

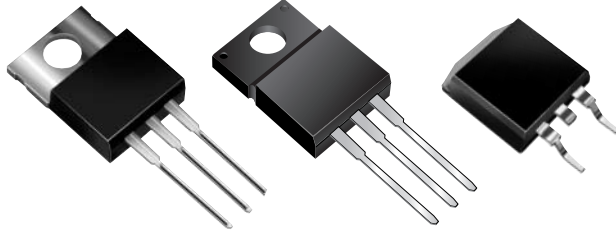


# UG8JCT, UGF8JCT, UGB8JCT Series

New Product

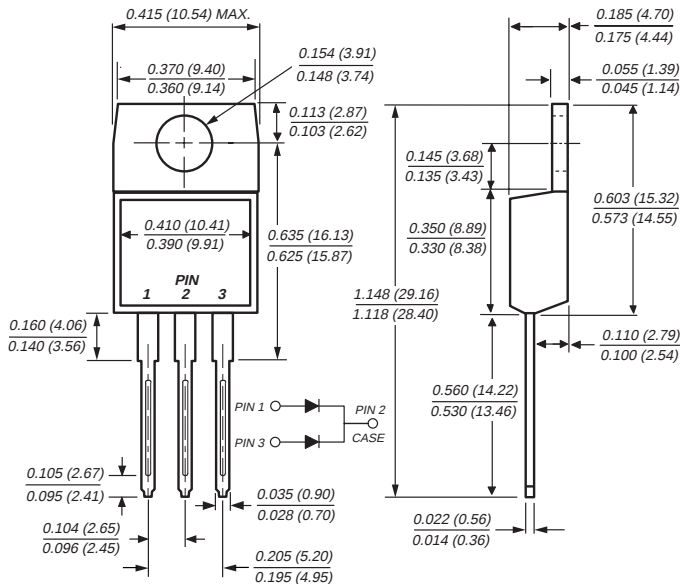
Vishay Semiconductors  
formerly General Semiconductor

## Dual Ultrafast Plastic Rectifier Series

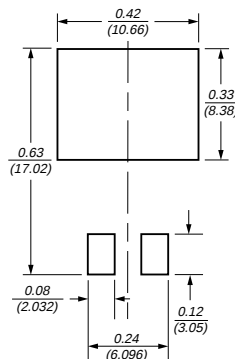


Reverse Voltage 500 to 600V  
Forward Current 8A  
Reverse Recovery Time 25ns

TO-220AB (UG8JCT Series)

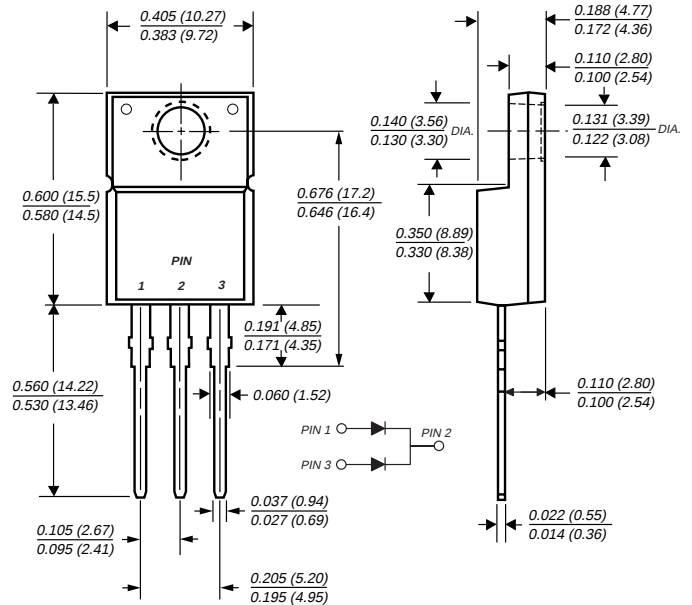


Mounting Pad Layout TO-263AB

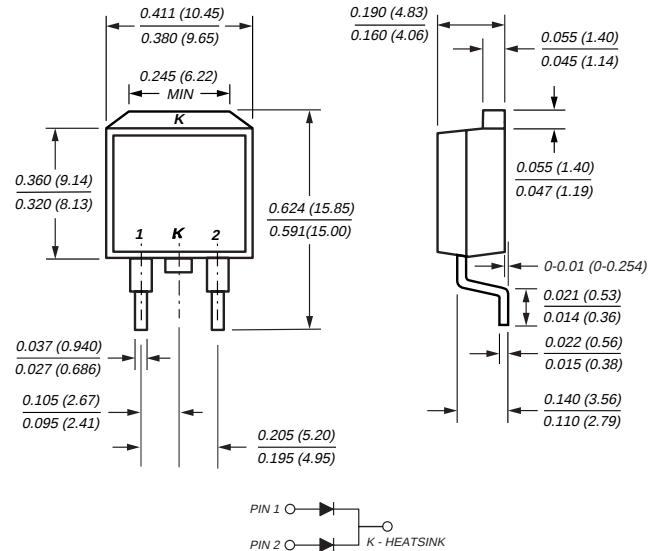


Dimensions in inches  
and (millimeters)

ITO-220AB (UGF8JCT Series)



TO-263AB (UGB8JCT Series)



PIN 1 ○  
PIN 2 ○  
K - HEATSINK

## Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- Ideally suited for free wheeling diode power factor correction applications
- Soft recovery characteristics
- Excellent high temperature switching
- Optimized to reduce switching losses
- High temperature soldering guaranteed: 250°C/10 seconds at terminals
- Glass passivated chip junction

## Mechanical Data

**Case:** JEDEC TO-220AB, ITO-220AB & TO-263AB molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026

**Polarity:** As marked

**Mounting Position:** Any

**Mounting Torque:** 10 in-lbs maximum

**Weight:** 0.08 oz., 2.24 g

# UG8JCT, UGF8JCT, UGB8JCT Series

Vishay Semiconductors  
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## Maximum Ratings (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                                                                                                                          | Symbol                            | UG8HCT                                                            | UG8JCT | Unit |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------|--------|------|
| Maximum repetitive peak reverse voltage                                                                                            | V <sub>RRM</sub>                  | 500                                                               | 600    | V    |
| Maximum working reverse voltage                                                                                                    | V <sub>RWM</sub>                  | 400                                                               | 480    | V    |
| Maximum RMS voltage                                                                                                                | V <sub>RMS</sub>                  | 350                                                               | 420    | V    |
| Maximum DC blocking voltage                                                                                                        | V <sub>DC</sub>                   | 500                                                               | 600    | V    |
| Maximum average forward rectified current                                                                                          | I <sub>F(AV)</sub>                | 8.0                                                               |        | A    |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg at T <sub>C</sub> = 100°C | I <sub>FSM</sub>                  | 65                                                                |        | A    |
| Operating junction and storage temperature range                                                                                   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150                                                       |        | °C   |
| RMS Isolation voltage (UGF types only)<br>from terminals to heatsink with t = 1.0 second, RH ≤ 30%                                 | V <sub>ISOL</sub>                 | 4500 <sup>(1)</sup><br>3500 <sup>(2)</sup><br>1500 <sup>(3)</sup> |        | V    |

## Electrical Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                                                                                                                                                         | Symbol          | UG8HCT           | UG8JCT | Unit           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|--------|----------------|
| Maximum instantaneous forward voltage per leg <sup>(4)</sup><br>I <sub>F</sub> = 4A, T <sub>J</sub> = 25°C<br>I <sub>F</sub> = 4A, T <sub>J</sub> = 125°C         | V <sub>F</sub>  | 1.75<br>1.50     |        | V              |
| Maximum DC reverse current per leg at V <sub>RWM</sub><br>T <sub>J</sub> = 25°C<br>T <sub>J</sub> = 100°C<br>T <sub>J</sub> = 125°C                               | I <sub>R</sub>  | 30<br>800<br>4.0 |        | μA<br>μA<br>mA |
| Maximum reverse recovery time per leg at<br>I <sub>F</sub> = 0.5A, I <sub>R</sub> = 1.0A, I <sub>rr</sub> = 0.25A                                                 | t <sub>rr</sub> | 25               |        | ns             |
| Maximum reverse recovery time per leg at<br>I <sub>F</sub> = 1.0A, di/dt = 50A/μs, V <sub>R</sub> = 30V, I <sub>rr</sub> = 0.1 I <sub>RM</sub>                    | t <sub>rr</sub> | 50               |        | ns             |
| Typical softness factor (t <sub>b</sub> /t <sub>a</sub> )<br>I <sub>F</sub> = 4.0A, di/dt = 240A/μs, V <sub>R</sub> = 400V, I <sub>rr</sub> = 0.1 I <sub>RM</sub> | S               | 0.9              |        | —              |
| Maximum reverse recovery current per leg at<br>I <sub>F</sub> = 4.0A, di/dt = 32A/μs, V <sub>R</sub> = 400V, T <sub>C</sub> = 125°C                               | I <sub>RM</sub> | 3.0              |        | A              |
| Maximum reverse recovery current per leg at<br>I <sub>F</sub> = 4.0A, di/dt = 240A/μs, V <sub>R</sub> = 400V, T <sub>C</sub> = 125°C                              | I <sub>RM</sub> | 8                |        | A              |
| Peak forward recovery time per leg at<br>I <sub>F</sub> = 4.0A, di/dt = 64A/μs, V <sub>F</sub> = 1.1V <sub>Fmax</sub>                                             | t <sub>fr</sub> | 500              |        | ns             |

## Thermal Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                                        | Symbol           | UG8 | UGF8 | UGB8 | Unit |
|--------------------------------------------------|------------------|-----|------|------|------|
| Typical thermal resistance from junction to case | R <sub>θJC</sub> | 3.5 | 6.0  | 3.5  | °C/W |

Notes: (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset  
(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")

(2) Clip mounting (on case), where leads do overlap heatsink  
(4) Pulse test: 300μs pulse width, 1% duty cycle

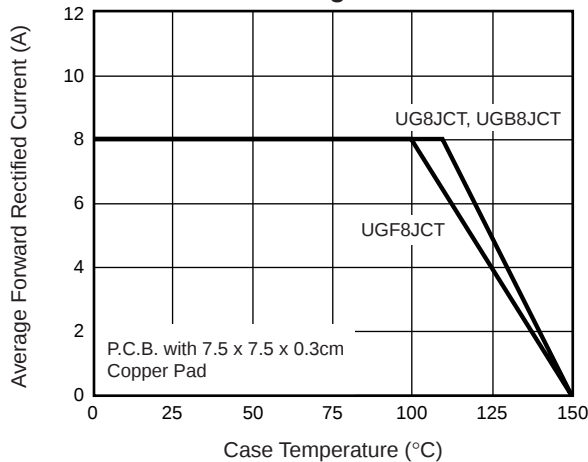
## Ordering Information

| Product           | Case      | Package Code | Package Option                              |
|-------------------|-----------|--------------|---------------------------------------------|
| UG8HCT - UG8JCT   | TO-220AB  | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| UGF8HCT - UGF8JCT | ITO-220AB | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| UGB8HCT - UGB8JCT | TO-263AB  | 31           | 13" reel, 800/reel, 4.8K/carton             |
|                   |           | 45           | Anti-Static tube, 50/tube, 2K/carton        |
|                   |           | 81           | Anti-Static 13" reel, 800/reel, 4.8K/carton |

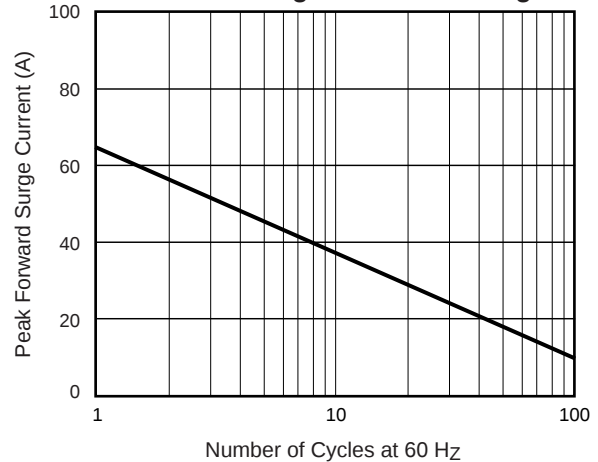


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

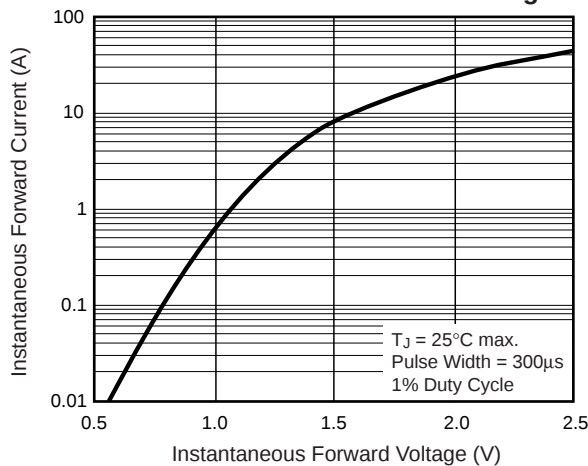
**Fig. 1 – Maximum Forward Current Derating Curve**



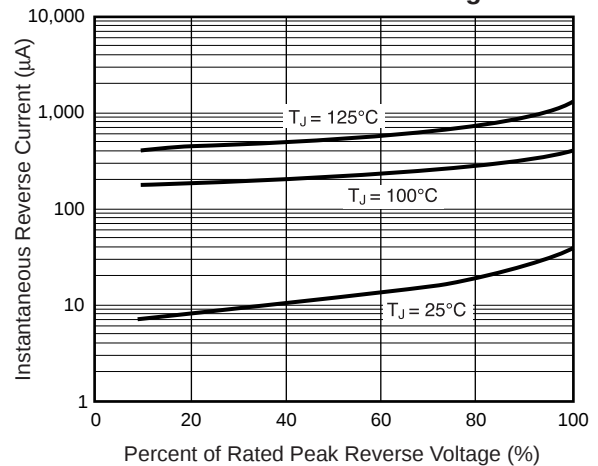
**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current Per Leg**



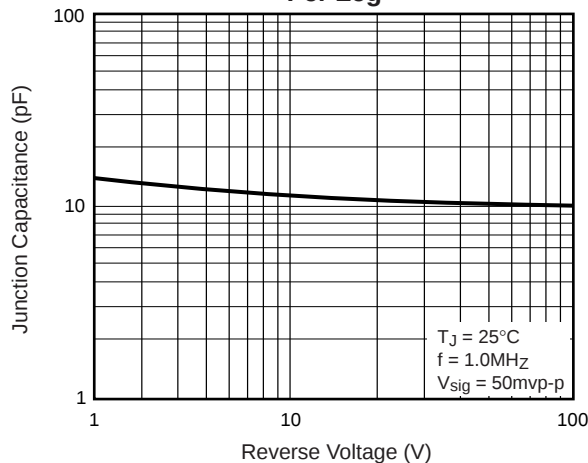
**Fig. 3 – Typical Instantaneous Forward Characteristics Per Leg**



**Fig. 4 – Typical Reverse Leakage Characteristics Per Leg**



**Fig. 5 – Typical Junction Capacitance Per Leg**



**Fig. 6 – Reverse Switching Characteristics Per Leg**

