

**TO-220-3L Plastic-Encapsulate Diode****MUR16H20CT** HYPERFAST RECTIFIER, FRED**MAIN CHARACTERISTICS**

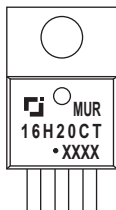
| | |
|--------------|--------------------------------------|
| I_o | 16(8×2)A |
| V_{RRM} | 200V |
| T_{rr} | 14ns |
| T_j | 175°C |
| $V_{F(typ)}$ | 0.8V(@$T_j=150°C$) |

FEATURES

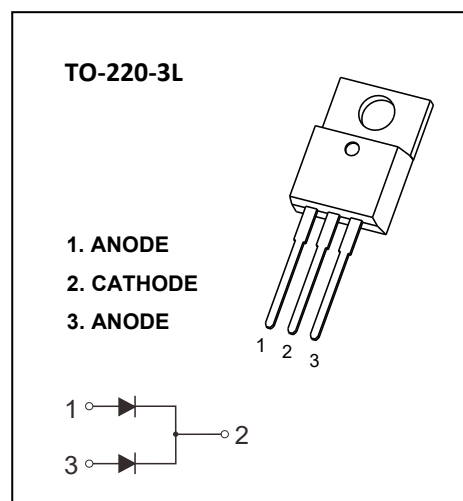
- Ultrafast Recovery Times and Low Recovery Loss
- Low Forward Voltage
- Low Reverse Leakage Current

APPLICATIONS

Specifically designed to improve efficiency of PFC and output rectification stages of EV / HEV battery charging stations, booster stage of solar inverters and UPS applications, these devices are perfectly matched to operate with MOSFETs or high speed IGBTs.

MARKING

MUR16H20CT = Device code
 Solid dot = Green molding compound device
 if none, the normal device
 XXXX = Code

**MAXIMUM RATINGS ($T_c=25°C$ unless otherwise noted)**

| Symbol | Parameter | MUR16H20CT | Unit |
|-----------------|---|------------|------|
| V_{RRM} | Peak Repetitive Reverse Voltage | 200 | V |
| V_R | DC Blocking Voltage | | |
| $I_{F(AV)}$ | Average rectified output current@ Per leg($T_c=153°C$) | 8 | A |
| | Average rectified output current@ Total device($T_c=153°C$) | 16 | |
| $I_{F(RMS)}$ | RMS Forward Current($T_c=153°C$) | 11 | A |
| I_{FSM} | Non-Repetitive Surge Forward Current (8.3ms) | 130 | A |
| P_D | Power dissipation | 45 | W |
| $R_{\theta JC}$ | Thermal Resistance From Junction to Case@ Per leg | 3.3 | °C/W |
| T_j | Operating Junction Temperature Range | -55 ~ +175 | °C |
| T_{stg} | Storage Temperature Range | -55 ~ +175 | °C |

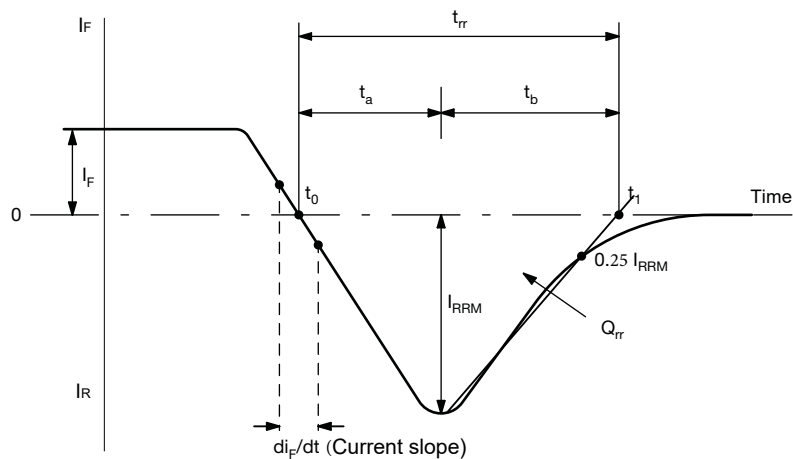
Typical Characteristics

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------|-----------------------|--|-------------------------|------|------|---------------|
| $V_{(BR)}$ | Reverse Voltage | $I_R=100\mu\text{A}$ | 200 | | | V |
| I_R | Reverse Current | $V_R=200\text{V}$ | $T_J=25^\circ\text{C}$ | | 1 | μA |
| | | | $T_J=150^\circ\text{C}$ | | 250 | μA |
| V_F | Forward Voltage | $I_F=8\text{A}$ | $T_J=25^\circ\text{C}$ | 0.9 | 1.1 | V |
| | | | $T_J=150^\circ\text{C}$ | 0.8 | | V |
| C_{tot} | Total Capacitance | $V_R=200\text{V}, f=1\text{MHz}$ | | 80 | | pF |
| t_{rr} | Reverse Recovery time | $I_F=0.5\text{A}, I_R=1\text{A}, I_{rr}=0.25\text{A}$ | | 16 | | ns |
| | | $I_F=1\text{A}, V_R=30\text{V}, di_F/dt = 200\text{A}/\mu\text{s}$ | | 14 | | ns |

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise specified)

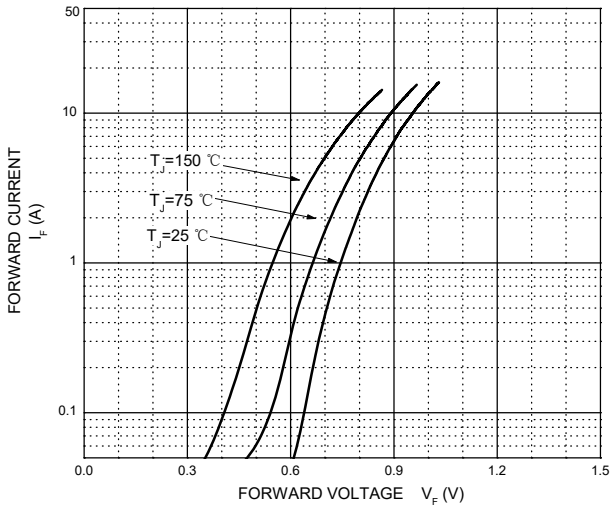
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------|-------------------------------|---|------|------|------|------|
| t_{rr} | Reverse Recovery Time | $I_F=10\text{A}, V_R=100\text{V}, di_F/dt=200\text{A}/\mu\text{s}$ | | 17 | | ns |
| I_{RRM} | Max. Reverse Recovery Current | | | 3.5 | | A |
| Q_{rr} | Reverse Recovery Charge | | | 31 | | nC |
| t_{rr} | Reverse Recovery Time | $I_F=10\text{A}, V_R=100\text{V}, di_F/dt=200\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$ | | 32 | | ns |
| I_{RRM} | Max. Reverse Recovery Current | | | 6 | | A |
| Q_{rr} | Reverse Recovery Charge | | | 97 | | nC |
| t_{rr} | Reverse Recovery Time | $I_F=10\text{A}, V_R=100\text{V}, di_F/dt=500\text{A}/\mu\text{s}, T_J=125^\circ\text{C}$ | | 27 | | ns |
| I_{RRM} | Max. Reverse Recovery Current | | | 13 | | A |
| Q_{rr} | Reverse Recovery Charge | | | 173 | | nC |



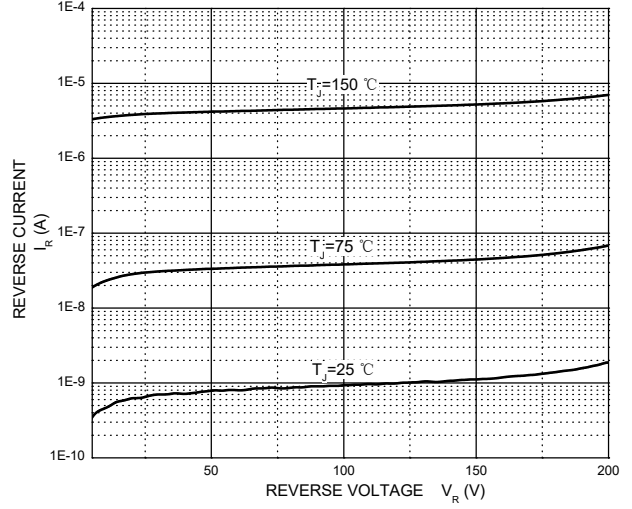
Reverse Recovery Waveform and Definitions

Typical Characteristics

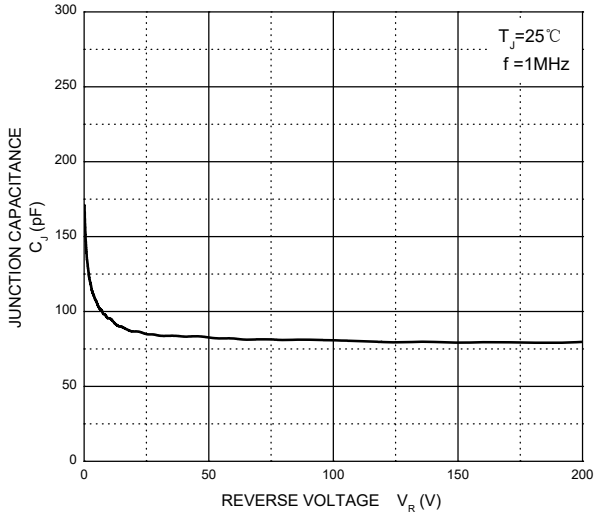
Forward Characteristics



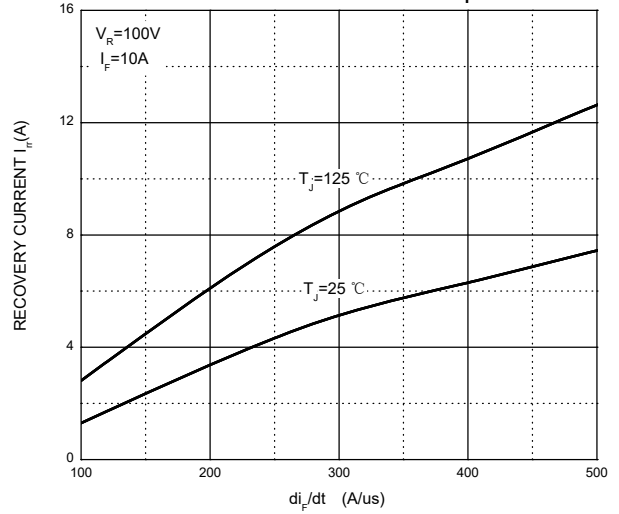
Reverse Characteristics



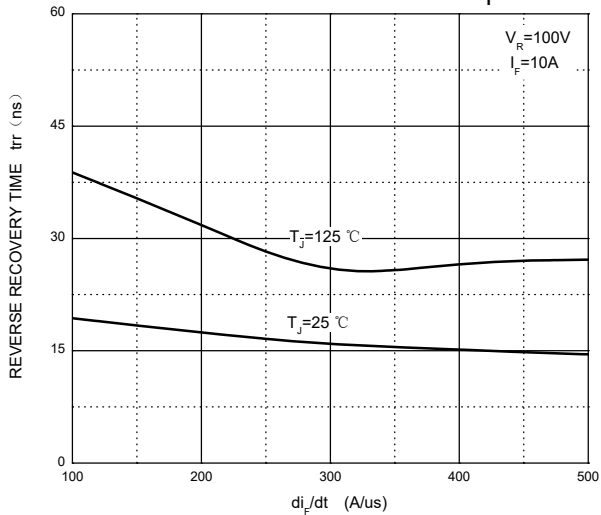
Capacitance Characteristics Per Diode



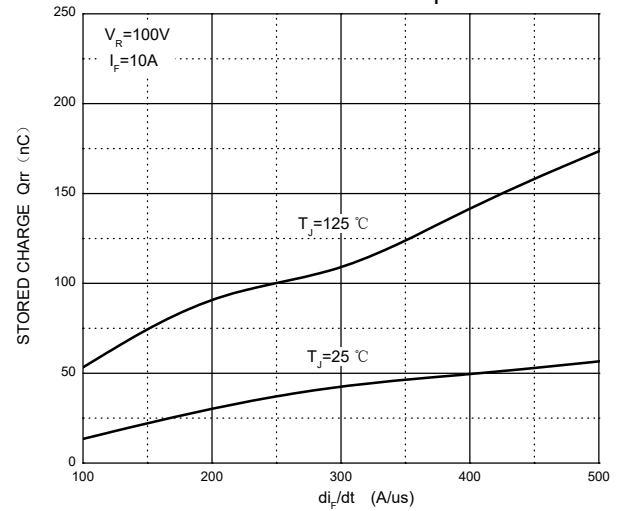
Recovery Current vs. di_F/dt



Reverse Recovery Time vs. di_F/dt

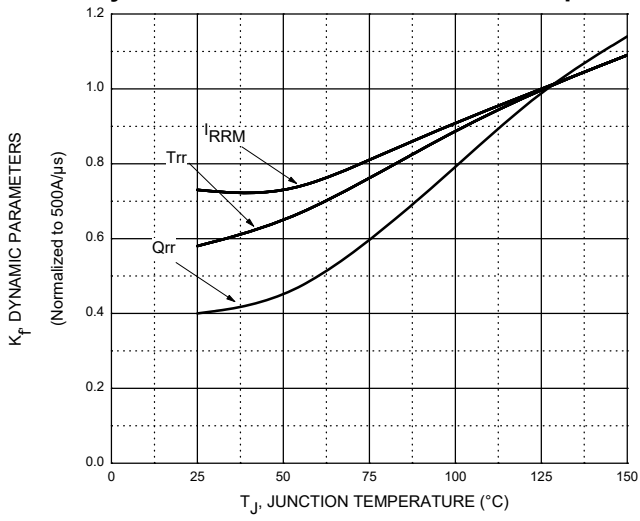


Stored Charge vs. di_F/dt

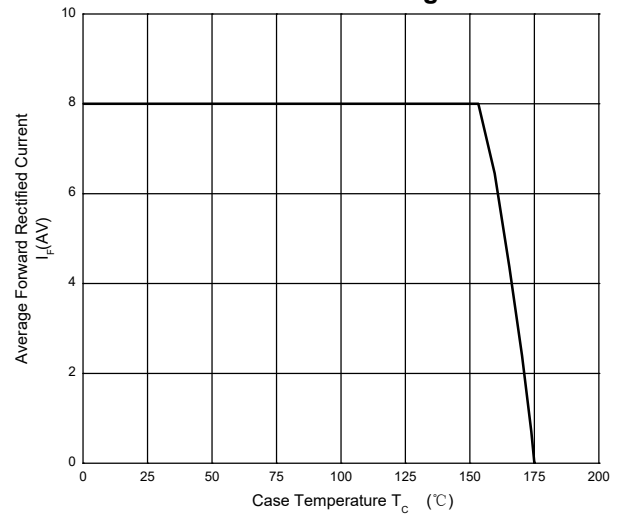


Typical Characteristics

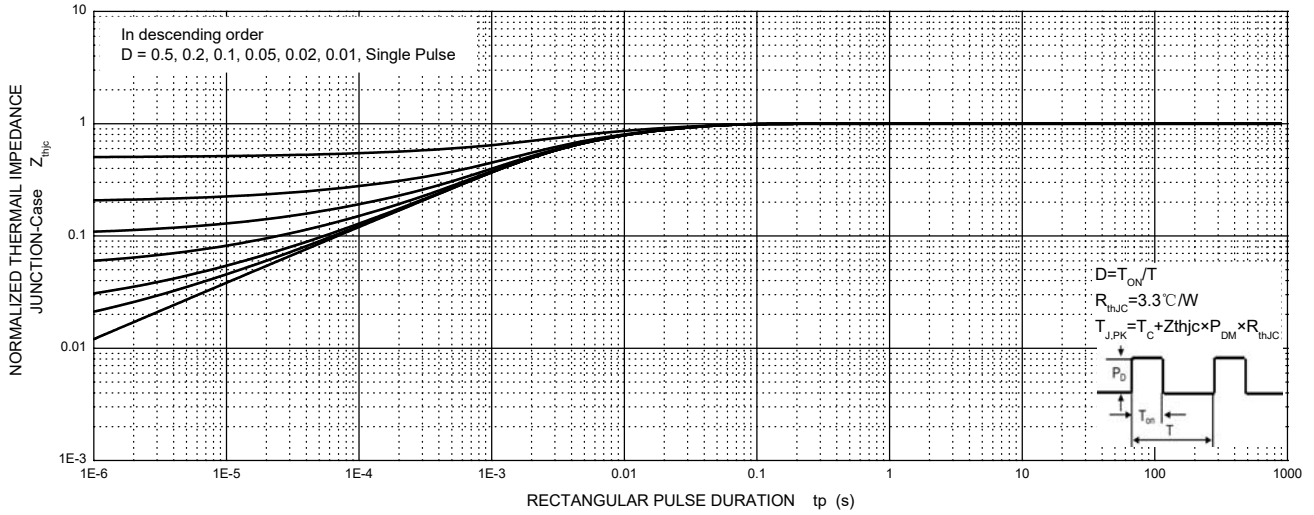
Dynamic Parameters vs. Junction Temperature



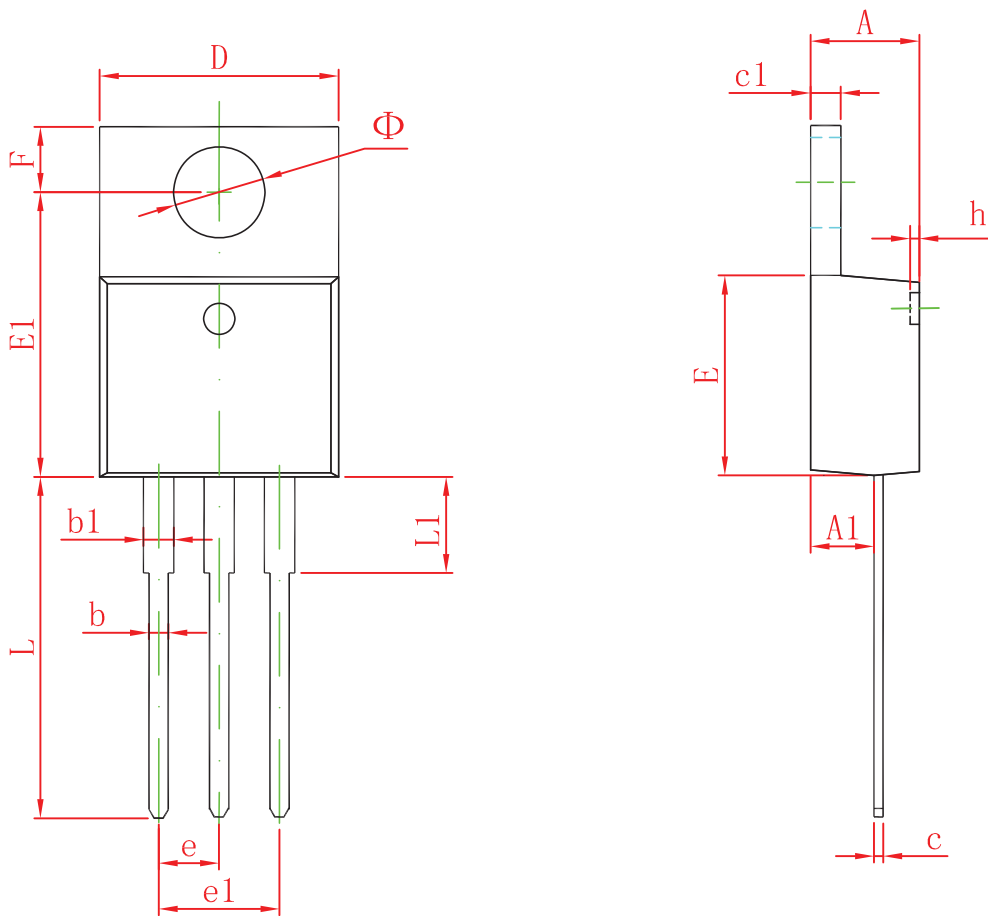
Current Derating



MUR16H20CT Transient Thermal Impedance, Junction-Case



TO-220-3L Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 4.450 | 4.750 | 0.175 | 0.187 |
| A1 | 2.520 | 2.820 | 0.099 | 0.111 |
| b | 0.710 | 0.910 | 0.028 | 0.036 |
| b1 | 1.170 | 1.370 | 0.046 | 0.054 |
| c | 0.300 | 0.500 | 0.012 | 0.020 |
| c1 | 1.170 | 1.370 | 0.046 | 0.054 |
| D | 9.830 | 10.330 | 0.387 | 0.407 |
| E | 8.500 | 8.900 | 0.335 | 0.350 |
| E1 | 12.050 | 12.650 | 0.474 | 0.498 |
| e | 2.540 TYP | | 0.100 TYP | |
| e1 | 4.900 | 5.200 | 0.192 | 0.205 |
| F | 2.540 | 2.940 | 0.100 | 0.116 |
| h | 0.100 TYP | | 0.004 TYP | |
| L | 13.300 | 13.800 | 0.523 | 0.543 |
| L1 | 3.540 | 3.940 | 0.139 | 0.155 |
| Φ | 3.735 | 3.935 | 0.147 | 0.155 |