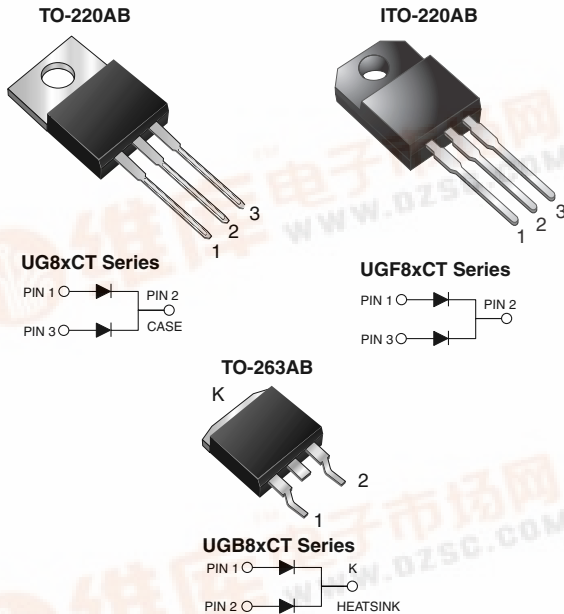




UG(F,B)8HCT & UG(F,B)8JCT

Vishay General Semiconductor

Dual Common-Cathode Ultrafast Plastic Rectifier



FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Soft recovery characteristics
- Low switching losses, high efficiency
- 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 voltage and high frequency power factor corrector, freewheeling diodes and secondary dc-to-dc rectification application.

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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	4 A x 2
V_{RRM}	500 V, 600 V
I_{FSM}	65 A
t_{rr}	25 ns
V_F	1.50 V
$T_J \text{ max.}$	150 °C

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

PARAMETER	SYMBOL	UG8HCT	UG8JCT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	500	600	V
Maximum working reverse voltage	V_{RWM}	400	480	V
Maximum RMS voltage	V_{RMS}	350	420	V
Maximum DC blocking voltage	V_{DC}	500	600	V
Maximum average forward rectified current	$I_{F(AV)}$	8.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	65		A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150		°C
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1 \text{ min}$	V_{AC}	1500		V



UG(F,B)8HCT & UG(F,B)8JCT

New Product

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	UG8HCT	UG8JCT
Maximum instantaneous forward voltage per diode ⁽¹⁾	$I_F = 4\text{ A}$ $I_F = 4\text{ A}$	$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	V_F	1.75 1.50	V
Maximum DC reverse current per diode at V_{RWM}		$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 100\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	I_R	30 800 4	μA μA mA
Maximum reverse recovery time per diode	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$		t_{rr}	25	ns
Maximum reverse recovery time per diode	$I_F = 1.0\text{ A}$, $dl/dt = 50\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1\text{ }I_{RM}$		t_{rr}	50	ns
Typical softness factor (t_b/t_a)	$I_F = 4.0\text{ A}$, $dl/dt = 240\text{ A}/\mu\text{s}$, $V_R = 400\text{ V}$, $I_{rr} = 0.1\text{ }I_{RM}$		S	0.9	-
Maximum reverse recovery current per diode	$I_F = 4.0\text{ A}$, $dl/dt = 32\text{ A}/\mu\text{s}$, $V_R = 400\text{ V}$, $T_C = 125\text{ }^{\circ}\text{C}$		I_{RM}	3.0	A
Maximum reverse recovery current per diode	$I_F = 4.0\text{ A}$, $dl/dt = 240\text{ A}/\mu\text{s}$, $V_R = 400\text{ V}$, $T_C = 125\text{ }^{\circ}\text{C}$		I_{RM}	8.0	A
Peak forward recovery time per diode	$I_F = 4.0\text{ A}$, $dl/dt = 64\text{ A}/\mu\text{s}$, $V_F = 1.1\text{ }V_{F\text{ max.}}$		t_{fr}	500	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	UG8	UGF8	UGB8	UNIT
Typical thermal resistance from junction to case per diode	$R_{\theta JC}$	3.5	6.0	3.5	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	UG8JCT-E3/45	1.85	45	50/tube	Tube
ITO-220AB	UGF8JCT-E3/45	2.00	45	50/tube	Tube
TO-263AB	UGB8JCT-E3/45	1.35	45	50/tube	Tube
TO-263AB	UGB8JCT-E3/81	1.35	81	800/reel	Tape and reel
TO-220AB	UG8JCTHE3/45 ⁽¹⁾	1.85	45	50/tube	Tube
ITO-220AB	UGF8JCTHE3/45 ⁽¹⁾	2.00	45	50/tube	Tube
TO-263AB	UGB8JCTHE3/45 ⁽¹⁾	1.35	45	50/tube	Tube
TO-263AB	UGB8JCTHE3/81 ⁽¹⁾	1.35	81	800/reel	Tape and reel

Note:

(1) Automotive grade AEC Q101 qualified



New Product

UG(F,B)8HCT & UG(F,B)8JCT

Vishay General Semiconductor

RATINGS AND CHARACTERISTICS CURVES

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

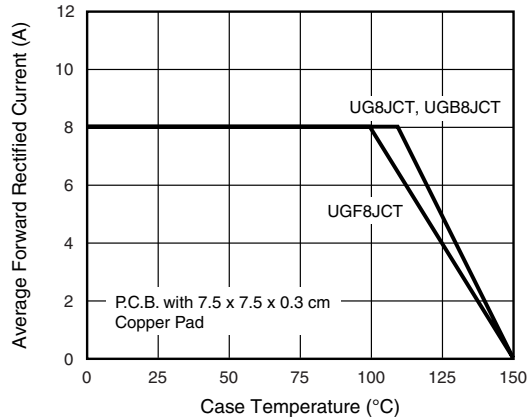


Figure 1. Maximum Forward Current Derating Curve

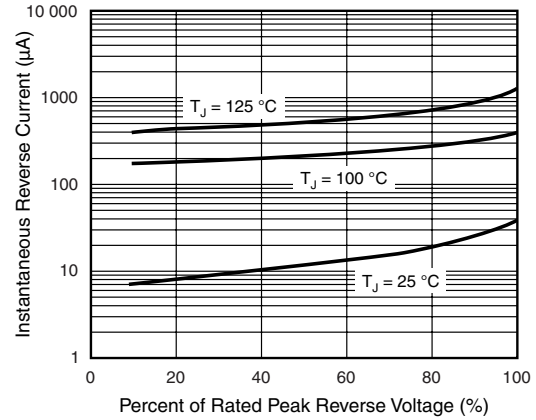


Figure 4. Typical Reverse Leakage Characteristics Per Diode

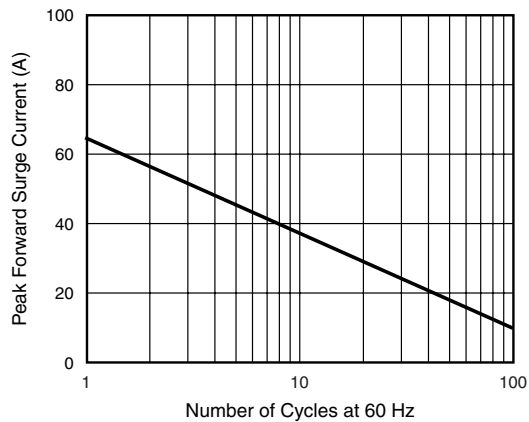


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

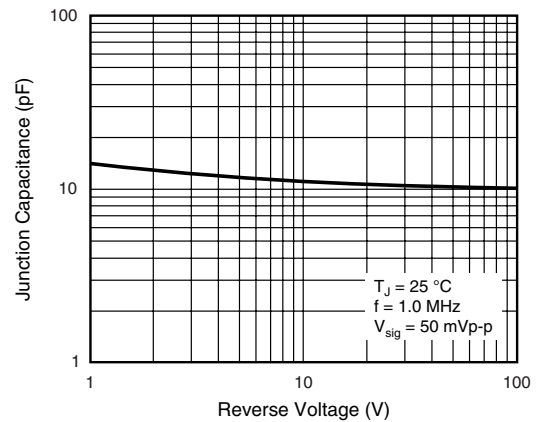


Figure 5. Typical Junction Capacitance Per Diode

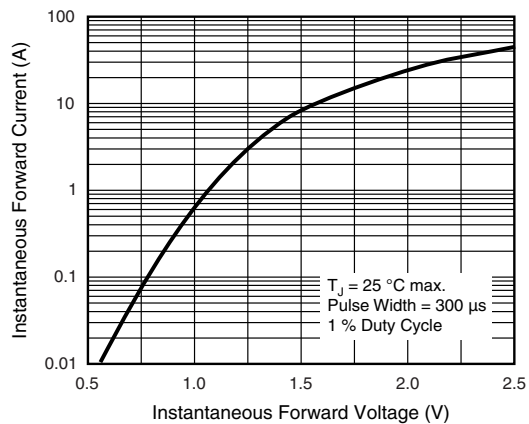


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

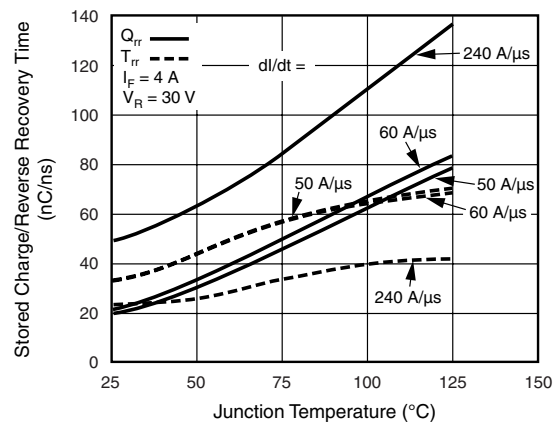


Figure 6. Reverse Switching Characteristics Per Diode

New Product

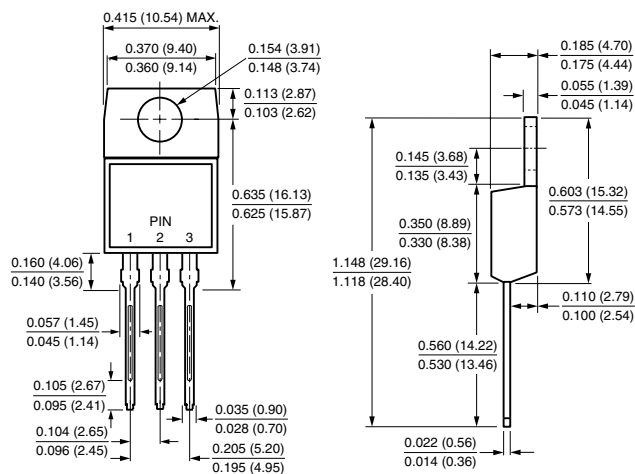
UG(F,B)8HCT & UG(F,B)8JCT

Vishay General Semiconductor

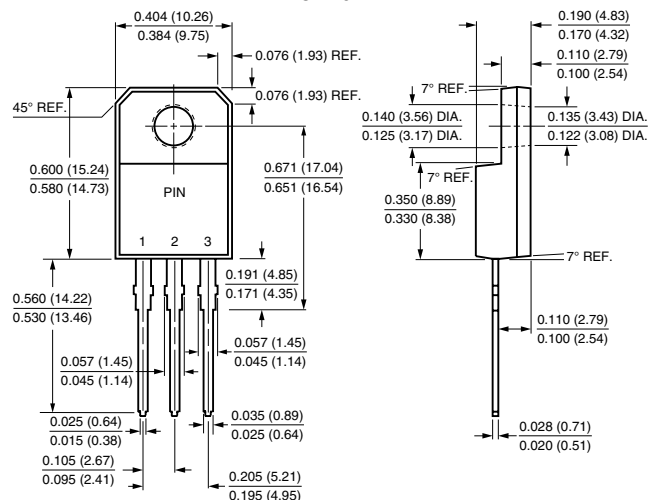


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

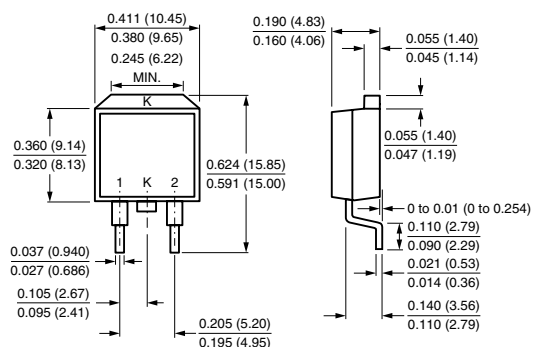
TO-220AB



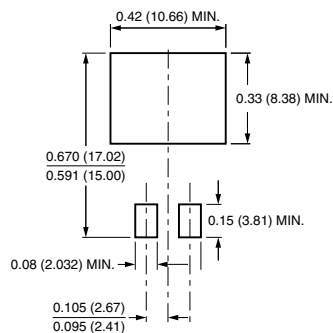
ITO-220AB



TO-263AB



Mounting Pad Layout





Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.