



MUR2005 THRU MUR2070

| | |
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| VOLTAGE RANGE | 100 to 600 Volts |
| CURRENT | 20.0 Ampere |

Features

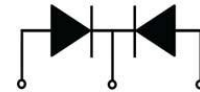
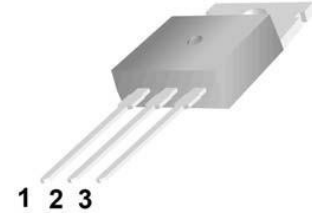
- Low power loss, high efficiency, High surge capacity
- For use in low voltage, high frequency inverters
- Metal silicon junction, majority carrier conduction
- High current Capability, low forward voltage drop
- Guard ring for over voltage protection

TO-220AB



Mechanical Data

- Case: TO-220AB molded plastic over glass passivated chip
- Case: Copper base plate & Plastic Shell
- Molding compound meets UL 94 V-0 flammability rating, Halogen-free, RoHS-compliant, and commercial grade
- Weight: 0.08ounce, 2.24 gram



1. Anode 2. Cathode 3. Anode

Maximum Ratings and Electrical Characteristics

- Ratings at 25°C ambient temperature unless otherwise specified
- Single Phase, half wave, 60Hz, resistive or inductive load
- For capacitive load derate current by 20%

| TYPE NUMBER | SYMBOLS | MUR 2005 | MUR 2010 | MUR 2020 | MUR 2030 | MUR 2040 | MUR 2070 | UNIT |
|---|-----------------|---------------------------|----------|----------|----------|----------|----------|---------------------------|
| Maximum Repetitive Peak Reverse Voltage | V_{RRM} | 100 | 150 | 200 | 300 | 400 | 600 | Volts |
| Maximum RMS Voltage | V_{RMS} | 70 | 105 | 140 | 210 | 280 | 420 | Volts |
| Maximum DC Blocking Voltage | V_{DC} | 100 | 100 | 200 | 300 | 400 | 600 | Volts |
| Maximum Average Forward Rectified Current 0.375"(9.5mm) lead length at $T_A=100^\circ\text{C}$ | $I_{(AV)}$ | 10 | | | | | | Amps |
| Peak Forward Surge Current 8.3mS single half sine wave superimposed on rated load (JEDEC method) | I_{FSM} | 250 | | | | | | Amps |
| Maximum Instantaneous Forward Voltage at 10A ^(NOTE 3) | V_F | 0.95 | | 1.25 | | 1.70 | | Volts |
| Maximum DC Reverse Current at rated DC blocking Voltage at | I_R | $T_A = 25^\circ\text{C}$ | | | | | | μA |
| | | $T_A = 100^\circ\text{C}$ | | | | | | |
| Maximum Reverse Recovery Time ^(NOTE 1) | T_{RR} | 35 | | | 50 | | | nS |
| Typical Junction Capacitance ^(NOTE 2) | C_J | 62 | | | | | | pF |
| Typical Thermal Resistance ^(NOTE 4) | $R_{\theta JA}$ | 1.4 | | | | | | $^\circ\text{C}/\text{W}$ |
| Operating Junction Temperature Range | T_J | (-55 to +150) | | | | | | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | (-55 to +150) | | | | | | $^\circ\text{C}$ |

Notes:

1. Reverse Recovery Test Conditions: $I_f=0.5\text{A}$, $I_r=1.0\text{A}$, $I_{rr}=0.25\text{A}$.
2. Measured at 1.0MHz and applied reverse voltage of 4.0 Volts.
3. Pulse test: 300 μs pulse width, 1% duty cycle
4. Unit mounted on P.C.B. with 0.033"×0.043"(1.00mm×1.30mm) copper pads.



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Ratings and Characteristic Curves ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

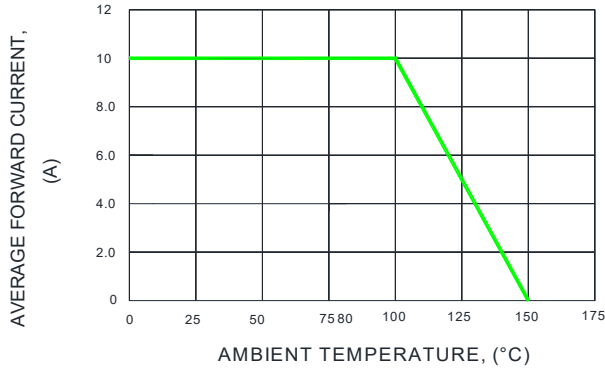


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

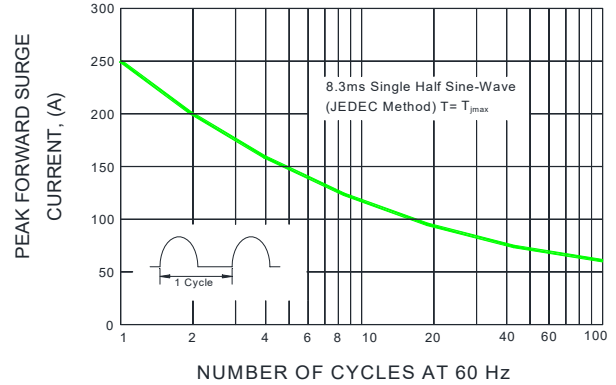


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

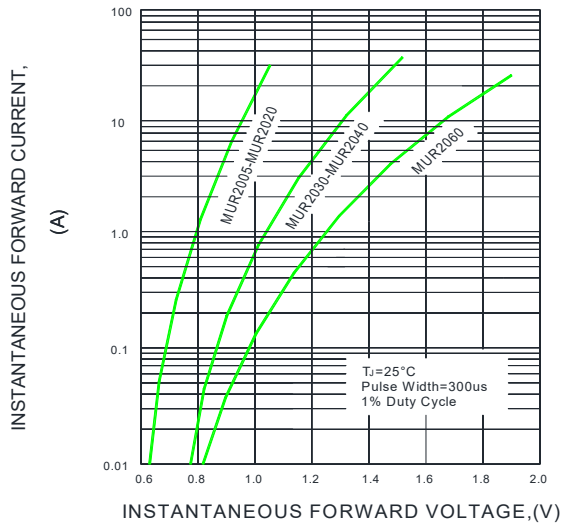


FIG.4-TYPICAL REVERSE CHARACTERISTICS

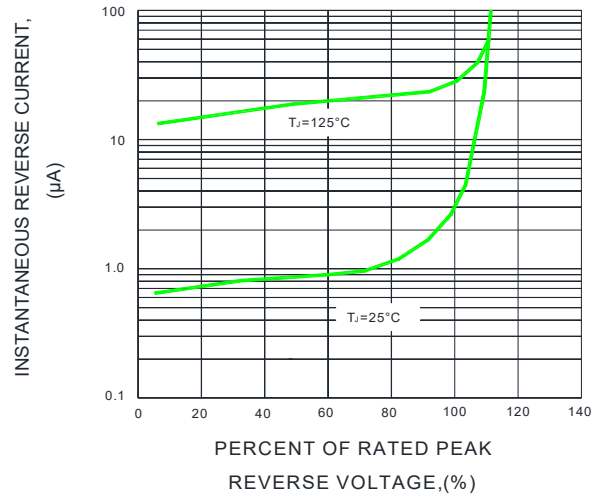


FIG.5-TYPICAL JUNCTION CAPACITANCE

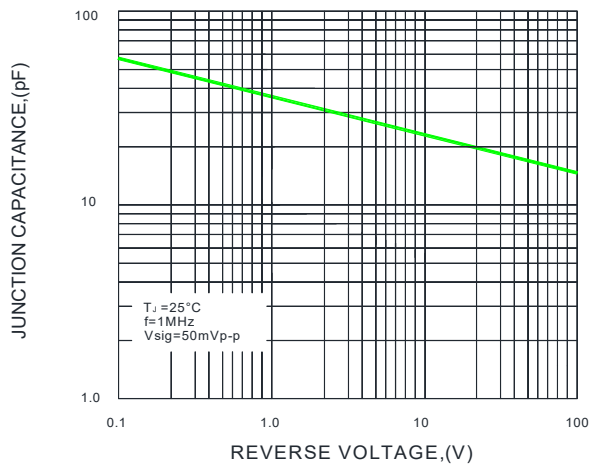
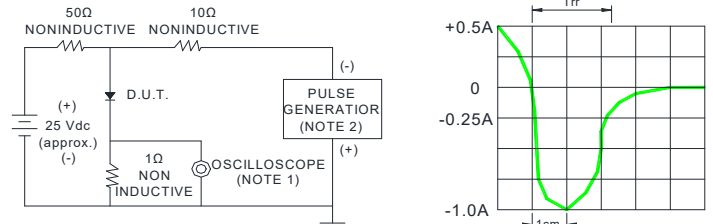


FIG.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



- NOTES : 1. Rise Time=7ns max. Input Impedance= 1 magohm. 22pF
- 2. Rise time=10ns max. Source Impedance= 50 ohms

SET TIME BASE FOR 50/100ns/cm



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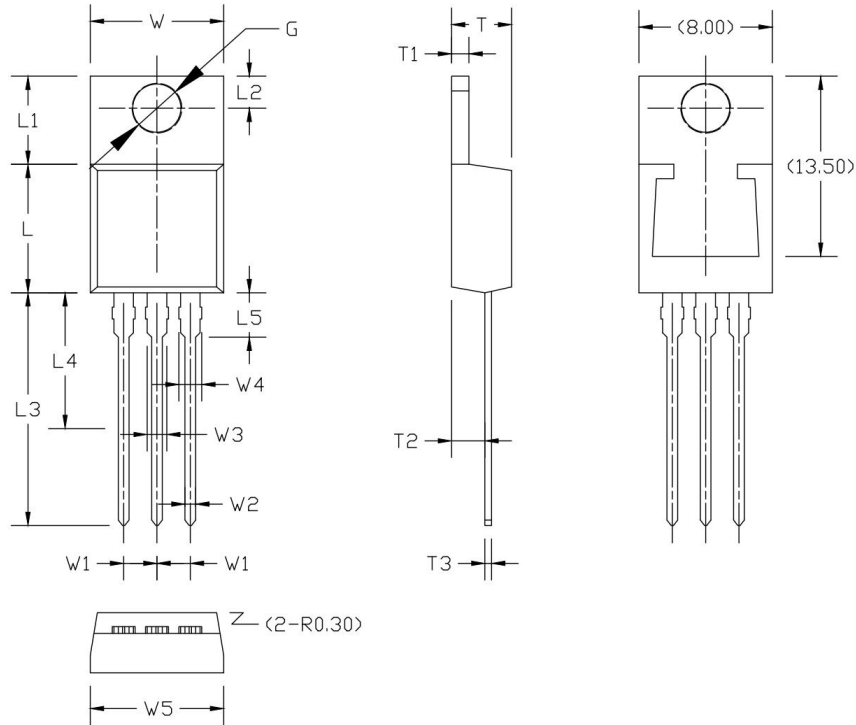
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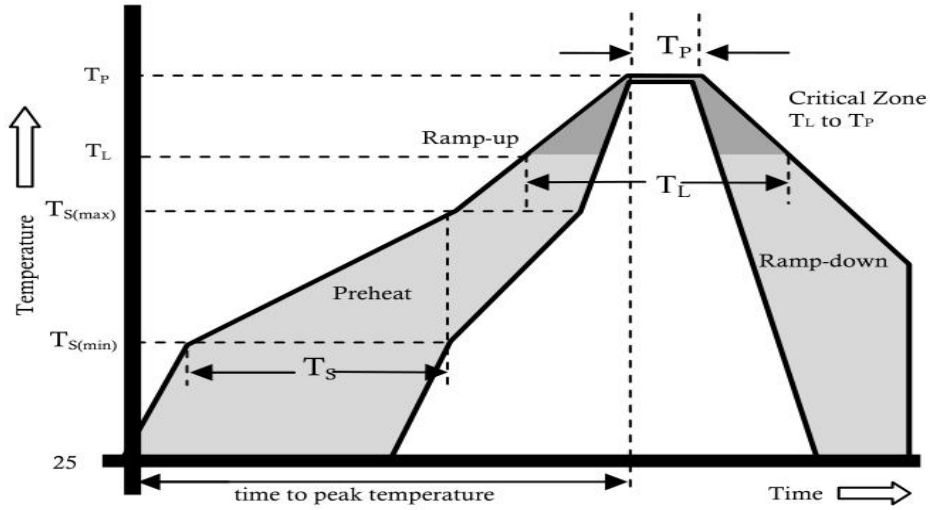
Package Outline Dimensions millimeters



| Symbol | Size | | Symbol | Size | | Symbol | Size | | Symbol | Size | |
|--------|------|-------|--------|-------|-------|--------|------|------|--------|------|------|
| | Min | Max | | Min | Max | | Min | Max | | Min | Max |
| W | 9.66 | 10.28 | W5 | 9.80 | 10.20 | L4 | 6.60 | 7.10 | T3 | 0.35 | 0.45 |
| W1 | 2.54 | (TYP) | L | 8.30 | 9.00 | L5 | 3.69 | 4.10 | G(Φ) | 3.70 | 3.90 |
| W2 | 0.70 | 0.95 | L1 | 6.10 | 6.60 | T | 4.30 | 4.70 | | | |
| W3 | 1.17 | 1.37 | L2 | 2.70 | 2.90 | T1 | 1.15 | 1.40 | | | |
| W4* | 1.32 | 1.72 | L3 | 12.70 | 14.27 | T2 | 2.20 | 2.80 | | | |



Reflow Profile



| Reflow Condition | | Pb-Free Assembly |
|---|----------------------------|------------------|
| Pre Heat | Temperature Min. | +150°C |
| | Temperature Max. | +200°C |
| | Time(Min to Max) | 60-180 secs. |
| Average ramp up rate(Liquidus Temp(TL) to peak) | | 3°C/sec. Max. |
| TS(max) to TL - Ramp-up Rate | | 3°C/sec. Max. |
| Reflow | Temperature (TL)(Liquidus) | +217°C |
| | Temperature (TL) | 60-150 secs. |
| Peak Temp (TP) | | +(260+0/-5)°C |
| Time within 5°C of actual Peak Temp (TP) | | 25 secs. |
| Ramp-down Rate | | 6°C/sec. Max. |
| Time 25°C to peak Temp (TP) | | 8 min. Max. |
| Do not exceed | | +260°C |



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Disclaimer

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