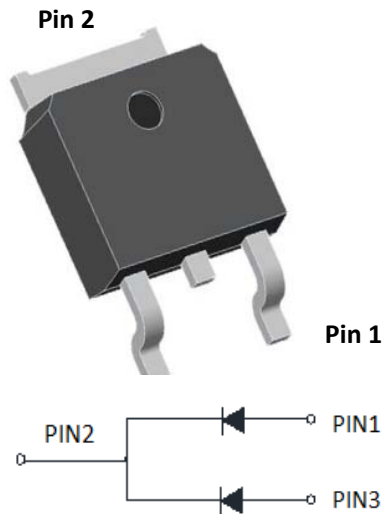


## Ultra-Fast Recovery Diodes 8A\*2 FRED



### 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-252  
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<sub>j</sub>=25°C Unless otherwise specified)

| PARAMETER                                                                                   | SYMBOL           | UNIT             | MUR1620CD  |
|---------------------------------------------------------------------------------------------|------------------|------------------|------------|
| Device marking code                                                                         |                  |                  | MUR1620CD  |
| Repetitive Peak Reverse Voltage                                                             | VRRM             | V                | 200        |
| Average Rectified Output Current<br>@60Hz sine wave, R-load, T <sub>c</sub> (FIG.1)         | I <sub>O</sub>   | A                | 16         |
| Surge(Non-repetitive)Forward Current<br>@60Hz half sine-wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A                | 100        |
| Current Squared Time @1ms≤t≤8.3ms<br>T <sub>j</sub> =25°C,                                  | I <sup>2</sup> t | A <sup>2</sup> s | 41         |
| 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               | 70         |



# MUR1620CD

## ■Electrical Characteristics

| PARAMETER                                                 | SYMBOL           | UNIT | TEST CONDITIONS                                                            | Min | Typ  | Max |
|-----------------------------------------------------------|------------------|------|----------------------------------------------------------------------------|-----|------|-----|
| Instantaneous forward voltage drop per diode              | $V_{FM}$         | V    | IFM=8.0A @ Tj=25°C                                                         | -   | 0.90 | 1.0 |
|                                                           |                  |      | IFM=8.0A @ Tj=150°C                                                        |     | 0.78 | 0.9 |
| DC reverse current at rated DC blocking voltage per diode | $I_{RRM1}$       | uA   | V <sub>RM</sub> =V <sub>RRM</sub><br>Tj=25°C                               | -   | -    | 5   |
|                                                           | $I_{RRM2}$       |      | V <sub>RM</sub> =V <sub>RRM</sub><br>Tj=150°C                              | -   | 20   | 50  |
| Reverse Recovery Time                                     | T <sub>rr</sub>  | ns   | I <sub>F</sub> =0.5A I <sub>RM</sub> =1A<br>I <sub>RR</sub> =0.25A Tj=25°C | -   | 25   | 35  |
|                                                           |                  |      | Tj=25°C                                                                    | -   | 19.7 | -   |
|                                                           |                  |      | Tj=125°C                                                                   | -   | 35.9 | -   |
| Peak recovery current                                     | I <sub>RRM</sub> | A    | Tj=25°C                                                                    | -   | 3.73 | -   |
|                                                           |                  |      | Tj=125°C                                                                   | -   | 6.61 | -   |
| Reverse recovery charge                                   | Q <sub>rr</sub>  | nC   | Tj=25°C                                                                    | -   | 42.7 | -   |
|                                                           |                  |      | Tj=125°C                                                                   | -   | 120  | -   |

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

| PARAMETER          |                           | SYMBOL            | UNIT | MUR1620CD |
|--------------------|---------------------------|-------------------|------|-----------|
| Thermal Resistance | Between junction and case | R <sub>θJ-C</sub> | °C/W | 5.0       |
| 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 |
|---------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| MUR1620CD     | Approximate 0.32 | 2500                 | 2500                    | 25000                      | Reel          |

## ■Characteristics (Typical)

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

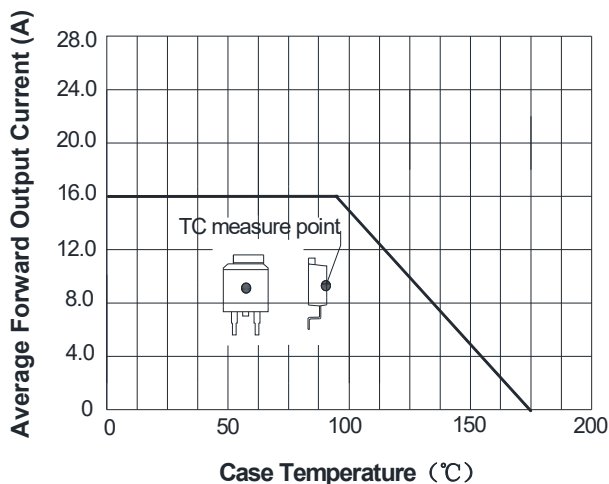


FIG2:Surge Forward Current Capability

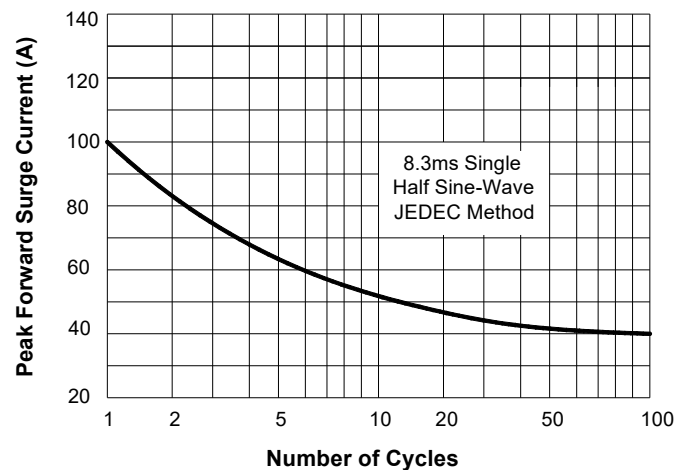


FIG3: Forward Voltage

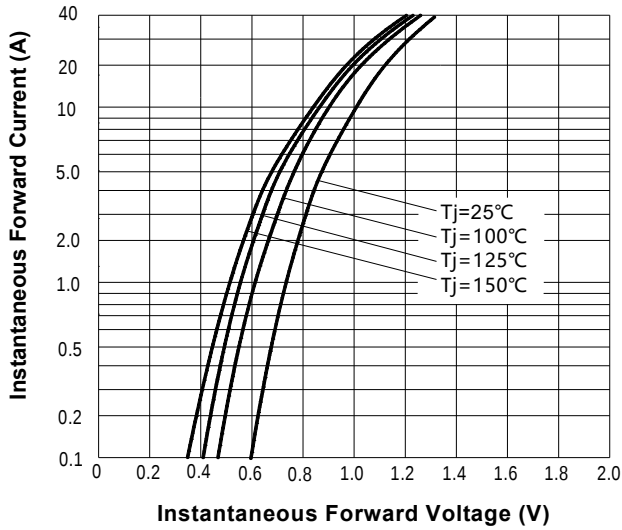


FIG.4: Instantaneous Reverse Characteristics

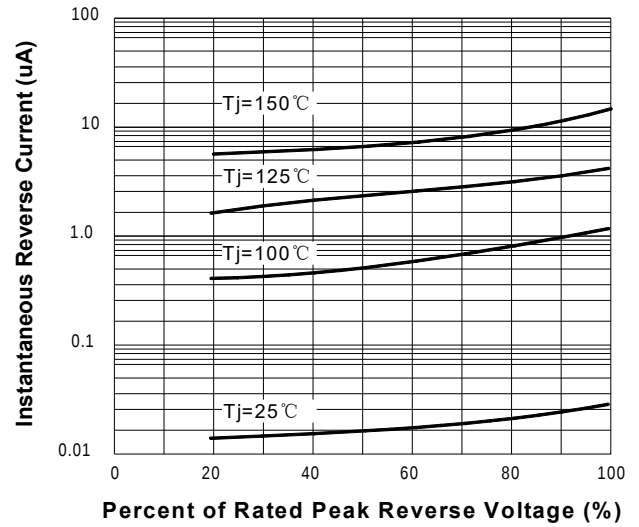
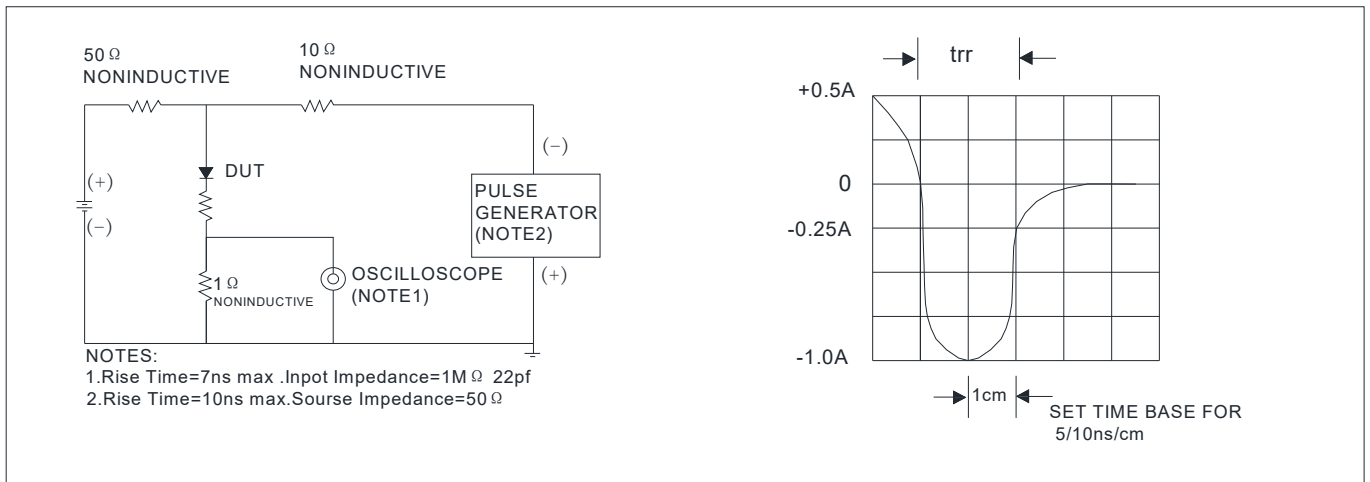


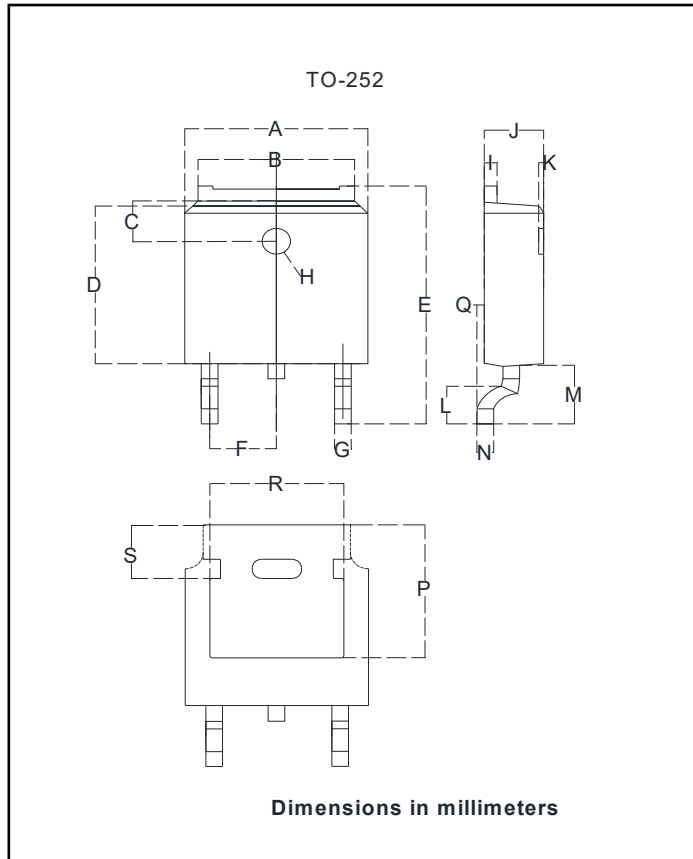
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time





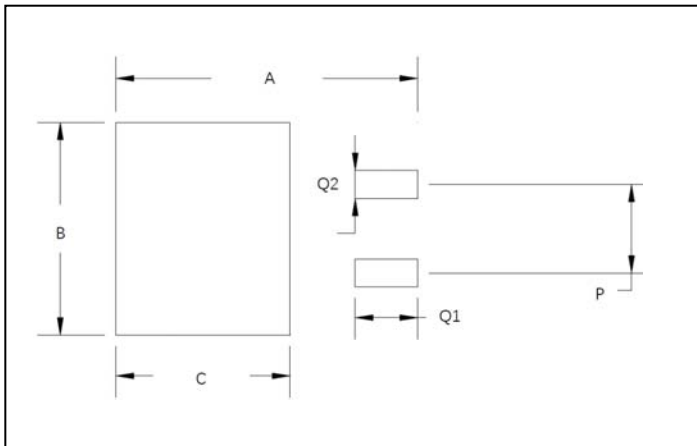
## MUR1620CD

### ■ Outline Dimensions



| TO-252 |              |              |
|--------|--------------|--------------|
| Dim    | Min          | Max          |
| A      | 6.500        | 6.700        |
| B      | 5.100        | 5.460        |
| C      | 1.400        | 1.800        |
| D      | 6.000        | 6.200        |
| E      | 10.000       | 10.400       |
| F      | 2.166        | 2.366        |
| G      | 0.660        | 0.860        |
| H      | $\Phi 1.050$ | $\Phi 1.350$ |
| I      | 0.460        | 0.580        |
| J      | 2.200        | 2.400        |
| K      | 0            | 0.300        |
| L      | 0.890        | 2.290        |
| M      | 2.730        | 3.080        |
| N      | 0.430        | 0.580        |
| P      | 5.15         | 5.45         |
| Q      | 0            | 0.2          |
| R      | 4.50         | 5.10         |
| S      | 1.60         | 2.40         |

### ■ Suggested Pad Layout



| Dim | Millimeters |
|-----|-------------|
| A   | 11.4        |
| B   | 6.74        |
| C   | 6.23        |
| P   | 4.56        |
| Q1  | 2.28        |
| Q2  | 1.52        |



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