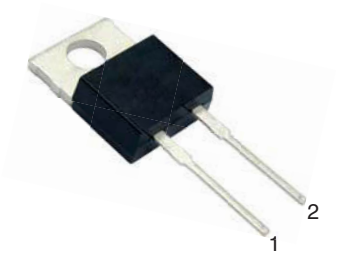
Ultrafast Plastic Rectifier

TO-220AC



FESE8xT

FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max., 10 s per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AC

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs max.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	50 V to 600 V
I_{FSM}	125 A
t_{rr}	35 ns, 50 ns
V_F	0.95 V, 1.30 V, 1.50 V
T_J max.	150 °C
Package	TO-220AC
Diode variations	Single die

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

PARAMETER	SYMBOL	FESE8AT	FESE8BT	FESE8CT	FESE8DT	FESE8FT	FESE8GT	FESE8HT	FESE8JT	UNIT
Max. repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Max. RMS voltage	V_{RMS}	35	70	105	140	210	280	350	420	V
Max. DC blocking voltage	V_{DC}	50	100	150	200	300	400	500	600	V
Max. average forward rectified current at T_C = 100 °C	$I_{F(AV)}$	8.0								A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	125								A
Operating storage and temperature range	T_J, T_{STG}	-55 to +150								°C

ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)												
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**FESE8AT**	**FESE8BT**	**FESE8CT**	**FESE8DT**	**FESE8FT**	**FESE8GT**	**FESE8HT**	**FESE8JT**	**UNIT**
Max. instantaneous forward voltage (1)	8.0 A		V_F	0.95				1.3		1.5		V
Max. DC reverse current at rated DC blocking voltage		T_C = 25 °C	I_R	10								µA
		T_C = 100 °C		500								
Max. reverse recovery time	I_F = 0.5 A, I_R = 1.0 I_{rr} = 0.25 A		t_{rr}	35				50				ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	85						50		pF

Note

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

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)										
PARAMETER	**SYMBOL**	**FESE8AT**	**FESE8BT**	**FESE8CT**	**FESE8DT**	**FESE8FT**	**FESE8GT**	**FESE8HT**	**FESE8JT**	**UNIT**
Typical thermal resistance from junction to case	$R_{\theta JC}$	2.2								°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AC	FESE8JT-E3/45	1.80	45	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

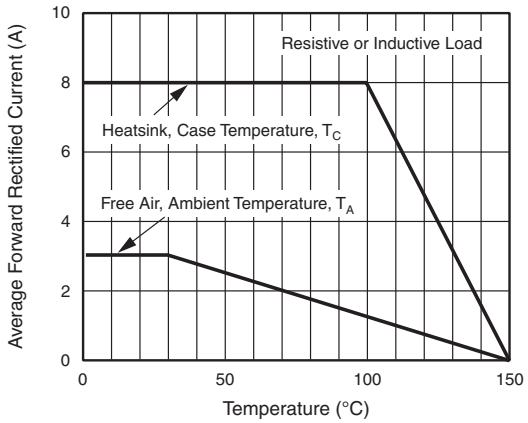


Fig. 1 - Max. Forward Current Derating Curve

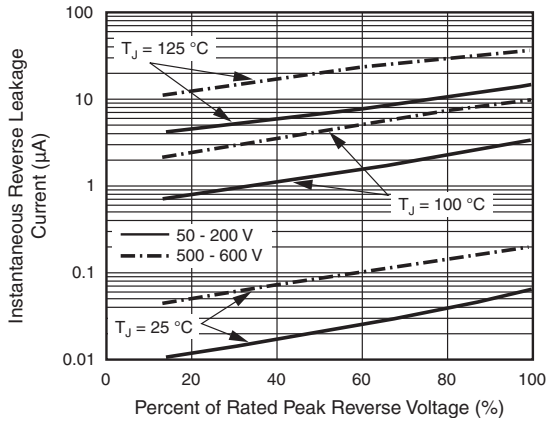


Fig. 4 - Typical Reverse Leakage Characteristics

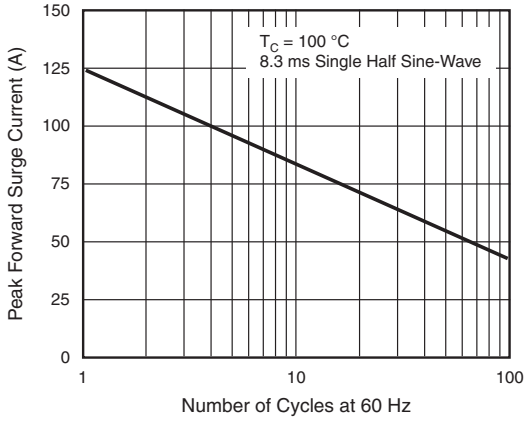


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

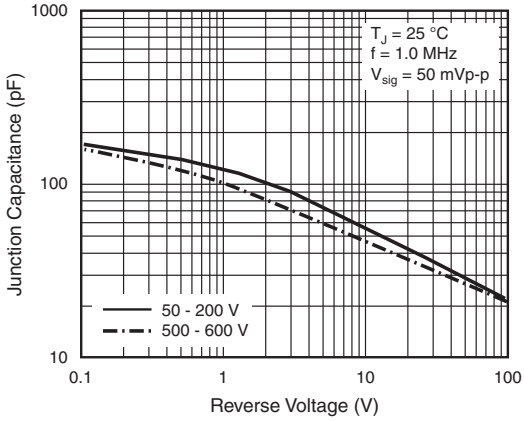


Fig. 5 - Typical Junction Capacitance

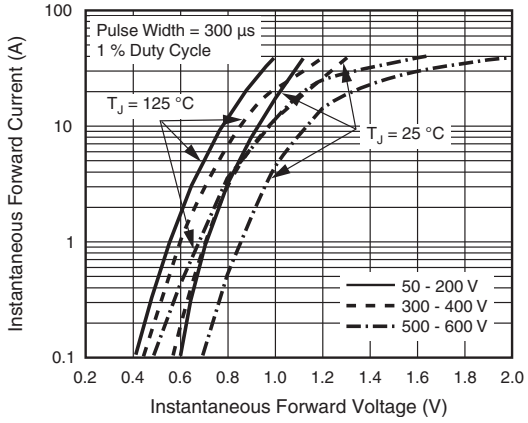
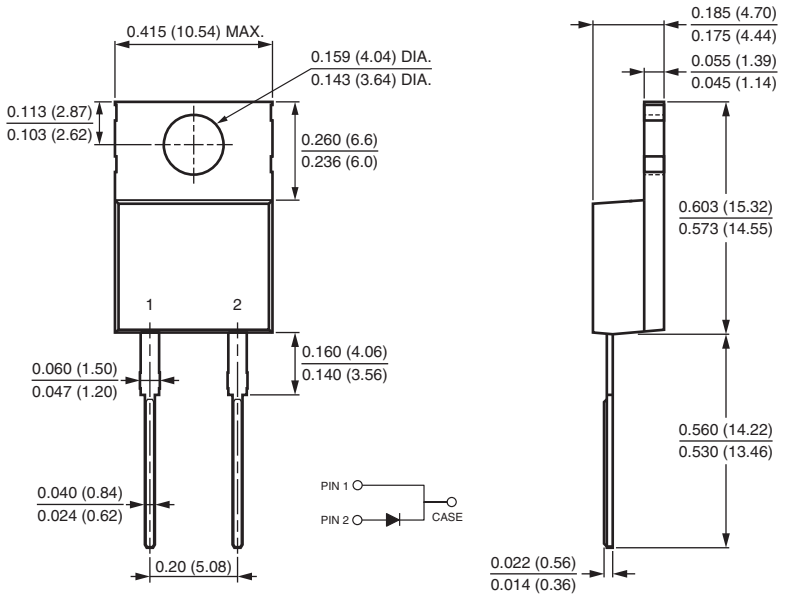


Fig. 3 - Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC



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. 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.