

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

### FEATURES

- AEC-Q101 qualified available
- Ultra fast recovery times
- Popular ITO-220AB Package
- High temperature glass passivated chip junction
- High voltage capability to 600 volts
- UL Recognized File # E-326243
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

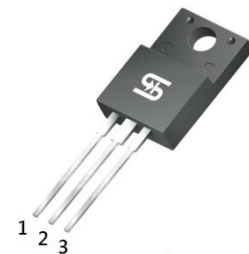
### APPLICATIONS

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

### MECHANICAL DATA

- Case: ITO-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    |
| $T_{JMAX}$     | 150       | °C   |
| Package        | ITO-220AB |      |
| Configuration  | Dual dies |      |



ITO-220AB



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)        |              |             |             |             |      |
|--|--------------|-------------|-------------|-------------|------|
| PARAMETER  | SYMBOL       | MURF 1620CT | MURF 1640CT | MURF 1660CT | UNIT |
| Marking code on the device   |              | MURF 1620CT | MURF 1640CT | MURF 1660CT |      |
| 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 +150 |             |             | °C   |
| Storage temperature  | $T_{STG}$    | -55 to +150 |             |             | °C   |

| THERMAL PERFORMANCE                 |            |                 |     |      |
|-------------------------------------|------------|-----------------|-----|------|
| PARAMETER                           |            | SYMBOL          | TYP | UNIT |
| Junction-to-case thermal resistance | MURF1620CT | $R_{\theta JC}$ | 3   | °C/W |
|                                     | MURF1640CT |                 | 2   | °C/W |
|                                     | MURF1660CT |                 |     |      |

| ELECTRICAL SPECIFICATIONS ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |            |   |          |     |       |               |
|--|------------|---|----------|-----|-------|---------------|
| PARAMETER  |            | CONDITIONS  | SYMBOL   | TYP | MAX   | UNIT          |
| Forward voltage per diode <sup>(1)</sup>                                     | MURF1620CT | $I_F = 8\text{A}, T_J = 25^\circ\text{C}$                         | $V_F$    | -   | 0.975 | V             |
|  | MURF1640CT |   |          | -   | 1.300 | V             |
|  | MURF1660CT |   |          | -   | 1.500 | V             |
|  | MURF1620CT | $I_F = 8\text{A}, T_J = 125^\circ\text{C}$                        |          | -   | 0.895 | V             |
|  | MURF1640CT |   |          | -   | 1.100 | V             |
|  | MURF1660CT |   |          | -   | 1.200 | V             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup>                       | MURF1620CT | $T_J = 25^\circ\text{C}$  | $I_R$    | -   | 5     | $\mu\text{A}$ |
|  | MURF1640CT |   |          | -   | 10    | $\mu\text{A}$ |
|  | MURF1660CT |   |          | -   | 250   | $\mu\text{A}$ |
|  | MURF1620CT | $T_J = 125^\circ\text{C}$   |          | -   | 500   | $\mu\text{A}$ |
|  | MURF1640CT |   |          | -   |       |               |
|  | MURF1660CT |   |          | -   |       |               |
| Reverse recovery time  | MURF1620CT | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$<br>$I_{rr} = 0.25\text{A}$ | $t_{rr}$ | -   | 25    | ns            |
|  | MURF1640CT |   |          | -   | 50    | ns            |
|  | MURF1660CT |   |          | -   |       |               |

**Notes:**

1. Pulse test with  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

| ORDERING INFORMATION            |           |           |
|---------------------------------|-----------|-----------|
| ORDERING CODE <sup>(1)(2)</sup> | PACKAGE   | PACKING   |
| MURF16xCT                       | ITO-220AB | 50 / Tube |
| MURF16xCTH                      | ITO-220AB | 50 / Tube |

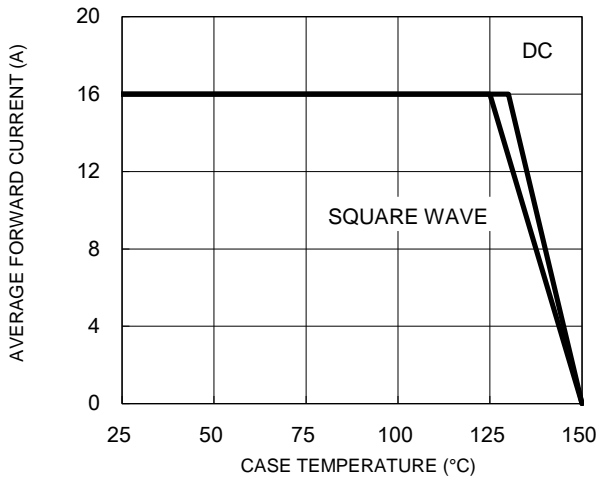
**Notes:**

1. "x" defines voltage from 200V(MURF1620CT) to 600V(MURF1660CT)
2. "H" means AEC-Q101 qualified

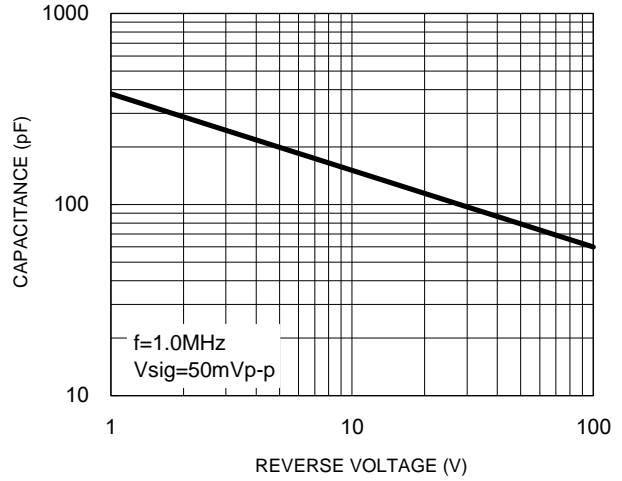
**CHARACTERISTICS CURVES**

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

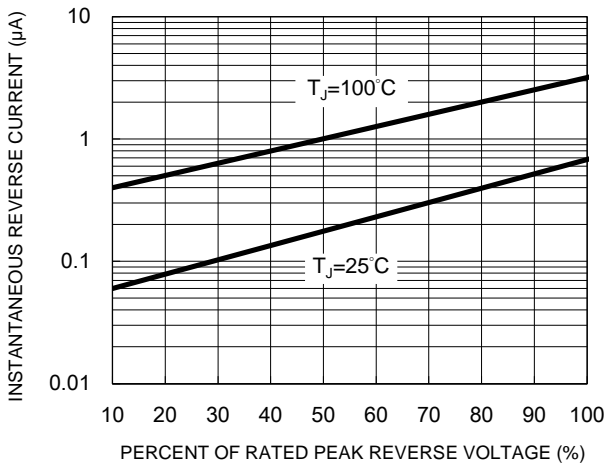
**Fig.1 Forward Current Derating Curve**



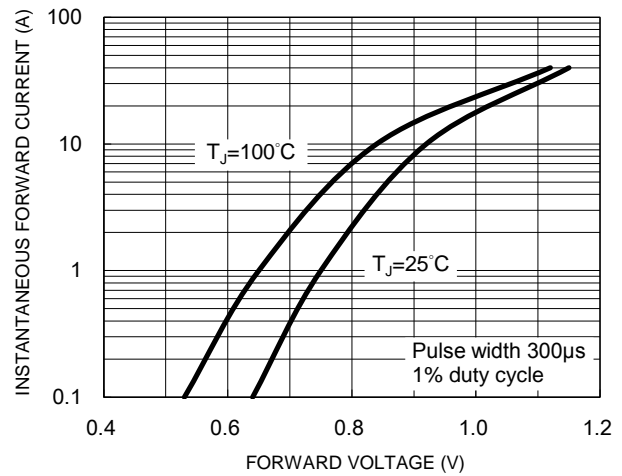
**Fig.2 Typical Junction Capacitance**



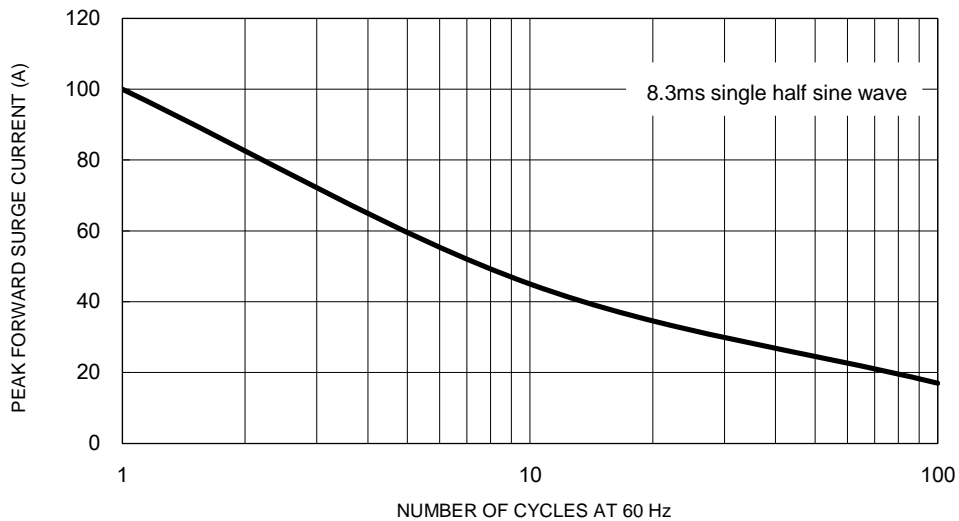
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



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



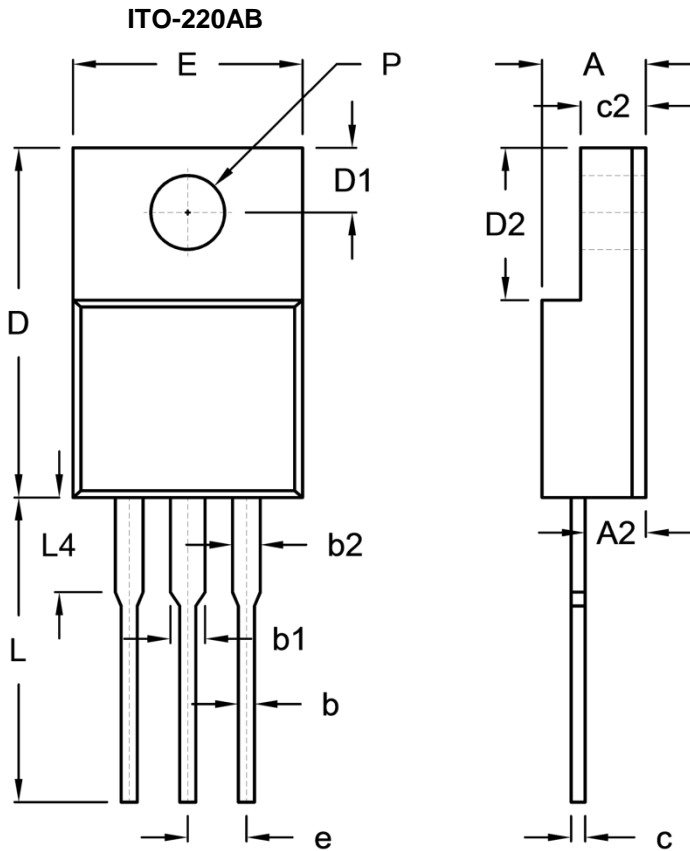
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  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    | 4.30      | 4.70  | 0.169       | 0.185 |
| A2   | 2.30      | 2.96  | 0.091       | 0.117 |
| b    | 0.50      | 0.90  | 0.020       | 0.035 |
| b1   | -         | 1.80  | -           | 0.071 |
| b2   | 0.95      | 1.45  | 0.037       | 0.057 |
| c    | 0.46      | 0.76  | 0.018       | 0.030 |
| c2   | 2.50      | 3.16  | 0.098       | 0.124 |
| D    | 14.80     | 15.50 | 0.583       | 0.610 |
| D1   | 2.40      | 3.20  | 0.094       | 0.126 |
| D2   | 6.30      | 6.90  | 0.248       | 0.272 |
| E    | 9.60      | 10.30 | 0.378       | 0.406 |
| e    | 2.41      | 2.67  | 0.095       | 0.105 |
| L    | 12.60     | 13.80 | 0.496       | 0.543 |
| L4   | -         | 4.10  | -           | 0.161 |
| P    | 3.00      | 3.40  | 0.118       | 0.134 |

**MARKING DIAGRAM**



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

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