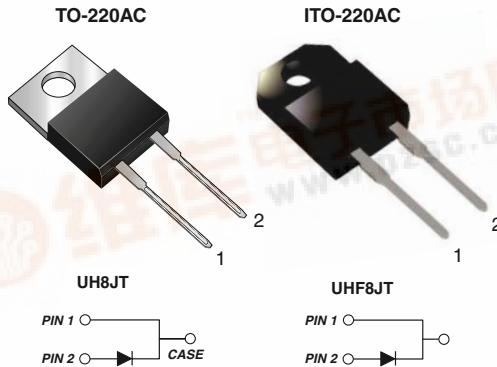




UH8JT & UHF8JT

Vishay General Semiconductor

High Voltage Ultrafast Rectifier



FEATURES

- Oxide planar chip junction
- Ultrafast recovery time
- Soft recovery characteristics
- Low switching losses, high efficiency
- High forward surge capability
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in high voltage continuous mode power factor correctors (CCM PFC), switching mode power supplies, freewheeling diodes and secondary dc-to-dc rectification application.

MAJOR RATINGS AND CHARACTERISTICS

| | |
|--------------------|--------|
| $I_{F(AV)}$ | 8 A |
| V_{RRM} | 600 V |
| I_{FSM} | 80 A |
| t_{rr} | 25 ns |
| V_F | 1.47 V |
| $T_J \text{ max.}$ | 175 °C |

MECHANICAL DATA

Case: TO-220AC, ITO-220AC

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | SYMBOL | UH8JT | UHF8JT | UNIT |
|--|----------------|---------------|--------|------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 600 | | V |
| Maximum average forward rectified current (see Fig. 1) | $I_{F(AV)}$ | 8 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 80 | | A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to + 175 | | °C |
| Isolation voltage (ITO-220AC only) From terminal to heatsink $t = 1$ minute | V_{AC} | 1500 | | V |

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | TEST CONDITIONS | SYMBOL | TYP. | MAX. | UNIT |
|--|--|--------|--------------|------------|---------------|
| Instantaneous forward voltage ⁽¹⁾ | $I_F = 4\text{ A}$ $I_F = 8\text{ A}$ $T_J = 25\text{ °C}$ | V_F | 1.82 2.30 | - 3.0 | V |
| | $I_F = 4\text{ A}$ $I_F = 8\text{ A}$ $T_J = 125\text{ °C}$ | | 1.20 1.47 | - 1.85 | |
| Reverse current ⁽¹⁾ | at $V_R = 600\text{ V}$ $T_J = 25\text{ °C}$ $T_J = 125\text{ °C}$ | I_R | - - | 5.0 100 | μA |



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| ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|---|----------|------|------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | TYP. | MAX. | UNIT |
| Maximum reverse recovery time | at $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | 20 | 25 | ns |
| | at $I_F = 1.0\text{ A}$, $di/dt = 50\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$ | | - | 45 | |
| Typical softness factor (t_b/t_a) | $I_F = 8\text{ A}$, $di/dt = 200\text{ A}/\mu\text{s}$, $V_R = 400\text{ V}$, $T_J = 125\text{ }^\circ\text{C}$ | S | 0.5 | - | - |
| Typical reverse recovery current | | I_{RM} | 5.5 | 7.0 | A |
| Typical stored charge | | Q_{rr} | 150 | - | nC |
| Typical forward recovery time | at $I_F = 8\text{ A}$, $di/dt = 64\text{ A}/\mu\text{s}$, $V_F = 1.1 \times V_{F\text{ max}}$ | t_{fr} | 150 | - | ns |

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | |
|---|-----------------|-------|--------|---------------------------|
| PARAMETER | SYMBOL | UH8JT | UHF8JT | UNIT |
| Typical thermal resistance from junction to case | $R_{\theta JC}$ | 2.0 | 4.0 | $^\circ\text{C}/\text{W}$ |

| ORDERING INFORMATION | | | | | |
|-----------------------------|---------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AC | UH8JT-E3/45 | 1.83 | 45 | 50/Tube | Tube |
| ITO-220AC | UHF8JT-E3/45 | 2.05 | 45 | 50/Tube | Tube |

RATINGS AND CHARACTERISTICS CURVES

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

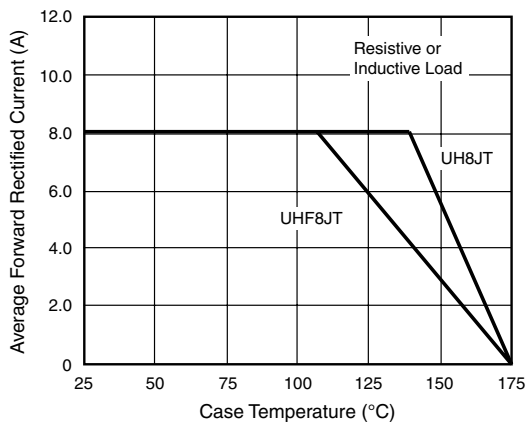


Figure 1. Maximum Forward Current Derating Curve

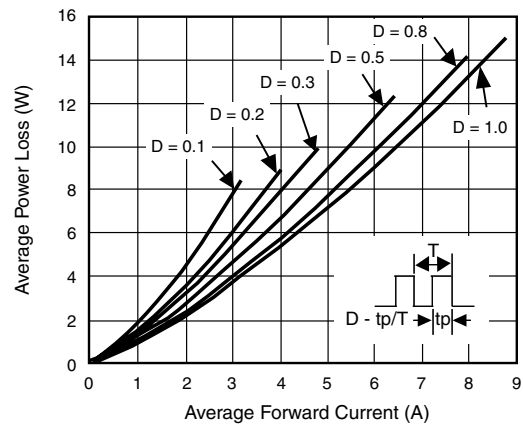


Figure 2. Forward Power Loss Characteristics

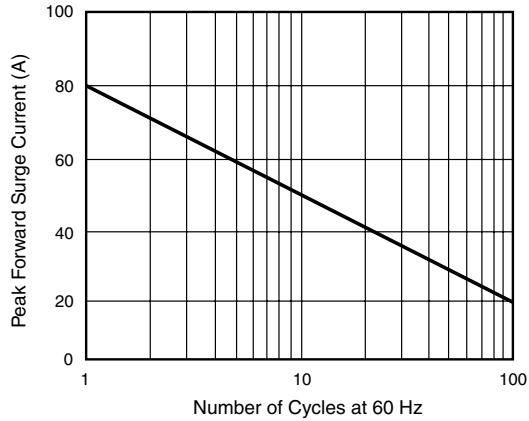


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

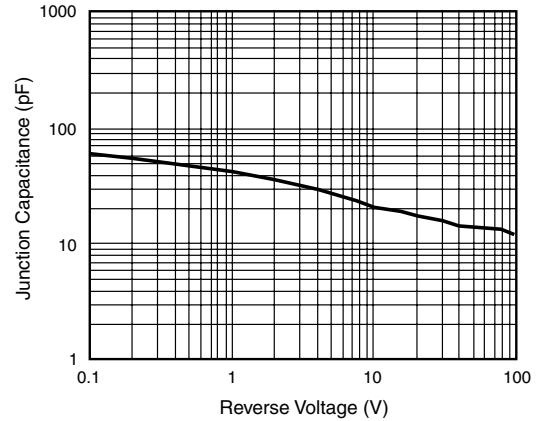


Figure 6. Typical Junction Capacitance

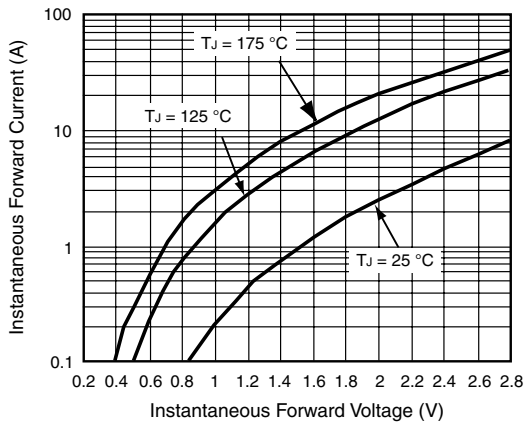


Figure 4. Typical Instantaneous Forward Characteristics

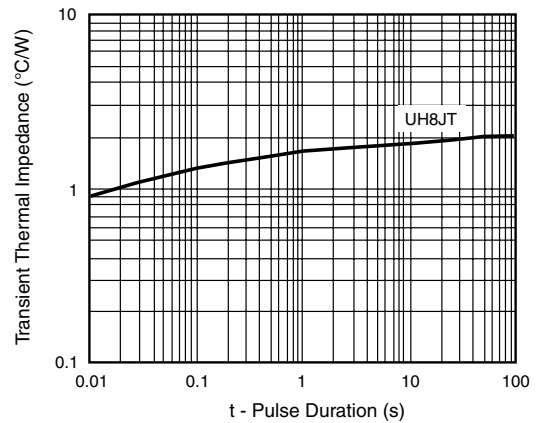


Figure 7. Typical Transient Thermal Impedance

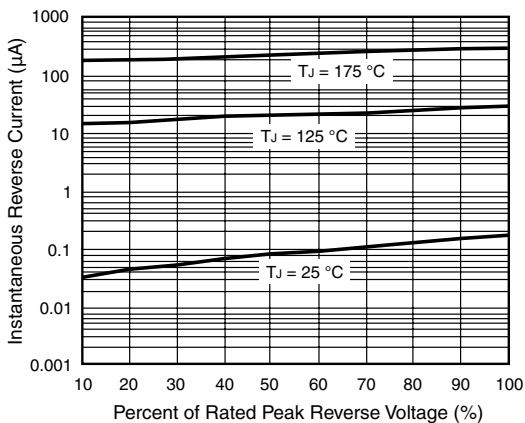


Figure 5. Typical Reverse Leakage Characteristics

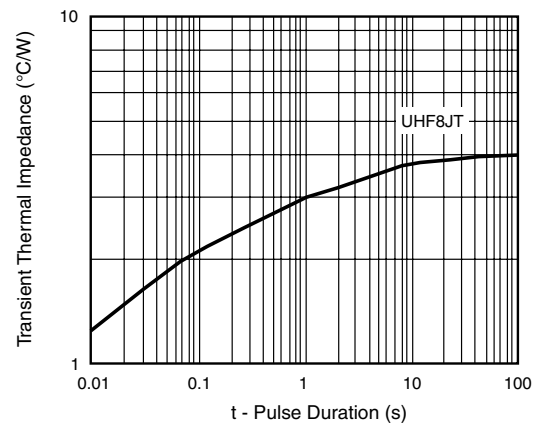


Figure 8. Typical Transient Thermal Impedance

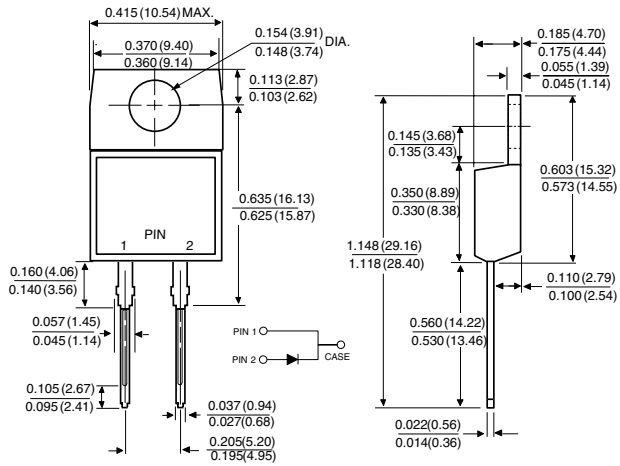
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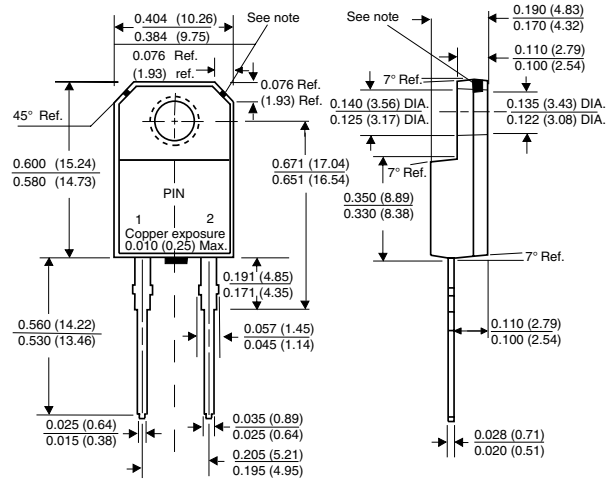


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC



ITO-220AC



Note: Copper exposure is allowable for 0.005 (0.13) Max. from the body



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