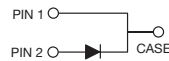


## Ultrafast Rectifier


**FESE8XT**


### FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Low leakage current
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://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 JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
$V_{RRM}$	50 V to 400 V
$I_{FSM}$	125 A
$t_{rr}$	35 ns, 50 ns
$V_F$	0.95 V, 1.30 V
$T_J \text{ max.}$	150 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL	FESE8AT	FESE8BT	FESE8CT	FESE8DT	FESE8FT	FESE8GT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	300	400	V
Maximum RMS voltage	$V_{RMS}$	35	70	105	140	210	280	V
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200	300	400	V
Maximum average forward rectified current at $T_C = 100\text{ °C}$	$I_{F(AV)}$	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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	FESE8AT	FESE8BT	FESE8CT	FESE8DT	FESE8FT	FESE8GT	UNIT
Maximum instantaneous forward voltage	8.0 A	$V_F^{(1)}$	0.95			1.30			V
Maximum DC reverse current	at rated $V_R$	$I_R^{(2)}$	$T_C = 25\text{ }^\circ\text{C}$			10			$\mu\text{A}$
			$T_C = 100\text{ }^\circ\text{C}$			500			
Maximum reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	35			50			ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	85						pF

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	FESE8AT	FESE8BT	FESE8CT	FESE8DT	FESE8FT	FESE8GT	UNIT
Typical thermal resistance	$R_{\theta JC}$				2.2			$^\circ\text{C/W}$
	$R_{\theta JA}^{(1)}$				50			

**Note**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	FESE8GT-E3/45	1.86	45	50/tube	Tube

**RATINGS AND CHARACTERISTICS CURVES**

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

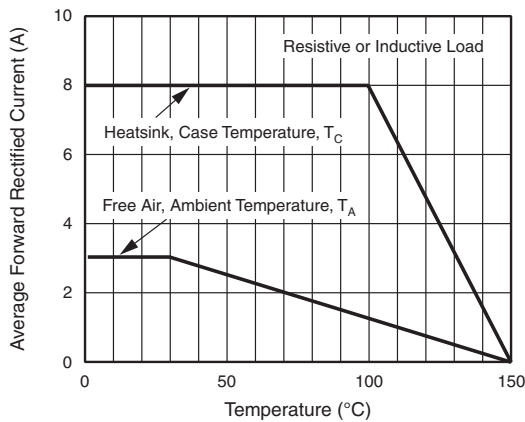


Fig. 1 - Maximum Forward Current Derating Curve

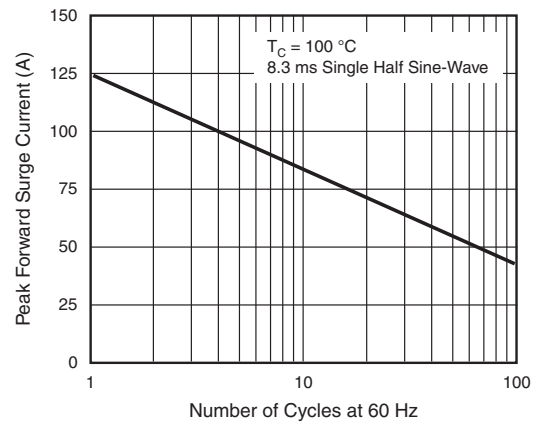


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

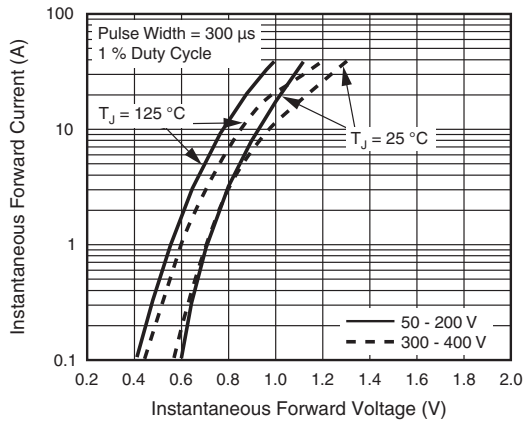


Fig. 3 - Typical Instantaneous Forward Characteristics

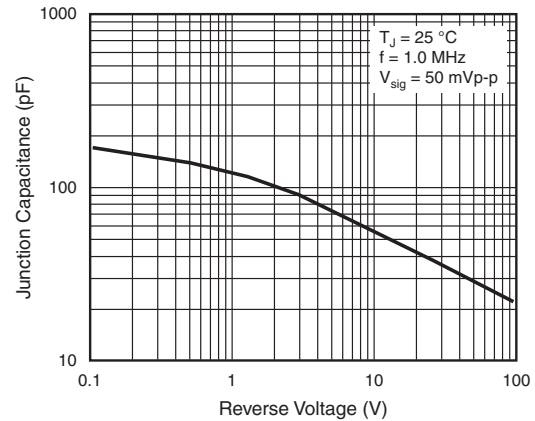


Fig. 5 - Typical Junction Capacitance

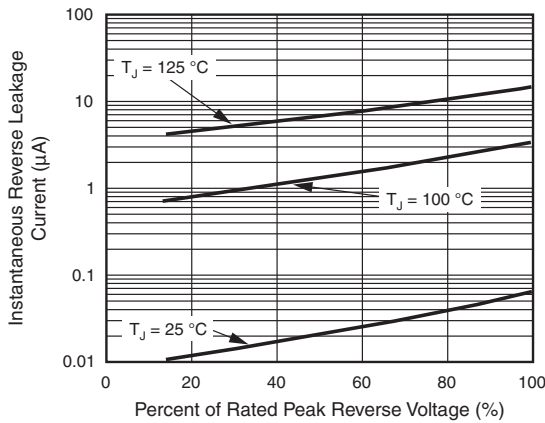
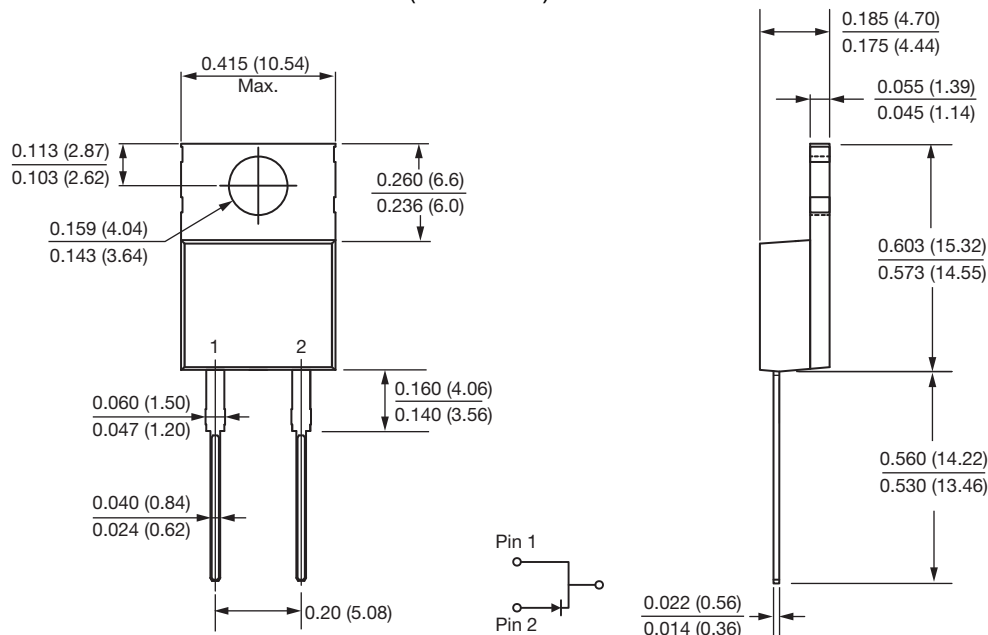


Fig. 4 - Typical Reverse Leakage Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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