

## Ultra-Fast Recovery Rectifier Diodes



### Features

- High frequency operation
- High surge forward current capability
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- 2000V Insulating capability
- Guard ring for enhanced ruggedness and long term reliability
- Solder dip 275 °C max.7s, per JESD 22-B106

### Typical Applications

Typical applications are in switching power supplies, converters, freewheeling diodes, and reverse battery protection.

### Mechanical Data

- **Package:** TO-247AB  
Inner-Insulated Instructure  
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              | MURIL6060PS |
|------------------------------------------------------------------------------------------|------------------|-------------------|-------------|
| Device marking code                                                                      |                  |                   | MURIL6060PS |
| Repetitive Peak Reverse Voltage                                                          | VRRM             | V                 | 600         |
| Average Rectified Output Current @60Hz half sine-wave, R-load, T <sub>c</sub> (FIG.1)    | I <sub>o</sub>   | A                 | 60          |
| Surge(Non-repetitive)Forward Current @60Hz half sine-wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A                 | 310         |
| Current Squared Time @1ms≤t≤8.3ms T <sub>j</sub> =25°C                                   | I <sup>2</sup> t | A <sup>2</sup> s. | 398         |
| Single Pulse Avalanche Energy @ T <sub>p</sub> =40uS, T <sub>j</sub> =25°C,L=15mH        | EAS              | mJ                | 750         |
| 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                | 410         |

# MURIL6060PS

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

| PARAMETER                                                 | SYMBOL            | UNIT | TEST CONDITIONS                                                                         | Min | Typ   | Max  |
|-----------------------------------------------------------|-------------------|------|-----------------------------------------------------------------------------------------|-----|-------|------|
| Instantaneous forward voltage drop per diode              | V <sub>FM</sub>   | V    | I <sub>FM</sub> =60.0A<br>T <sub>j</sub> =25°C                                          | -   | 1.65  | 1.80 |
| DC reverse current at rated DC blocking voltage per diode | I <sub>RRM1</sub> | uA   | V <sub>RM</sub> =V <sub>RRM</sub><br>T <sub>j</sub> =25°C                               | -   | -     | 5.0  |
|                                                           | I <sub>RRM2</sub> |      | V <sub>RM</sub> =V <sub>RRM</sub><br>T <sub>j</sub> =125°C                              | -   | -     | 200  |
| 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 T <sub>j</sub> =25°C | -   | 60    | 75   |
|                                                           |                   |      | T <sub>j</sub> =25°C                                                                    | -   | 80    | -    |
|                                                           |                   |      | T <sub>j</sub> =125°C                                                                   | -   | 150   | -    |
| Peak recovery current                                     | I <sub>RRM</sub>  | A    | T <sub>j</sub> =25°C                                                                    | -   | 6.80  | -    |
|                                                           |                   |      | T <sub>j</sub> =125°C                                                                   | -   | 18.35 | -    |
| Reverse recovery charge                                   | Q <sub>rr</sub>   | nC   | T <sub>j</sub> =25°C                                                                    | -   | 280   | -    |
|                                                           |                   |      | T <sub>j</sub> =125°C                                                                   | -   | 1360  | -    |

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

| PARAMETER          |                           | SYMBOL            | UNIT | MURIL6060PS |
|--------------------|---------------------------|-------------------|------|-------------|
| Thermal Resistance | Between junction and case | R <sub>θJ-C</sub> | °CW  | 1.0         |

## ■Ordering Information (Example)

| PREFERRED P/N | UNIT WEIGHT(g)  | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|-----------------|----------------------|-------------------------|----------------------------|---------------|
| MURIL6060PS   | Approximate 6.0 | 30                   | 360                     | 1800                       | Tube          |

## ■Characteristics (Typical)

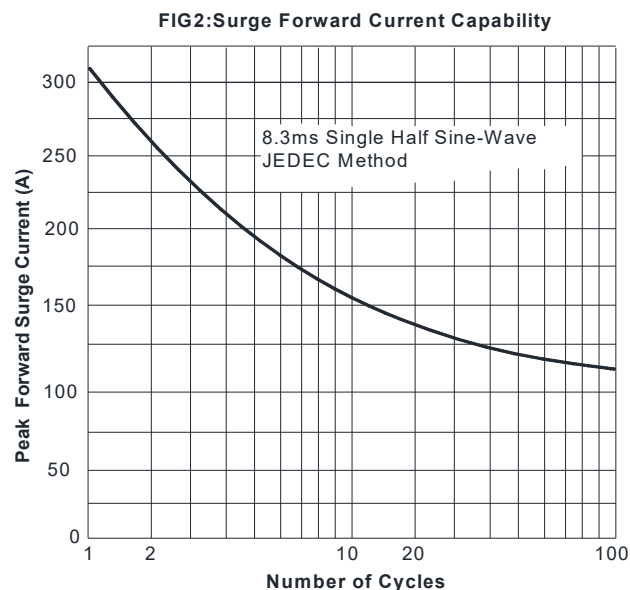
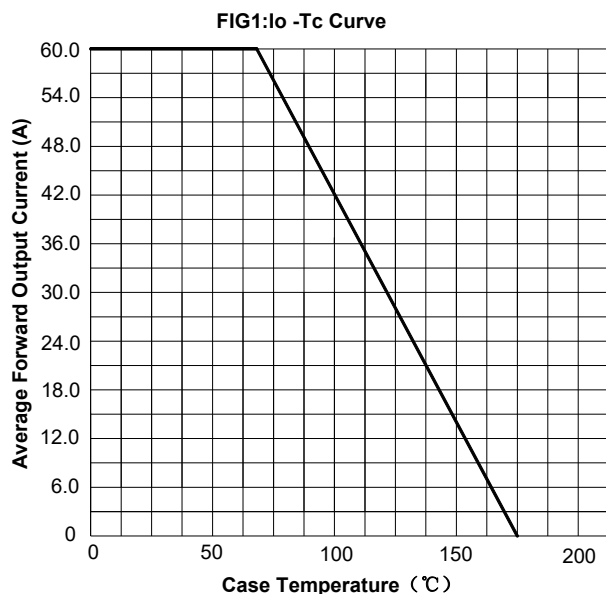


FIG3: Forward Voltage

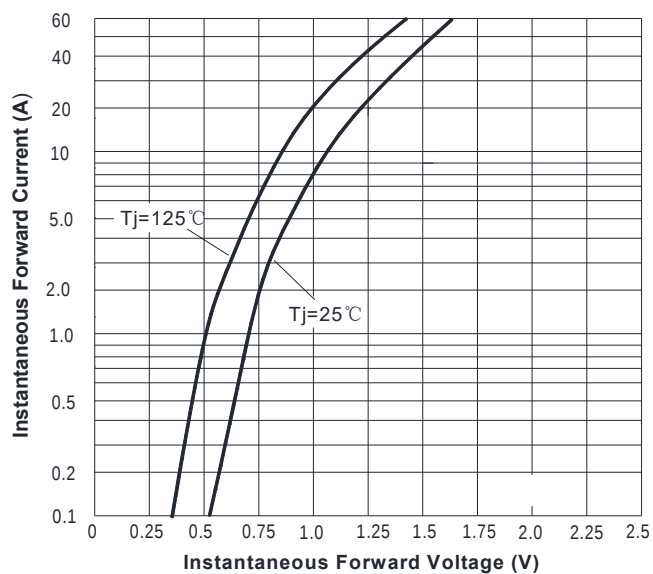


FIG4: Typical Reverse Characteristics

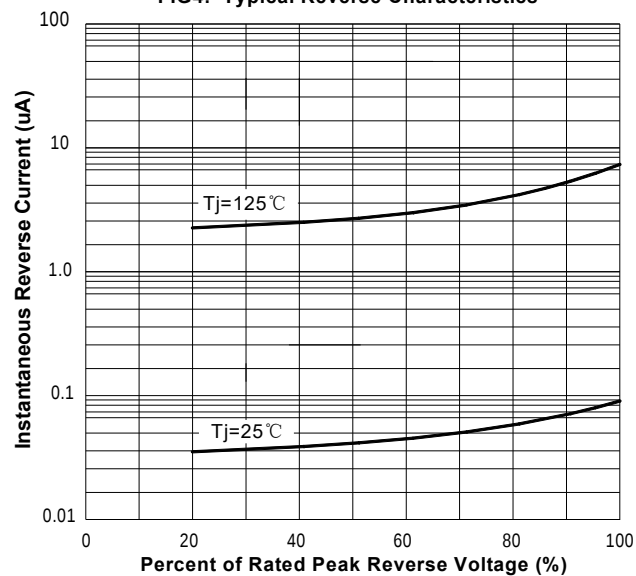
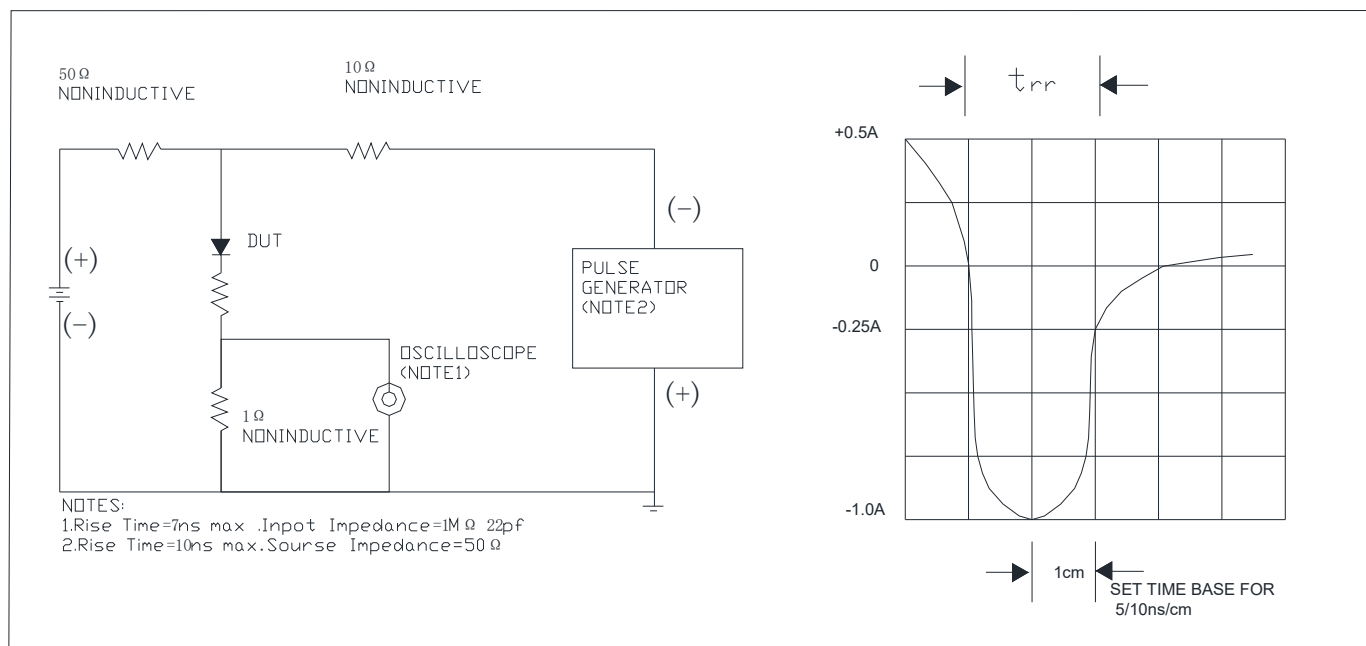
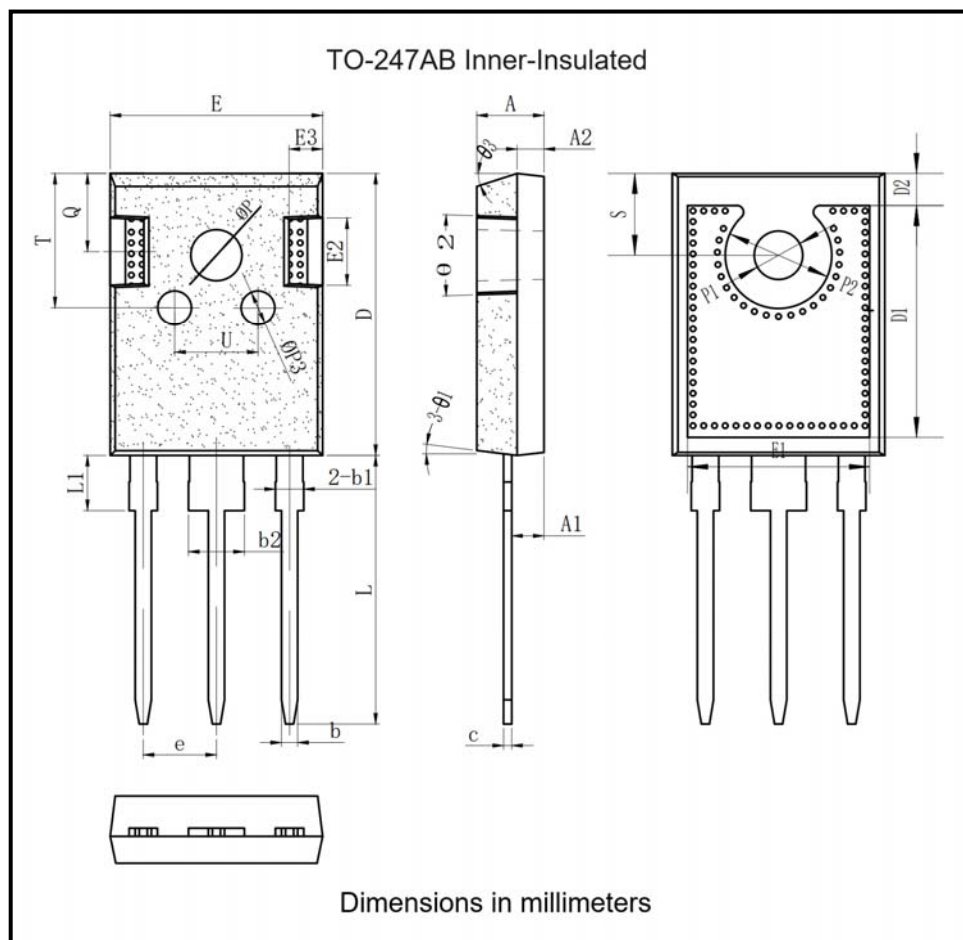


FIG.5 Diagram of circuit and Testing wave form of reverse recovery time



■ Outline Dimensions



| TO-247AB Inner-Insulated |        |       |
|--------------------------|--------|-------|
| Dim                      | Min    | Max   |
| A                        | 4.90   | 5.10  |
| A1                       | 2.31   | 2.51  |
| A2                       | 1.90   | 2.10  |
| b                        | 1.15   | 1.25  |
| b1                       | 1.95   | 2.25  |
| b2                       | 10.78  | 10.98 |
| C                        | 0.55   | 0.65  |
| D                        | 20.90  | 21.30 |
| D1                       | 17.10  | 17.50 |
| D2                       | 2.25   | 2.55  |
| E                        | 15.70  | 15.90 |
| E1                       | 13.38  | 13.68 |
| E2                       | 4.90   | 5.10  |
| E3                       | 2.40   | 2.60  |
| e                        | 5.40   | 5.48  |
| L                        | 19.80  | 20.15 |
| L1                       | -      | 4.30  |
| $\Phi P$                 | 3.60   | 3.80  |
| $\Phi P1$                | 3.45   | 3.65  |
| $\Phi P2$                | 7.75   | 8.05  |
| $\Phi P3$                | 2.40   | 2.60  |
| Q                        | 5.60   | 6.00  |
| S                        | 6.05   | 6.25  |
| T                        | 9.80   | 10.20 |
| U                        | 6.00   | 6.40  |
| $\theta 1$               | 7°BSC  |       |
| $\theta 2$               | 3°BSC  |       |
| $\theta 3$               | 15°BSC |       |

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