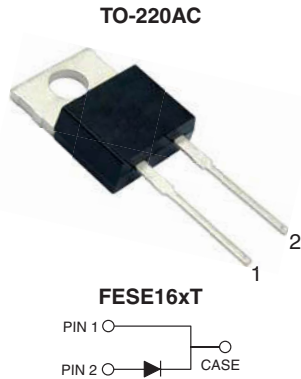


## Ultrafast Plastic Rectifier



### FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- 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](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 max.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	16 A
$V_{RRM}$	50 V to 600 V
$I_{FSM}$	250 A
$t_{rr}$	35 ns, 50 ns
$V_F$	0.975 V, 1.30 V, 1.50 V
$T_J$ max.	150 °C
Package	TO-220AC
Diode variations	Single die

MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)										
PARAMETER	SYMBOL	FESE 16AT	FESE 16BT	FESE 16CT	FESE 16DT	FESE 16FT	FESE 16GT	FESE 16HT	FESE 16JT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	300	400	500	600	V
Maximum RMS voltage	$V_{RMS}$	35	70	105	140	210	280	350	420	V
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200	300	400	500	600	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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)												
PARAMETER	TEST CONDITIONS	SYMBOL	FESE 16AT	FESE 16BT	FESE 16CT	FESE 16DT	FESE 16FT	FESE 16GT	FESE 16HT	FESE 16JT	UNIT	
Maximum instantaneous forward voltage	16 A	$V_F$ <sup>(1)</sup>	0.975				1.30		1.50		V	
Maximum DC reverse current at rated DC blocking voltage	$T_C = 25\text{ }^\circ\text{C}$	$I_R$	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	$C_J$	175						145		pF	

**Note**

<sup>(1)</sup> 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	FESE 16AT	FESE 16BT	FESE 16CT	FESE 16DT	FESE 16FT	FESE 16GT	FESE 16HT	FESE 16JT	UNIT	
Typical thermal resistance, junction to case	$R_{\theta JC}$	1.2									$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	FESE16JT-E3/45	1.78	45	50/tube	Tube



RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

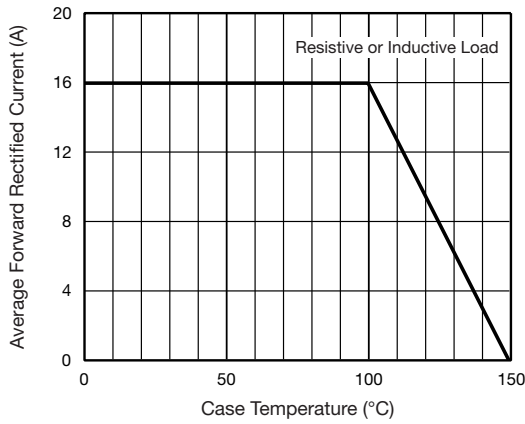


Fig. 1 - Maximum Forward Current Derating Curve

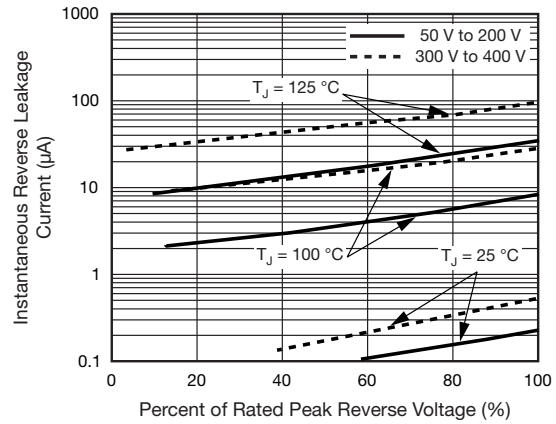


Fig. 4 - Typical Reverse Leakage Characteristics

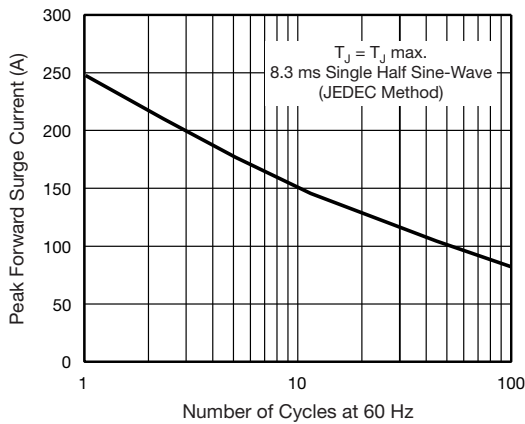


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

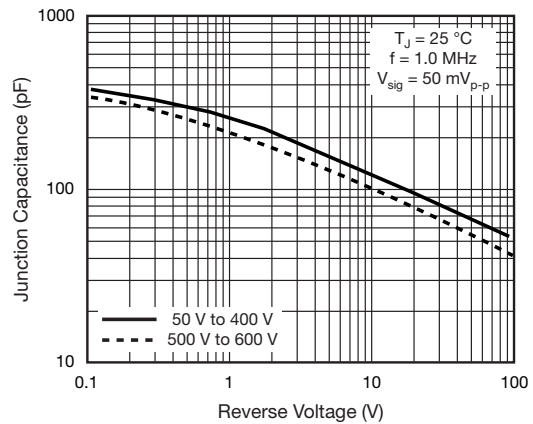


Fig. 5 - Typical Junction Capacitance

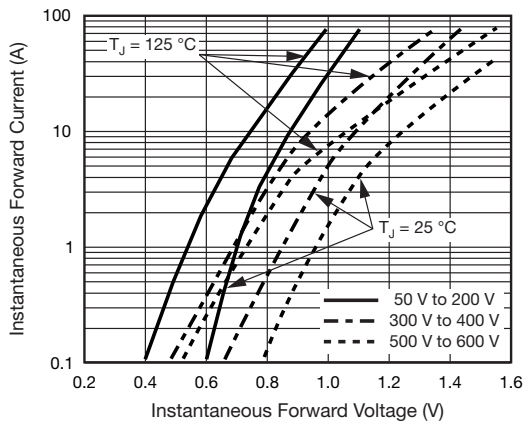
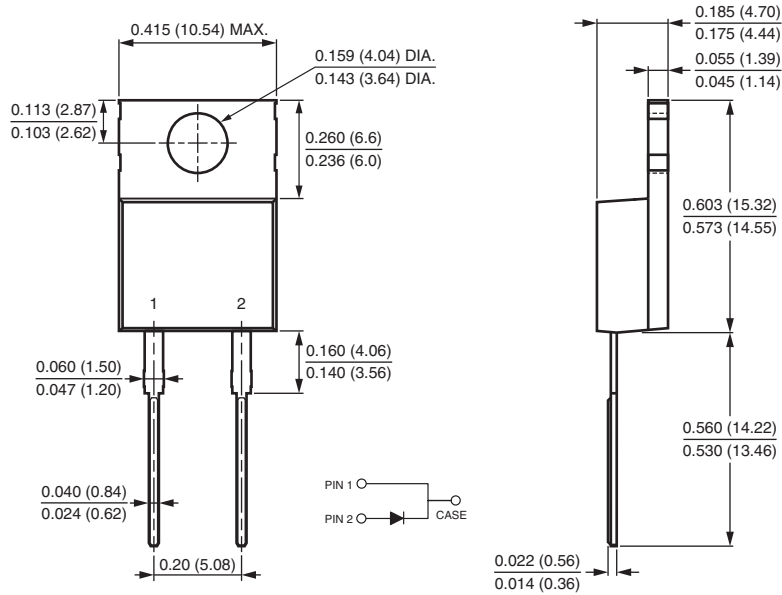


Fig. 3 - Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC





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