MUR1620CT

GLASS PASSIVATED HIGH EFFICIENCY RECTIFIER

Reverse Voltage – 50 to 1000 Volts
Forward Current – 16.0 Amperes

Features
- Low forward voltage, High current capability
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O utilizing Flame Retardant Epoxy Molding Compound.
- High surge capacity
- Low power loss, high efficiency
- Ultra fast recovery times, high voltage

Mechanical Data
- **Case**: Molded plastic, TO-220
- **Terminals**: leads solderable per MIL-STD-202, method 208 guaranteed
- **Polarity**: As marked
- **Mounting Position**: Any

Absolute Maximum Ratings and 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%.

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Value</th>
<th>Units</th>
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<tr>
<td>Maximum recurrent peak reverse voltage</td>
<td>$V_{RRM}$</td>
<td>200 Volts</td>
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<tr>
<td>Maximum RMS voltage</td>
<td>$V_{RMS}$</td>
<td>140 Volts</td>
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<tr>
<td>Maximum DC blocking voltage</td>
<td>$V_{DC}$</td>
<td>200 Volts</td>
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<tr>
<td>Maximum average forward Rectified current at $T_C$ = 100°C</td>
<td>$I_{F(AV)}$</td>
<td>16.0 Amps</td>
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<tr>
<td>Peak forward surge current 8.3ms single half-sine-wave superimposed on rated load (JEDEC method)</td>
<td>$I_{FSM}$</td>
<td>125 Amps</td>
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<tr>
<td>Maximum forward voltage at 8.0A and $T_A$ = 25°C</td>
<td>$V_F$</td>
<td>1.0 Volts</td>
</tr>
<tr>
<td>Typical junction Capacitance (Note1)</td>
<td>$C_J$</td>
<td>80 pF</td>
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<td>Maximum reverse recovery time (Note 2)</td>
<td>$T_{RR}$</td>
<td>50 nS</td>
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<tr>
<td>Typical thermal resistance (Note3)</td>
<td>$R_{0JC}$</td>
<td>3.0 °C/W</td>
</tr>
<tr>
<td>Maximum reverse current at rated DC blocking voltage</td>
<td>$I_R$</td>
<td>10 µAmps</td>
</tr>
<tr>
<td>Operating and storage temperature range</td>
<td>$T_J , T_s$</td>
<td>-55 to +150 °C</td>
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</table>

Notes:
1. Measured at 1 MHz and applied reverse voltage of 4.0 VDC.
2. Reverse recovery test conditions: $I_F = 0.5A$, $I_R = 1A$, $I_{RR} = 0.25A$
3. Thermal resistance from junction to case per leg mounted on heatsink.

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FIG. 1 Reverse Recovery Time Characteristic and Test Circuit Diagram

50Ω NONINDUCTIVE
10Ω NONINDUCTIVE
DUT
(+) 50Vdc (approx)
(-) 1Ω NON INDUCTIVE
OSCILLOSCOPE
(NOTE 1)

NOTES: 1. Rise Time=7ns max. Input Impedance=
1 megohm 22 pf
2. Rise Time=10ns max. Source Impedance=
50 ohms

FIG. 2 Maximum Forward Current Derating Curve

Average Forward Current (A)

Case Temperature (°C)

FIG. 3 Typical Reverse Characteristics Per Leg

Percent of Rated Peak Reverse Voltage (%)

FIG. 4 Maximum Non-repetitive Forward Surge Current Per Leg

Peak Forward Surge Current (A)

Number of Cycles at 60Hz

Tj=25°C 8.3ms Single Half Sine Wave
JEDEC Method

FIG. 5 Typical Junction Capacitance Per Leg

Capacitance (pF)

Reverse Voltage (V)

FIG. 6 Typical Forward Characteristics Per Leg

Instantaneous Forward Current (A)

Forward Voltage (V)

Tj=25°C PULSE WIDTH=300μs
1% DUTY CYCLE