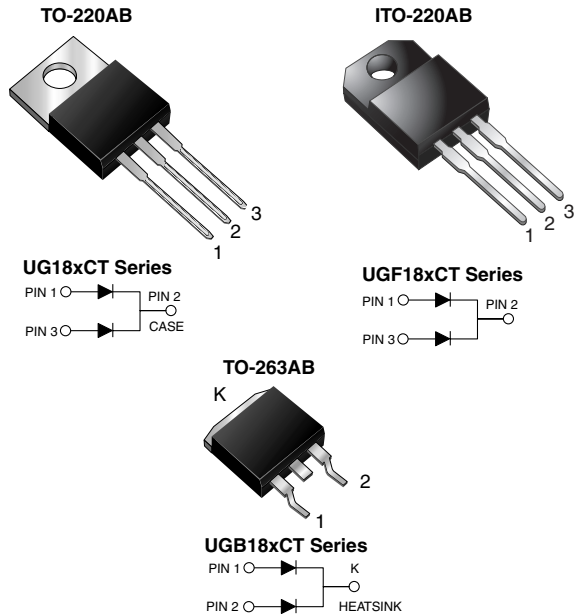


Dual Common-Cathode Ultrafast Plastic Rectifier



FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, dc-to-dc converters, and other power switching application.

PRIMARY CHARACTERISTICS

| | |
|--------------------|---------------|
| $I_{F(AV)}$ | 18 A |
| V_{RRM} | 50 V to 200 V |
| I_{FSM} | 175 A |
| t_{rr} | 20 ns |
| V_F | 0.95 V |
| $T_J \text{ max.}$ | 150 °C |

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

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

| PARAMETER | SYMBOL | UG18ACT | UG18BCT | UG18CCT | UG18DCT | UNIT |
|--|----------------|---------------|---------|---------|---------|------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 150 | 200 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | V |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 150 | 200 | V |
| Maximum average forward rectified current at $T_C = 105 \text{ °C}$ | $I_{F(AV)}$ | 18 | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 175 | | | | A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 150 | | | | °C |
| Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1 \text{ min}$ | V_{AC} | 1500 | | | | V |

UG(F,B)18ACT thru UG(F,B)18DCT

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted) | | | | | | | | |
|--|--|---|-----------------|---------|--------------------|---------|---------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | UG18ACT | UG18BCT | UG18CCT | UG18DCT | UNIT |
| Maximum instantaneous forward voltage per diode ⁽¹⁾ | 9.0 A 20 A 5.0 A | T _J = 100 °C | V _F | | 1.1 1.2 0.95 | | | V |
| Maximum DC reverse current at rated DC blocking voltage per diode | | T _A = 25 °C T _A = 100 °C | I _R | | 10 300 | | | μA |
| Maximum reverse recovery time per diode | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | | t _{rr} | | 20 | | | ns |
| Maximum reverse recovery time per diode | I _F = 9.0 A, V _R = 30 V, dI/dt = 50 A/μs, I _{rr} = 10 % I _{RM} | T _J = 25 °C T _J = 100 °C | t _{rr} | | 30 50 | | | ns |
| Maximum stored charge per diode | I _F = 9.0 A, V _R = 30 V, dI/dt = 50 A/μs, I _{rr} = 10 % I _{RM} | T _J = 25 °C T _J = 100 °C | Q _{rr} | | 20 45 | | | nC |
| Typical junction capacitance per diode | at 4.0 V, 1 MHz | | C _J | | 30 | | | pF |

Note:

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

| THERMAL CHARACTERISTICS (T _C = 25 °C unless otherwise noted) | | | | | |
|---|------------------|------|-------|-------|------|
| PARAMETER | SYMBOL | UG18 | UGF18 | UGB18 | UNIT |
| Typical thermal resistance from junction to case per diode | R _{θJC} | 4.0 | 6.0 | 4.0 | °C/W |

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|-------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB | UG18DCT-E3/45 | 1.85 | 45 | 50/tube | Tube |
| ITO-220AB | UGF18DCT-E3/45 | 2.00 | 45 | 50/tube | Tube |
| TO-263AB | UGB18DCT-E3/45 | 1.35 | 45 | 50/tube | Tube |
| TO-263AB | UGB18DCT-E3/81 | 1.35 | 81 | 800/reel | Tape and reel |
| TO-220AB | UG18DCTHE3/45 ⁽¹⁾ | 1.85 | 45 | 50/tube | Tube |
| ITO-220AB | UGF18DCTHE3/45 ⁽¹⁾ | 2.00 | 45 | 50/tube | Tube |
| TO-263AB | UGB18DCTHE3/45 ⁽¹⁾ | 1.35 | 45 | 50/tube | Tube |
| TO-263AB | UGB18DCTHE3/81 ⁽¹⁾ | 1.35 | 81 | 800/reel | Tape and reel |

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

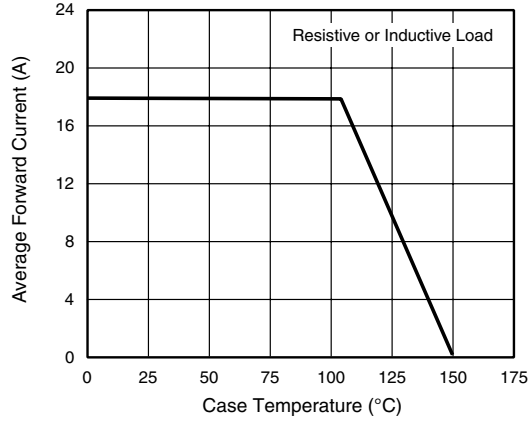


Figure 1. Forward Current Derating Curve

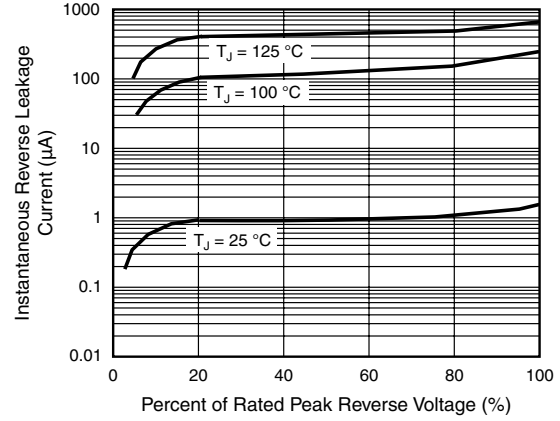


Figure 4. Typical Reverse Leakage Characteristics Per Diode

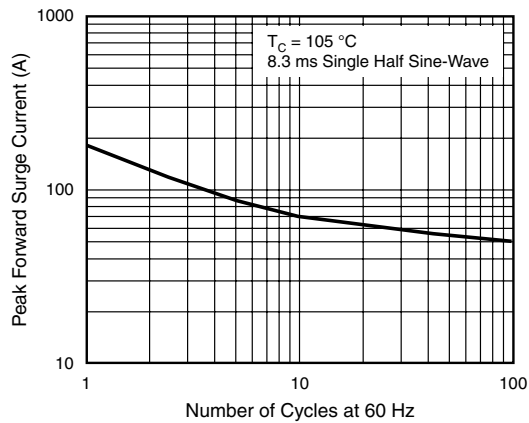


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

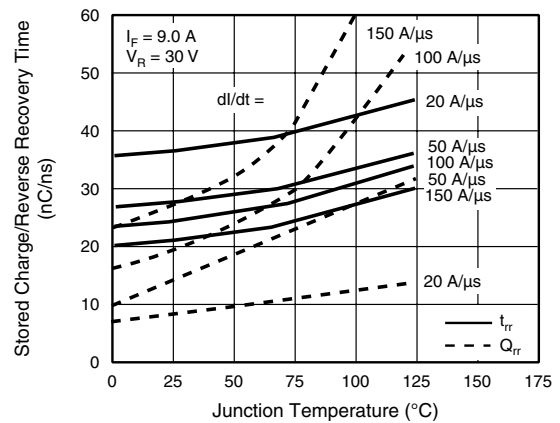


Figure 5. Reverse Switching Characteristics Per Diode

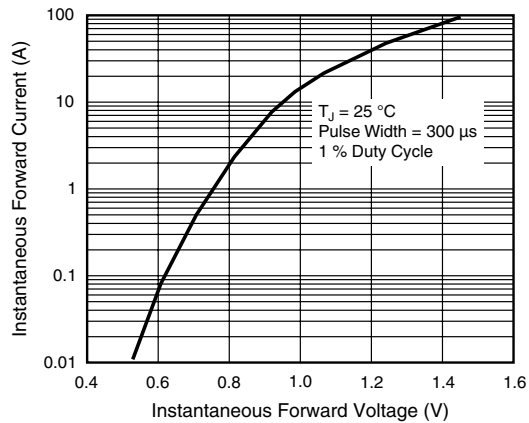


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

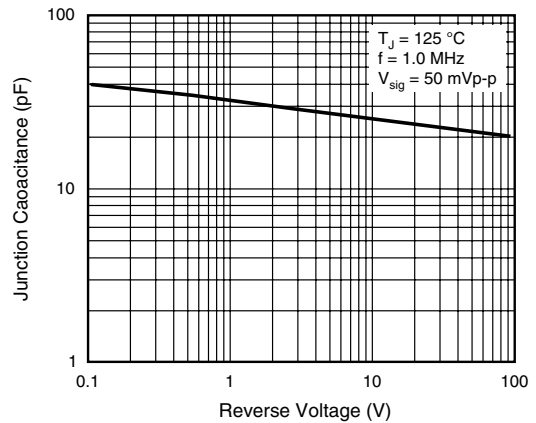


Figure 6. Typical Junction Capacitance Per Diode

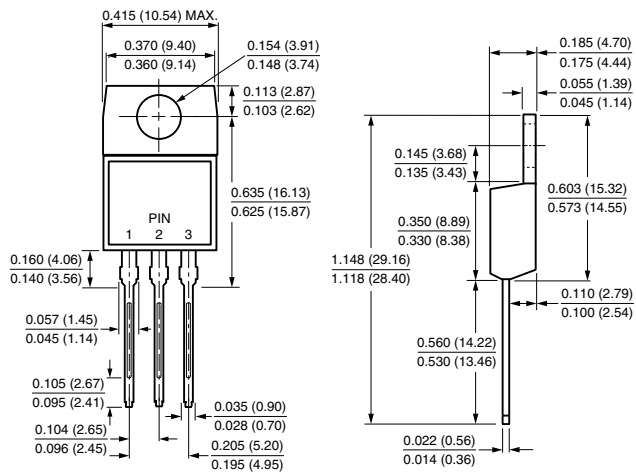
UG(F,B)18ACT thru UG(F,B)18DCT

Vishay General Semiconductor

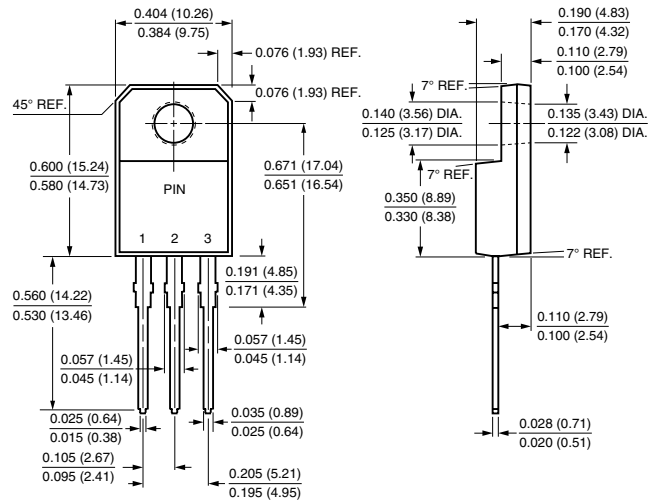


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

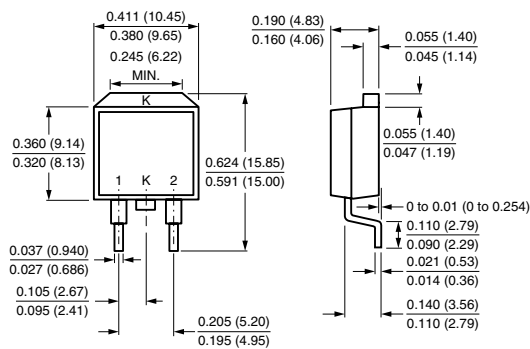
TO-220AB



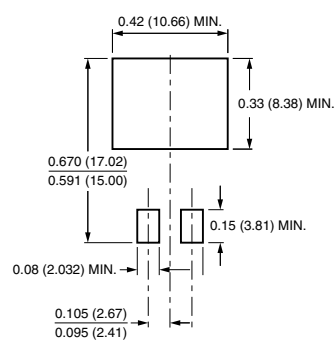
ITO-220AB



TO-263AB



Mounting Pad Layout





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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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