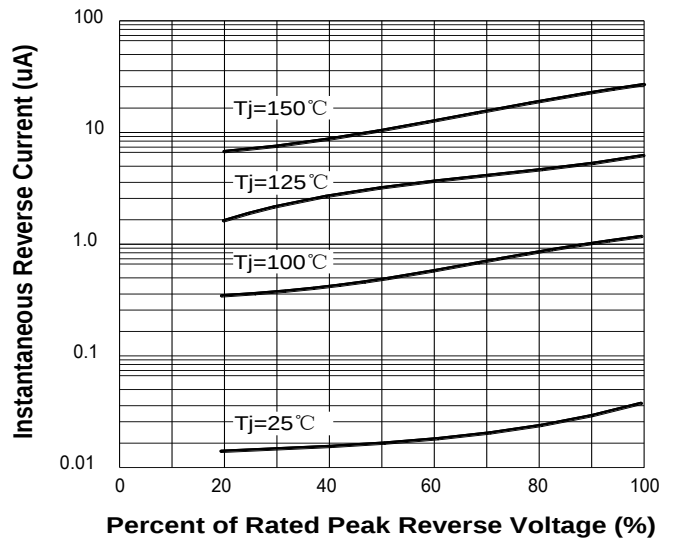
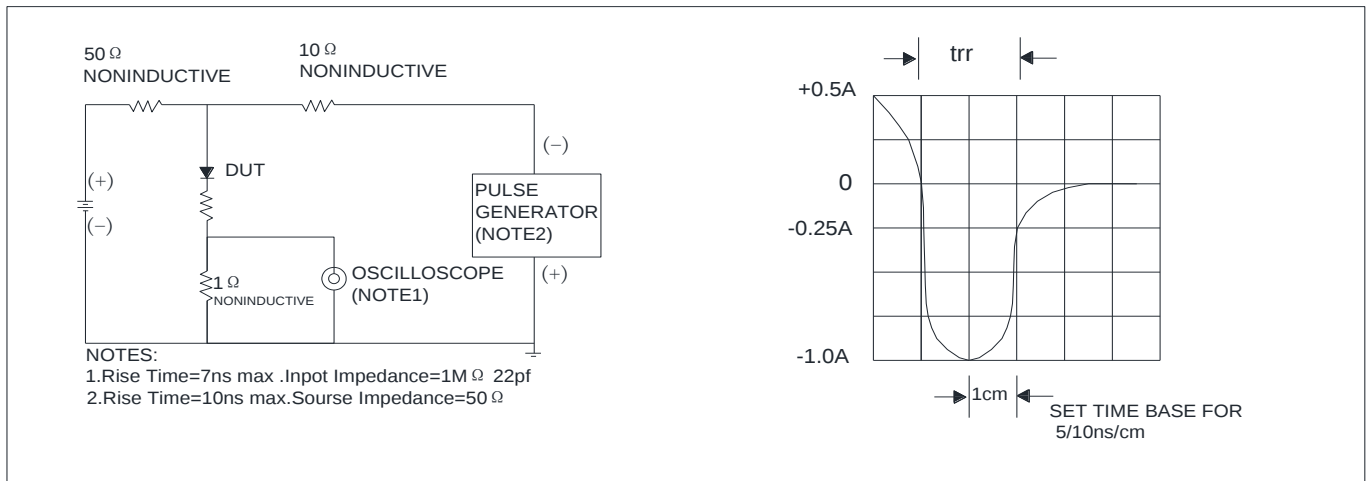
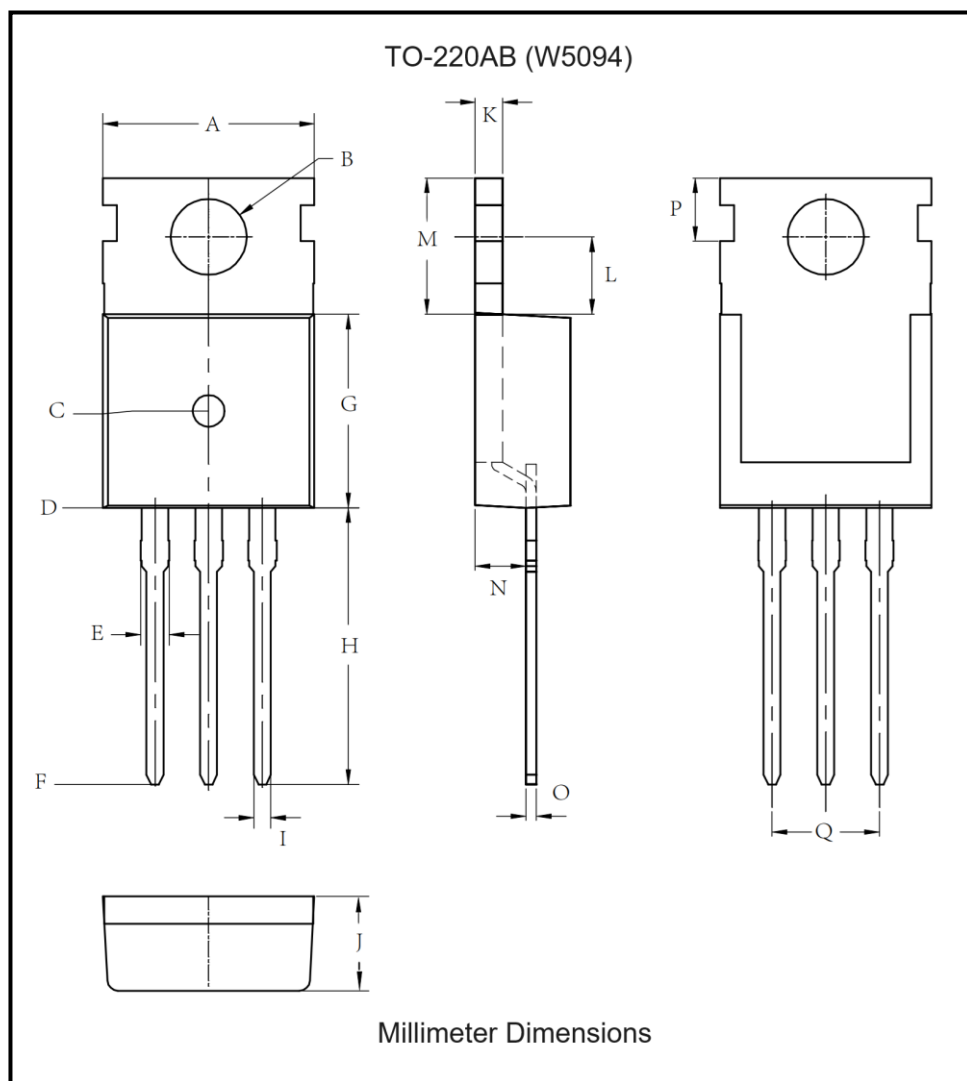


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■Outline Dimensions



| TO-220AB |          |       |
|----------|----------|-------|
| Dim      | Min      | Max   |
| A        | 9.9      | 10.1  |
| B        | TYP 3.6  |       |
| C        | 8.06     | 8.46  |
| D        | 12.67    | 13.07 |
| E        | 1.28     | 1.42  |
| F        | 25.7     | 26.3  |
| G        | 9        | 9.4   |
| H        | 12.93    | 13.33 |
| I        | TYP 0.8  |       |
| J        | 4.3      | 4.7   |
| K        | 1.285    | 1.315 |
| L        | 3.47     | 3.87  |
| M        | 6.27     | 6.67  |
| N        | 2.2      | 2.6   |
| O        | 0.485    | 0.515 |
| P        | 2.8      | 3.2   |
| Q        | TYP 5.08 |       |

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