

## 16A, 200V - 600V Ultra Fast Rectifier

### FEATURES

- AEC-Q101 qualified available
- Ultra fast recovery times
- 175°C operating junction temperature
- Popular TO-220AB Package
- High temperature glass passivated junction
- High voltage capability to 600 volts
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

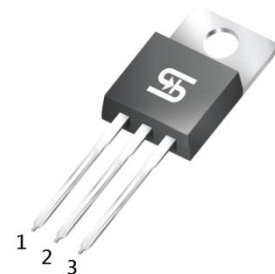
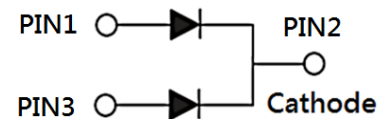
### APPLICATIONS

- DC to DC converters
- Switching mode converters and inverters
- Freewheeling application

### MECHANICAL DATA

- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.82g (approximately)

| KEY PARAMETERS |           |      |
|----------------|-----------|------|
| PARAMETER      | VALUE     | UNIT |
| $I_F$          | 16        | A    |
| $V_{RRM}$      | 200 - 600 | V    |
| $I_{FSM}$      | 100       | A    |
| $T_{JMAX}$     | 175       | °C   |
| Package        | TO-220AB  |      |
| Configuration  | Dual dies |      |


**TO-220AB**


| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)        |              |             |           |           |      |
|--|--------------|-------------|-----------|-----------|------|
| PARAMETER  | SYMBOL       | MUR1620CT   | MUR1640CT | MUR1660CT | UNIT |
| Marking code on the device   |              | MUR1620CT   | MUR1640CT | MUR1660CT |      |
| Repetitive peak reverse voltage  | $V_{RRM}$    | 200         | 400       | 600       | V    |
| Reverse voltage, total rms value   | $V_{R(RMS)}$ | 140         | 280       | 420       | V    |
| Forward current  | $I_F$        | 16          |           |           | A    |
| Surge peak forward current, 8.3ms single half sine wave superimposed on rated load | $I_{FSM}$    | 100         |           |           | A    |
| Junction temperature   | $T_J$        | -55 to +175 |           |           | °C   |
| Storage temperature  | $T_{STG}$    | -55 to +175 |           |           | °C   |

**THERMAL PERFORMANCE**

| PARAMETER                           |                        | SYMBOL          | TYP | UNIT |
|-------------------------------------|------------------------|-----------------|-----|------|
| Junction-to-case thermal resistance | MUR1620CT              | $R_{\theta JC}$ | 3   | °C/W |
| Junction-to-case thermal resistance | MUR1640CT<br>MUR1660CT | $R_{\theta JC}$ | 2   | °C/W |

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| PARAMETER  |                        | CONDITIONS  | SYMBOL   | TYP | MAX   | UNIT          |
|--|------------------------|---|----------|-----|-------|---------------|
| Forward voltage per diode <sup>(1)</sup>               | MUR1620CT              | $I_F = 8\text{A}, T_J = 25^\circ\text{C}$                     | $V_F$    | -   | 0.975 | V             |
|  | MUR1640CT              |   |          | -   | 1.300 | V             |
|  | MUR1660CT              |   |          | -   | 1.500 | V             |
|  | MUR1620CT              | $I_F = 8\text{A}, T_J = 150^\circ\text{C}$                    |          | -   | 0.895 | V             |
|  | MUR1640CT              |   |          | -   | 1.100 | V             |
|  | MUR1660CT              |   |          | -   | 1.200 | V             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup> | MUR1620CT              | $T_J = 25^\circ\text{C}$                                      | $I_R$    | -   | 5     | $\mu\text{A}$ |
|  | MUR1640CT<br>MUR1660CT |   |          | -   | 10    | $\mu\text{A}$ |
|  | MUR1620CT              | $T_J = 125^\circ\text{C}$                                     |          | -   | 250   | $\mu\text{A}$ |
|  | MUR1640CT<br>MUR1660CT |   |          | -   | 500   | $\mu\text{A}$ |
| Reverse recovery time                                  | MUR1620CT              | $I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$ | $t_{rr}$ | -   | 25    | ns            |
|  | MUR1640CT              |   |          | -   | 50    | ns            |
|  | MUR1660CT              |   |          | -   | 50    | ns            |

**Notes:**

1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

**ORDERING INFORMATION**

| ORDERING CODE <sup>(1)(2)</sup> | PACKAGE  | PACKING   |
|---------------------------------|----------|-----------|
| MUR16xCT                        | TO-220AB | 50 / Tube |
| MUR16xCTH                       | TO-220AB | 50 / Tube |

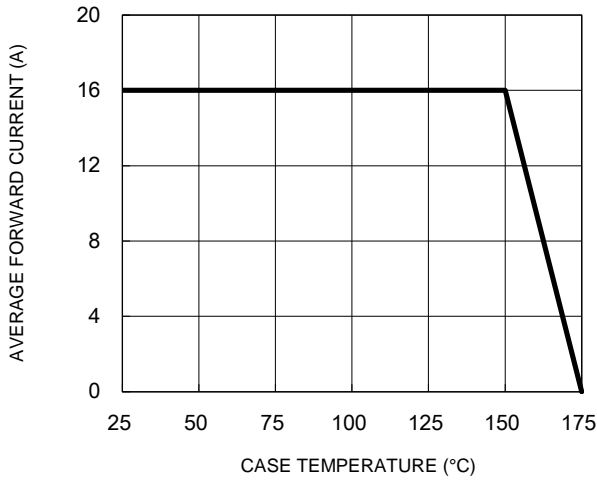
**Notes:**

1. "x" defines voltage from 200V(MUR1620CT) to 600V(MUR1660CT)
2. "H" means AEC-Q101 qualified

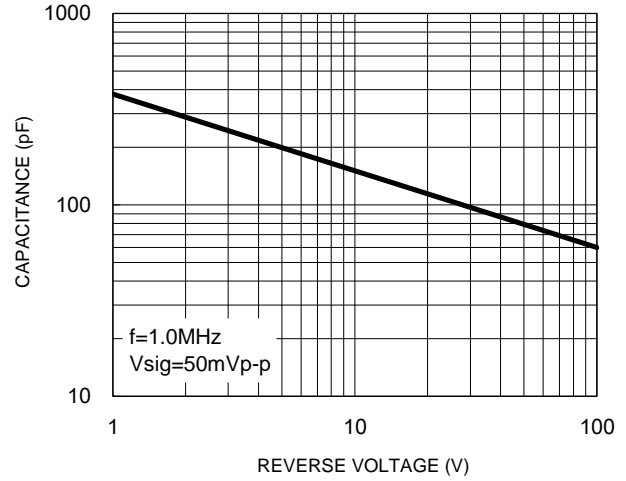
**CHARACTERISTICS CURVES**

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

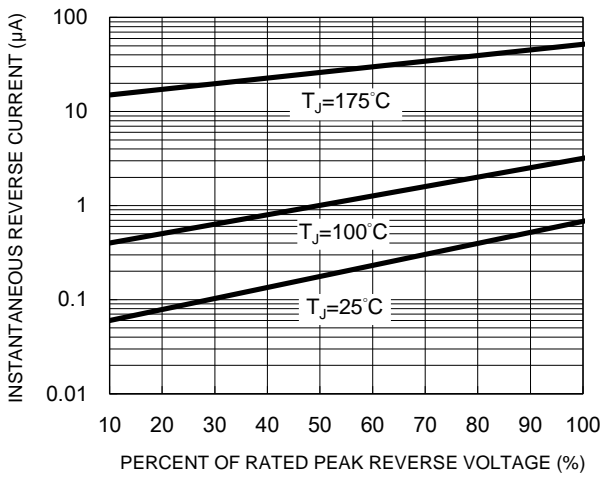
**Fig.1 Forward Current Derating Curve**



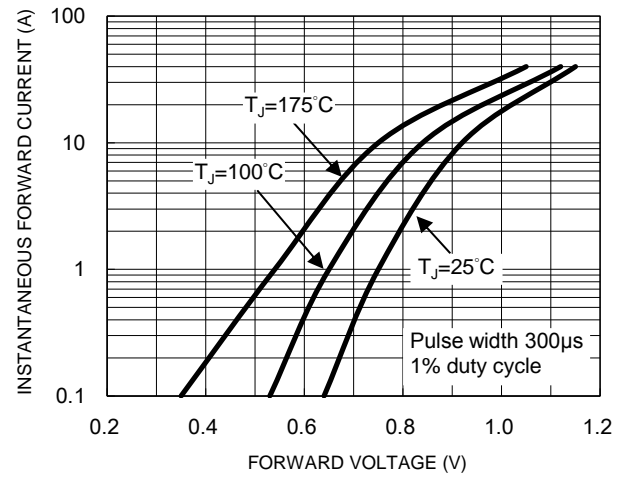
**Fig.2 Typical Junction Capacitance**



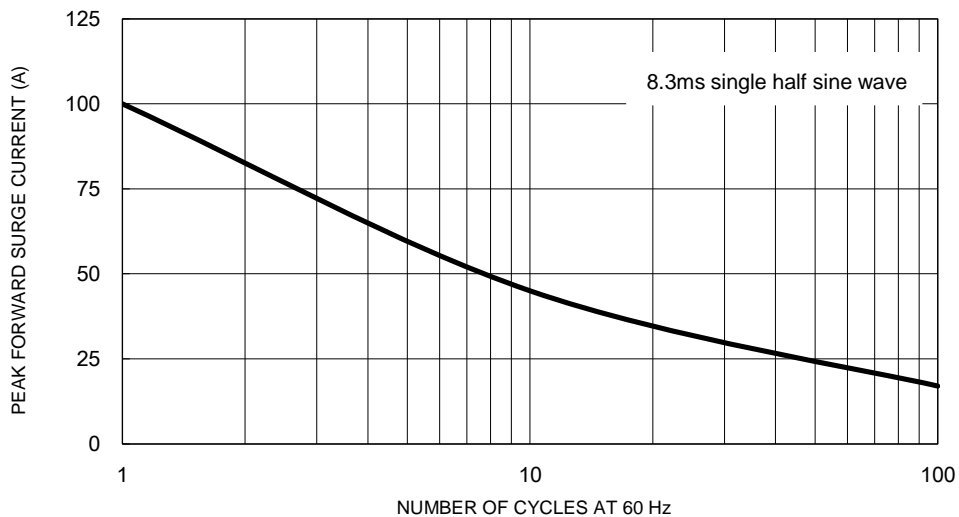
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



**Fig.5 Maximum Non-Repetitive Forward Surge Current**



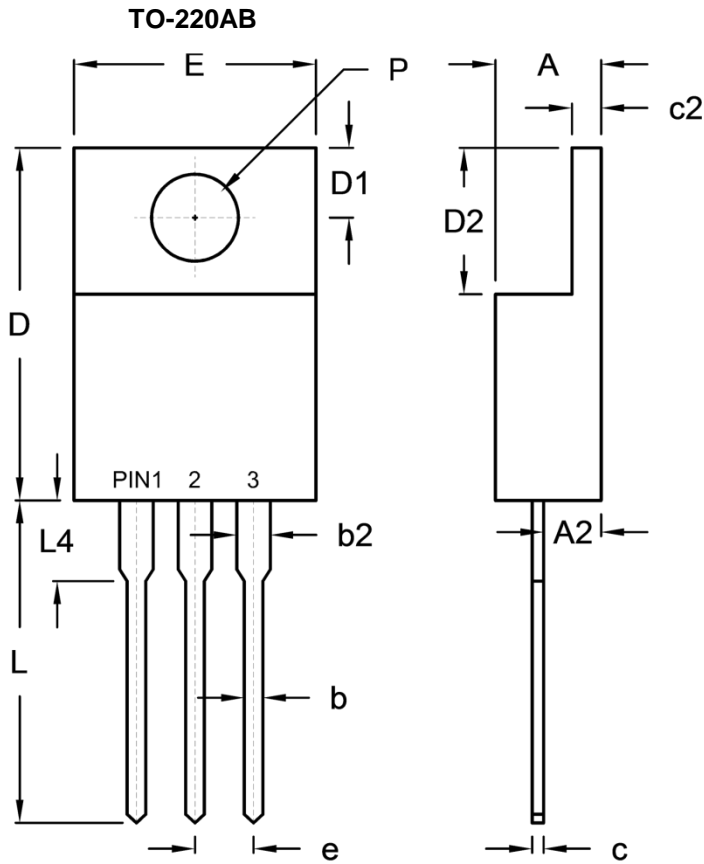
**CHARACTERISTICS CURVES**

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

**Fig.6 Reverse Recovery Time Characteristic and Test Circuit Diagram**



**PACKAGE OUTLINE DIMENSIONS**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min.      | Max.  | Min.        | Max.  |
| A    | 4.42      | 4.76  | 0.174       | 0.187 |
| A2   | 2.20      | 2.80  | 0.087       | 0.110 |
| b    | 0.68      | 0.94  | 0.027       | 0.037 |
| b2   | 1.14      | 1.77  | 0.045       | 0.070 |
| c    | 0.35      | 0.64  | 0.014       | 0.025 |
| c2   | 1.14      | 1.40  | 0.045       | 0.055 |
| D    | 14.60     | 16.00 | 0.575       | 0.630 |
| D1   | 2.62      | 3.44  | 0.103       | 0.135 |
| D2   | 5.84      | 6.86  | 0.230       | 0.270 |
| E    | -         | 10.50 | -           | 0.413 |
| e    | 2.41      | 2.67  | 0.095       | 0.105 |
| L    | 13.19     | 14.79 | 0.519       | 0.582 |
| L4   | 2.80      | 4.20  | 0.110       | 0.165 |
| P    | 3.54      | 4.00  | 0.139       | 0.157 |

**MARKING DIAGRAM**



- P/N = Marking Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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