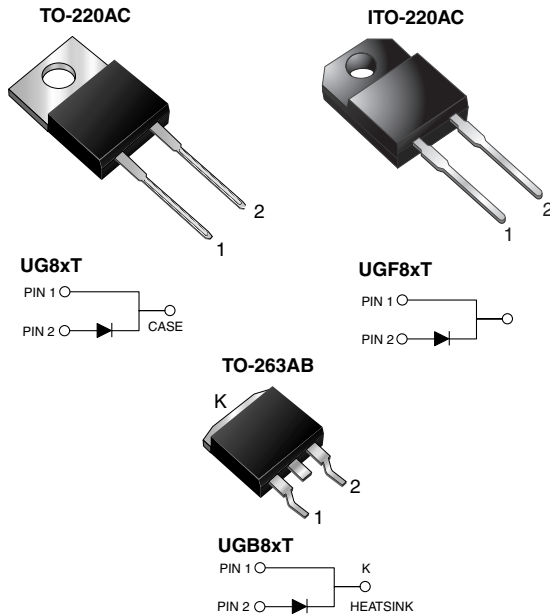


## High Voltage Ultrafast Rectifier



### 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-220AC and ITO-220AC 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 correction application.

### MECHANICAL DATA

**Case:** TO-220AC, ITO-220AC, 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

$I_{F(AV)}$	8 A
$V_{RRM}$	500 V, 600 V
$I_{FSM}$	100 A
$t_{rr}$	25 ns
$t_{fr}$	500 ns
$V_F$	1.5 V
$T_J$ max.	150 °C

### MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	UG8HT	UG8JT	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	$I_{FSM}$	100		A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150		°C
Isolation voltage (ITO-220AB only) from terminals to heatsink $t = 1$ min	$V_{AC}$	1500		V

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	UG8HT	UG8JT	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	$I_F = 8\text{ A}$ $I_F = 8\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 125\text{ }^\circ\text{C}$	$V_F$	1.75 1.50		V
Maximum DC reverse current 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 4.0		$\mu\text{A}$ $\mu\text{A}$ mA
Maximum reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$		$t_{rr}$	25		ns
	$I_F = 1.0\text{ A}$ , $dI/dt = 50\text{ A}/\mu\text{s}$ , $V_R = 30\text{ V}$ , $I_{rr} = 0.1 I_{RM}$		$t_{rr}$	50		ns
Typical softness factor ( $t_b/t_a$ )	$I_F = 8.0\text{ A}$ , $dI/dt = 240\text{ A}/\mu\text{s}$ , $V_R = 400\text{ V}$ , $I_{rr} = 0.1 I_{RM}$		S	1.0		-
Maximum reverse recovery current	$I_F = 8.0\text{ A}$ , $dI/dt = 64\text{ A}/\mu\text{s}$ , $V_R = 400\text{ V}$ , $T_C = 125\text{ }^\circ\text{C}$		$I_{RM}$	5.5		A
	$I_F = 8.0\text{ A}$ , $dI/dt = 240\text{ A}/\mu\text{s}$ , $V_R = 400\text{ V}$ , $T_C = 125\text{ }^\circ\text{C}$		$I_{RM}$	10		A
Peak forward recovery time	$I_F = 8.0\text{ A}$ , $dI/dt = 64\text{ A}/\mu\text{s}$ , $V_F = 1.1 \times V_{F\text{ max.}}$		$t_{fr}$	500		ns

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	UG8	UGF	UGB8	UNIT
Typical thermal resistance from junction to case	$R_{\theta JC}$	2.2	5.0	2.2	$^\circ\text{C}/\text{W}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	UG8JT-E3/45	1.80	45	50/tube	Tube
ITO-220AC	UGF8JT-E3/45	1.95	45	50/tube	Tube
TO-263AB	UGB8JT-E3/45	1.33	45	50/tube	Tube
TO-263AB	UGB8JT-E3/81	1.33	81	800/reel	Tape and reel
TO-220AC	UG8JT-E3/45 <sup>(1)</sup>	1.80	45	50/tube	Tube
ITO-220AC	UGF8JT-E3/45 <sup>(1)</sup>	1.95	45	50/tube	Tube
TO-263AB	UGB8JT-E3/45 <sup>(1)</sup>	1.33	45	50/tube	Tube
TO-263AB	UGB8JT-E3/81 <sup>(1)</sup>	1.33	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)

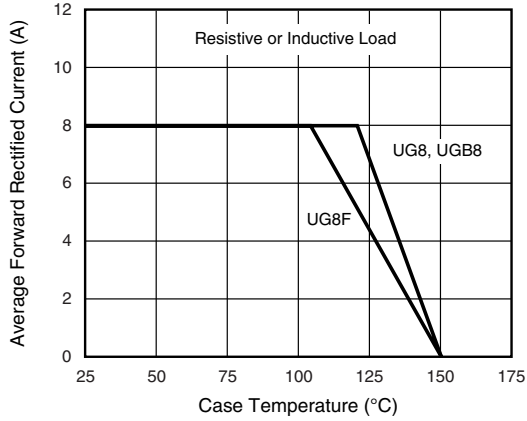


Figure 1. Maximum Forward Current Derating Curve

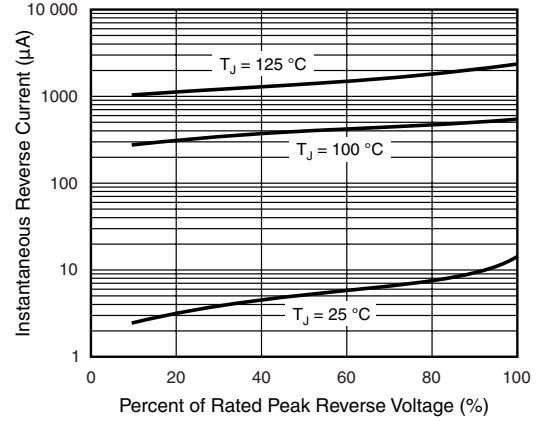


Figure 4. Typical Reverse Leakage Characteristics

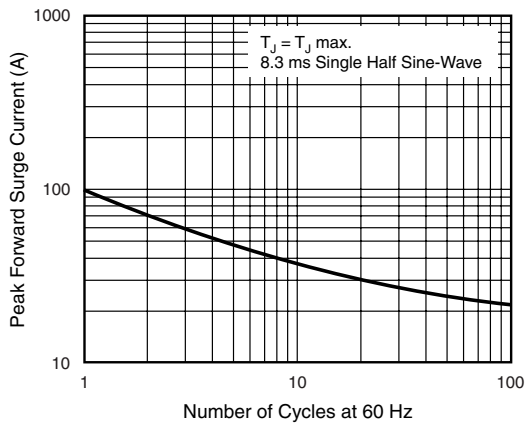


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

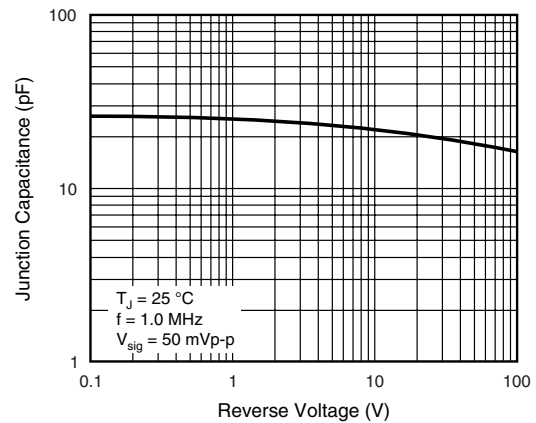


Figure 5. Typical Junction Capacitance

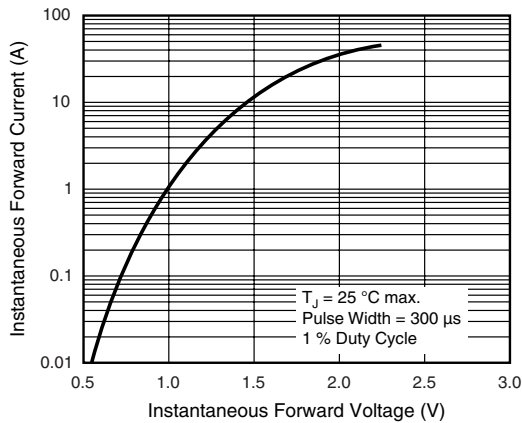


Figure 3. Typical Instantaneous Forward Characteristics

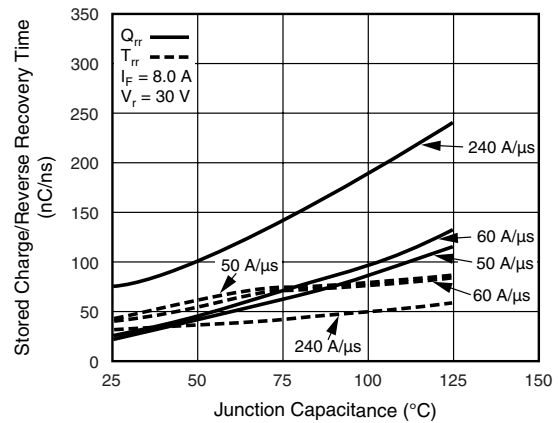


Figure 6. Reverse Switching Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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 in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

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

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**



## Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

### Наши контакты:

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331