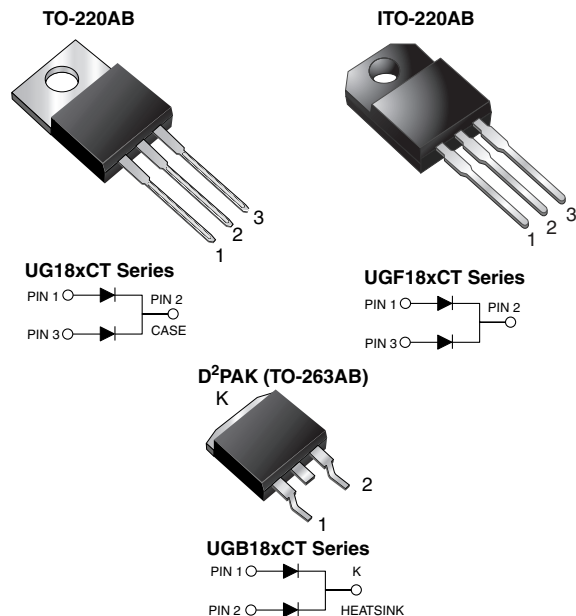




Dual Common Cathode Ultrafast Plastic Rectifier



FEATURES

- Power pack
- Glass passivated pellet 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 275 °C max., 10 s per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHE3 (for ITO-220AB and D²PAK (TO-263AB package))
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



TYPICAL APPLICATIONS

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

LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | |
|-------------------------|--|
| $I_{F(AV)}$ | 18 A |
| V_{RRM} | 50 V to 200 V |
| I_{FSM} | 175A |
| t_{rr} | 20 ns |
| V_F | 0.95 V |
| T_J max. | 150 °C |
| Package | TO-220AB, ITO-220AB, D ² PAK (TO-263AB) |
| Circuit configuration | Common cathode |

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, D²PAK (TO-263AB)

Molding compound meets UL 94V-0 flammability rating
 Base P/N-E3 - RoHS-compliant, commercial grade
 Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified
 ("_X" denotes revision code e.g. A, B,...)

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix 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 |
| Max. repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 150 | 200 | V |
| Max. RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | V |
| Max. DC blocking voltage | V_{DC} | 50 | 100 | 150 | 200 | V |
| Max. 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 |

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

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

Notes

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

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

| PARAMETER | SYMBOL | UG18 | UGF18 | UGB18 | UNIT |
|--|-----------------|------|-------|-------|-----------------------------|
| Typical thermal resistance from junction to case per diode | $R_{\theta JC}$ | 4.0 | 6.0 | 4.0 | $^{\circ}\text{C}/\text{W}$ |

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 |
| ITO-220AB | UGF18DCTHE3_A/P ⁽¹⁾ | 2.00 | P | 50/tube | Tube |
| TO-263AB | UGB18DCTHE3_A/P ⁽¹⁾ | 1.35 | P | 50/tube | Tube |
| TO-263AB | UGB18DCTHE3_A/I ⁽¹⁾ | 1.35 | I | 800/reel | Tape and reel |

Note

⁽¹⁾ AEC-Q101 qualified, available in ITO-220AB and TO-263AB package

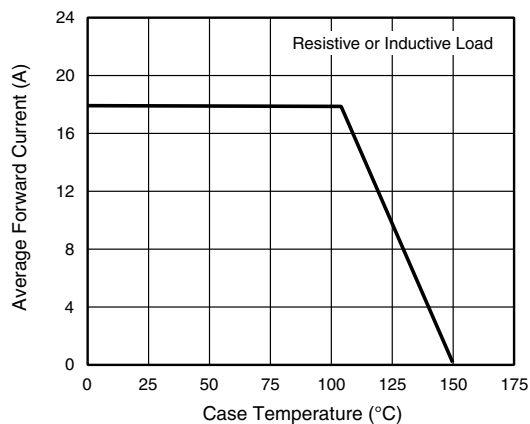
**RATINGS AND CHARACTERISTICS CURVES** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

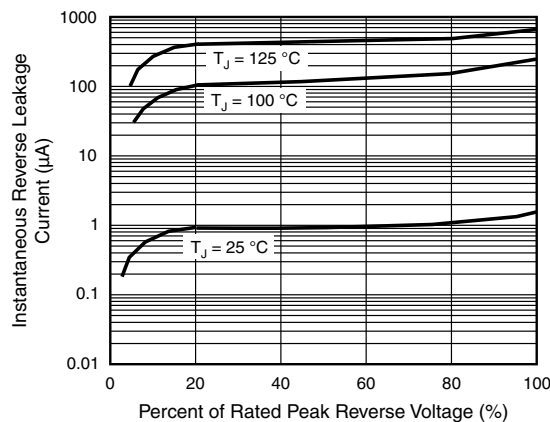


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

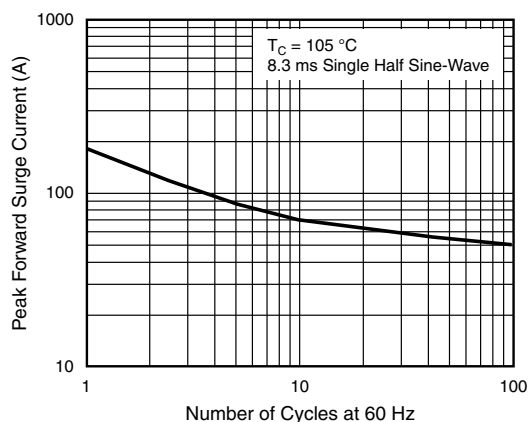


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current Per Diode

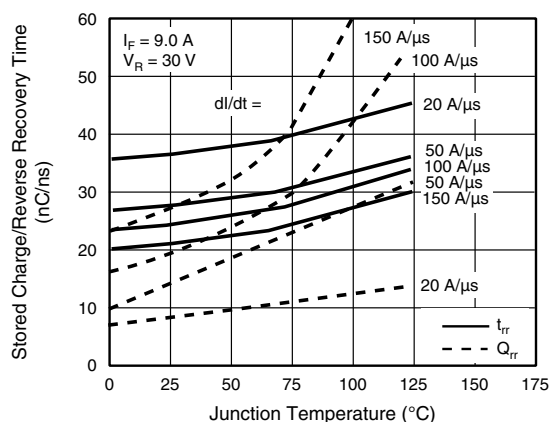


Fig. 5 - Reverse Switching Characteristics Per Diode

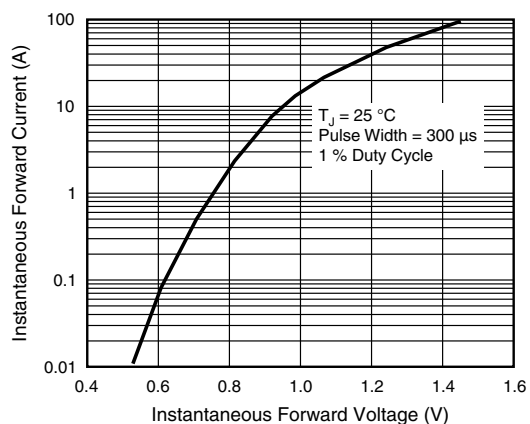


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

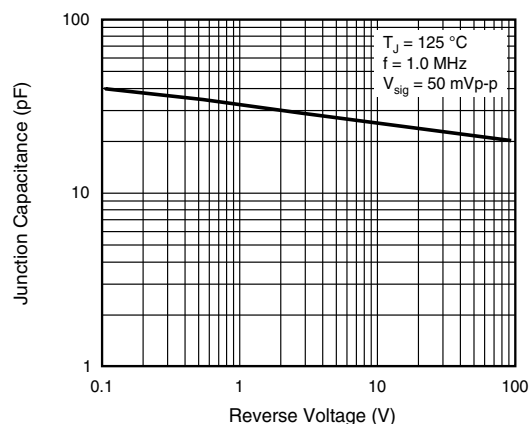
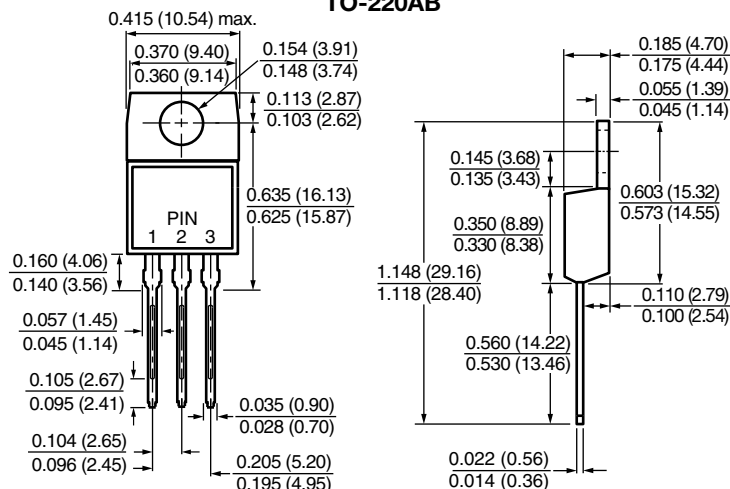
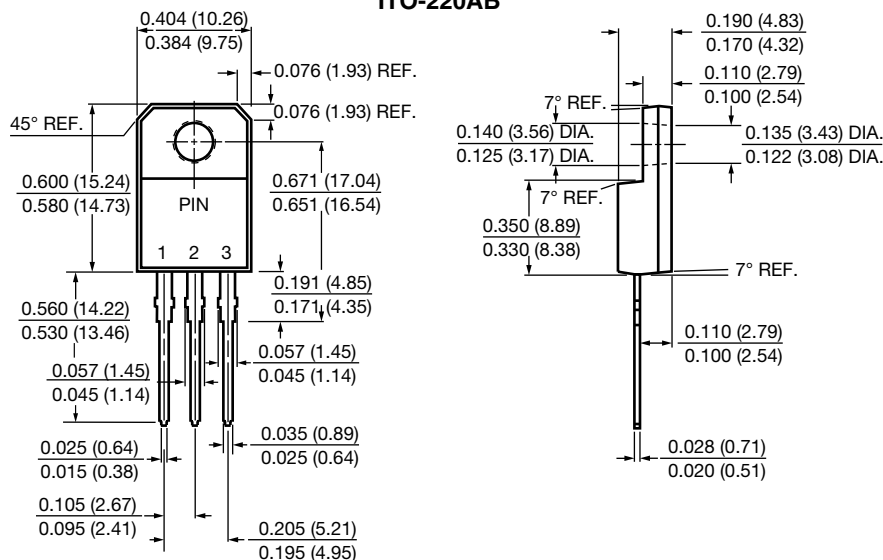
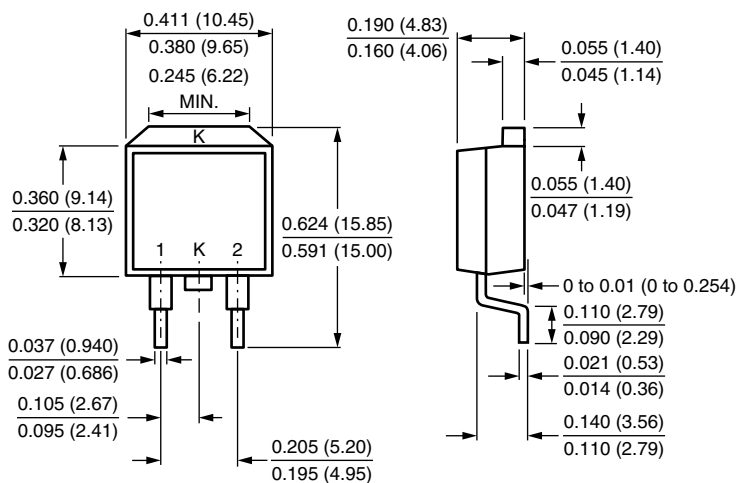
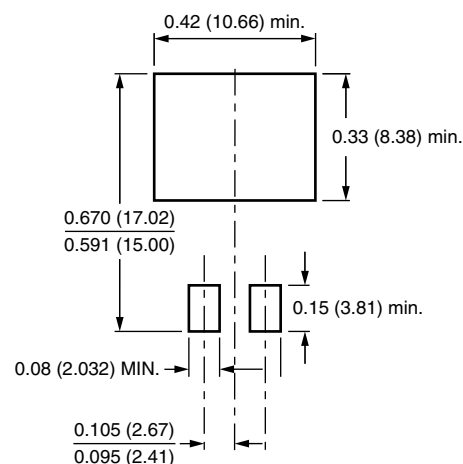


Fig. 6 - Typical Junction Capacitance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**TO-220AB****ITO-220AB****D²PAK (TO-263AB)****Mounting Pad Layout**



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