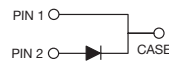


## Ultrafast Rectifier


**FESE16XT Series**


### 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	
$I_{F(AV)}$	16 A
$V_{RRM}$	50 V to 400 V
$I_{FSM}$	250 A
$t_{rr}$	35 ns, 50 ns
$V_F$	0.975 V, 1.30 V
$T_J \text{ max.}$	150 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL	FESE16AT	FESE16BT	FESE16CT	FESE16DT	FESE16FT	FESE16GT	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 $T_C = 100\text{ °C}$	$I_{F(AV)}$	16						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	250						A
Operating storage and temperature range	$T_J, T_{STG}$	- 65 to + 150						°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	FESE16AT	FESE16BT	FESE16CT	FESE16DT	FESE16FT	FESE16GT	UNIT
Maximum instantaneous forward voltage	16 A	V <sub>F</sub> <sup>(1)</sup>	0.975				1.30		V
Maximum DC reverse current	at rated V <sub>R</sub>	T <sub>C</sub> = 25 °C	10						μA
		T <sub>C</sub> = 100 °C	500						
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A	t <sub>rr</sub>	35				50		ns
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	175						pF

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	FESE16AT	FESE16BT	FESE16CT	FESE16DT	FESE16FT	FESE16GT	UNIT
Typical thermal resistance	R <sub>θJC</sub>	1.2						°C/W
	R <sub>θJA</sub> <sup>(1)</sup>	50						

**Note**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/R<sub>θJA</sub>

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	FESE16GT-E3/45	1.86	45	50/tube	Tube

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

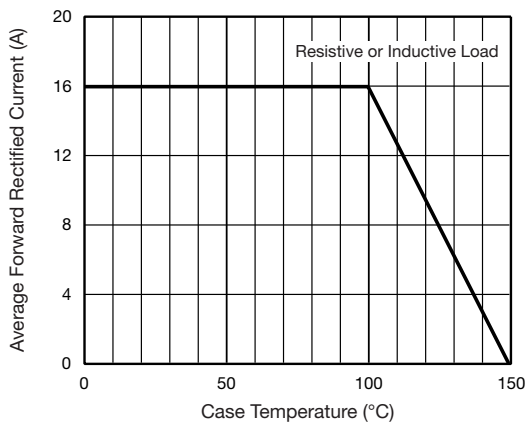


Fig. 1 - Maximum Forward Current Derating Curve

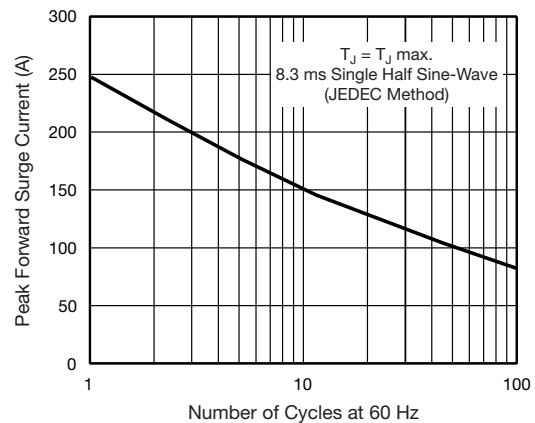


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

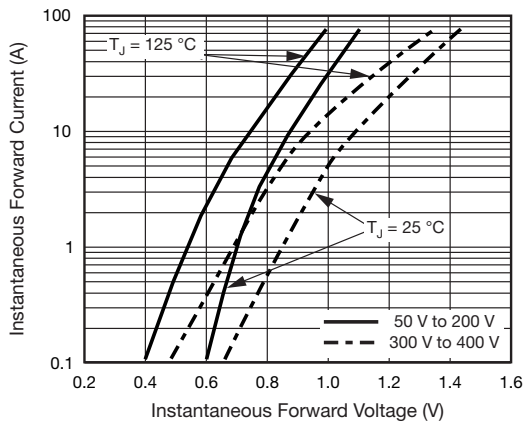


Fig. 3 - Typical Instantaneous Forward Characteristics

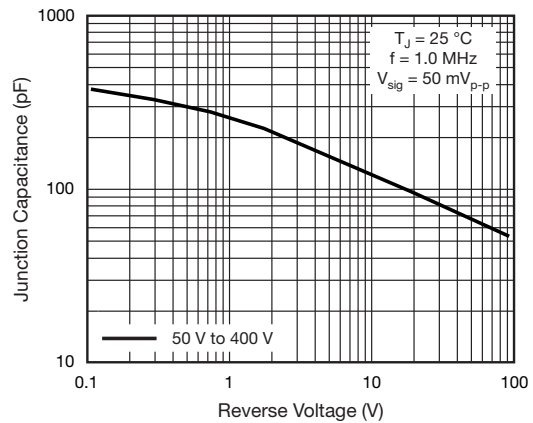


Fig. 5 - Typical Junction Capacitance

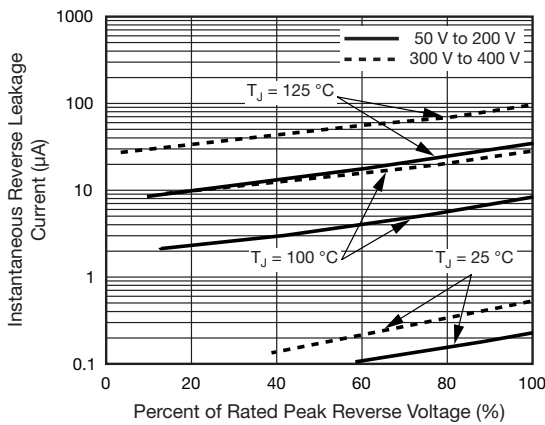
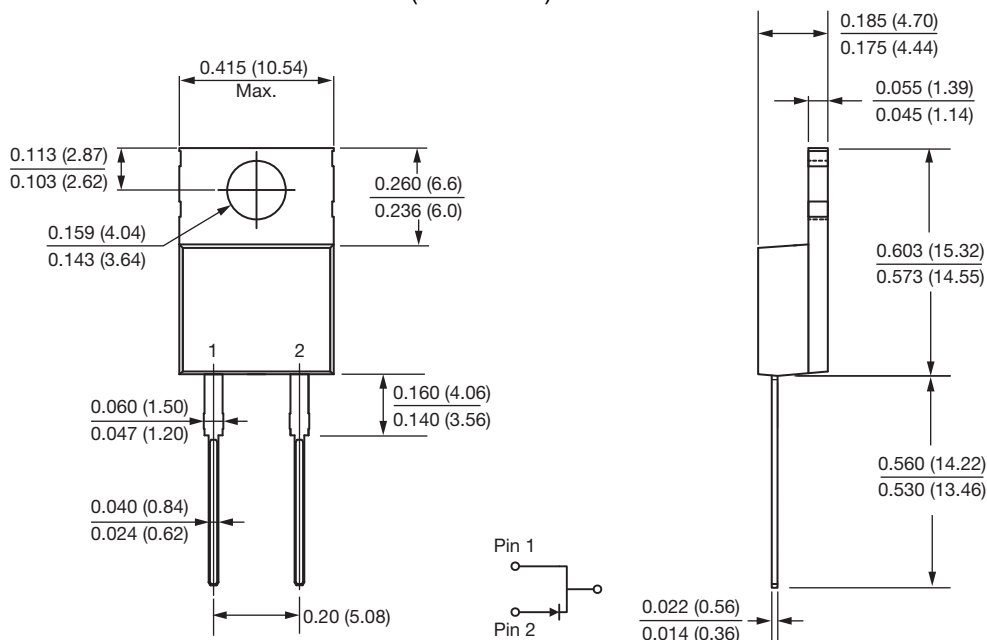


Fig. 4 - Typical Reverse Leakage Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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