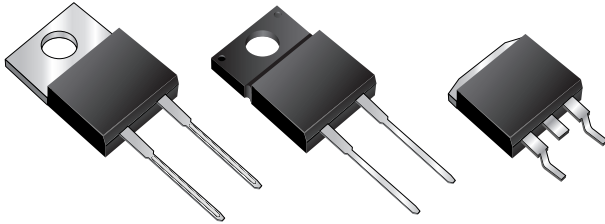


# Ultrafast Plastic Rectifiers

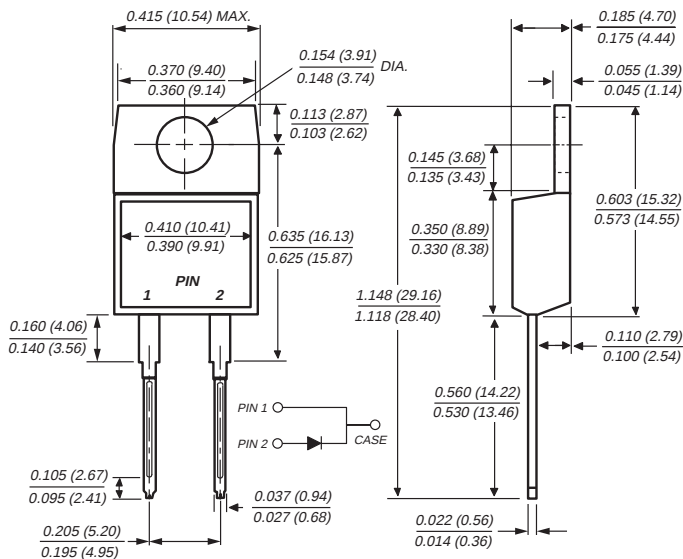
**Reverse Voltage** 50 to 600V

**Forward Current** 8.0 A

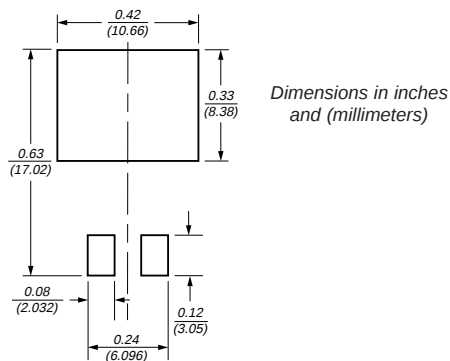
**Reverse Recovery Time** 35 to 50ns



## TO-220AC (FES8JT)



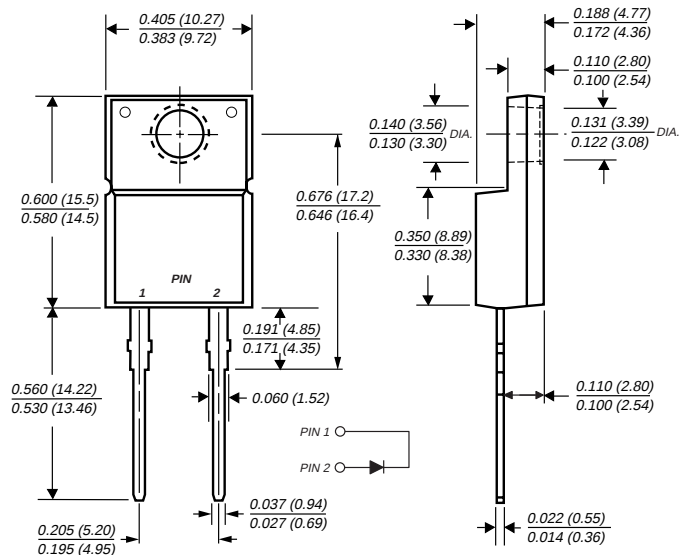
## Mounting Pad Layout TO-263AB



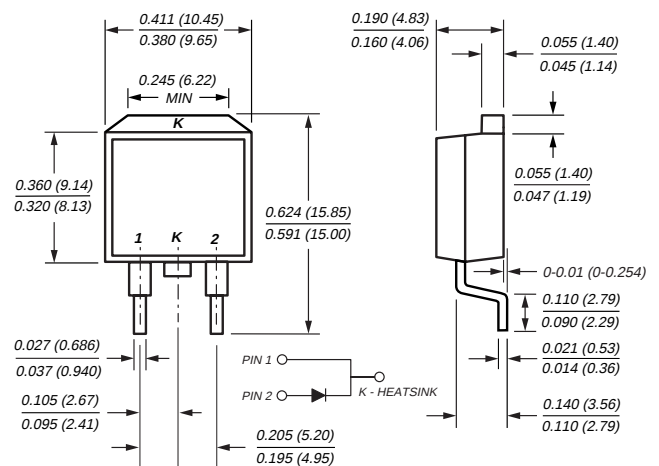
## Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated chip junction
- Low leakage, high voltage
- High surge current capability
- Superfast recovery time, for high efficiency

**ITO-220AC (FESF8JT)**



**TO-263AB (FESB8JT)**



## Mechanical Data

**Case:** JEDEC TO-220AC, ITO-220AC & TO-263AB  
molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026

High temperature soldering guaranteed:  
250°C, 0.16" (4.06mm) from case for 10 seconds

**Polarity:** As marked    **Mounting Position:** Any

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

**Weight:** 0.08 oz., 2.24 g

# FES8JT, FESF8JT, FESB8JT Series

Vishay Semiconductors  
formerly General Semiconductor



## Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                                                                                                                       | Symbol                            | FES 8AT                                                           | FES 8BT | FES 8CT | FES 8DT | FES 8FT | FES 8GT | FES 8HT | FES 8JT | Unit |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|------|
| Maximum repetitive peak reverse voltage                                                                                         | V <sub>RRM</sub>                  | 50                                                                | 100     | 150     | 200     | 300     | 400     | 500     | 600     | V    |
| Maximum RMS voltage                                                                                                             | V <sub>RMS</sub>                  | 35                                                                | 70      | 105     | 140     | 210     | 280     | 350     | 420     | V    |
| Maximum DC blocking voltage                                                                                                     | V <sub>DC</sub>                   | 50                                                                | 100     | 150     | 200     | 300     | 400     | 500     | 600     | V    |
| Maximum average forward rectified current at T <sub>C</sub> =100°C                                                              | I <sub>F(AV)</sub>                | 8.0                                                               |         |         |         |         |         |         |         | A    |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed<br>on rated load (JEDEC Method) at T <sub>C</sub> =100°C | I <sub>FSM</sub>                  | 200                                                               |         |         |         | 125     |         |         |         | A    |
| Operating storage and temperature range                                                                                         | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150                                                       |         |         |         |         |         |         |         | °C   |
| RMS Isolation voltage (FESF type only) from<br>terminals to heatsink with t=1.0 second, RH≤30%                                  | V <sub>ISOL</sub>                 | 4500 <sup>(1)</sup><br>3500 <sup>(2)</sup><br>1500 <sup>(3)</sup> |         |         |         |         |         |         |         | V    |

## Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter                                                                                              | Symbol          | FES 8AT   | FES 8BT | FES 8CT | FES 8DT | FES 8FT | FES 8GT | FES 8HT | FES 8JT | Unit |
|--------------------------------------------------------------------------------------------------------|-----------------|-----------|---------|---------|---------|---------|---------|---------|---------|------|
| Maximum instantaneous forward voltage @ 8.0A <sup>(4)</sup>                                            | V <sub>F</sub>  | 0.95      |         |         |         | 1.30    |         | 1.50    |         | V    |
| Maximum DC reverse current<br>at rated DC blocking voltage                                             | I <sub>R</sub>  | 10<br>500 |         |         |         |         |         |         |         | μA   |
| Maximum reverse recovery time at<br>I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>rr</sub> =0.25A | t <sub>rr</sub> | 35        |         |         |         | 50      |         |         |         | ns   |
| Typical junction capacitance at 4V, 1MHz                                                               | C <sub>J</sub>  | 85        |         |         |         |         |         | 50      |         | pF   |

## Thermal Characteristics

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

| Parameter                                        | Symbol          | FES | FESF | FESB | Unit |
|--------------------------------------------------|-----------------|-----|------|------|------|
| Typical thermal resistance from junction to case | $R_{\theta JC}$ | 2.2 | 5.0  | 2.2  | °C/W |

### Notes:

- (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
- (2) Clip mounting (on case), where leads do overlap heatsink
- (3) Screw mounting with 4-40 screw, where washer diameter is  $\leq 4.9$  mm (0.19")
- (4) Pulse test: 300μs pulse width, 1% duty cycle

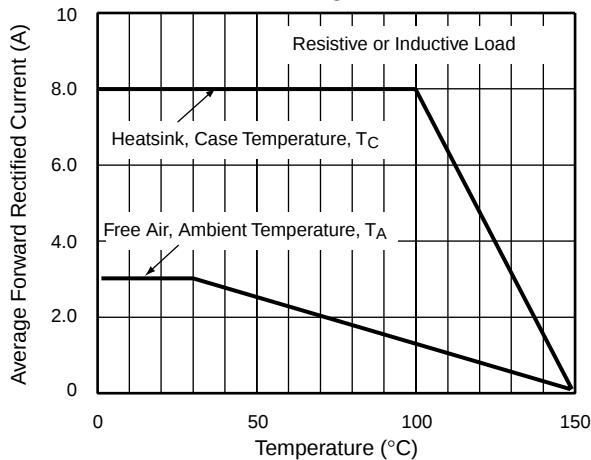
## Ordering Information

| Product              | Case      | Package Code | Package Option                              |
|----------------------|-----------|--------------|---------------------------------------------|
| FES8AT thru FES8JT   | TO-220AC  | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| FESF8AT thru FESF8JT | ITO-220AC | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| FESB8AT thru FESB8JT | TO-263AB  | 31           | 13" reel, 800/reel, 4.8K/carton             |
|                      |           | 45           | Anti-Static tube, 50/tube, 2K/carton        |
|                      |           | 81           | Anti-Static 13" reel, 800/reel, 4.8K/carton |

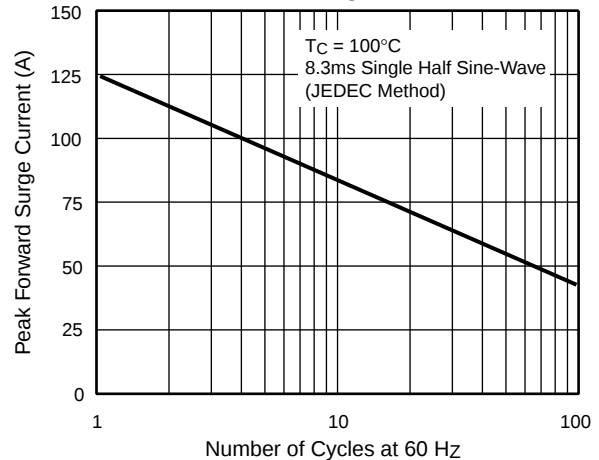


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

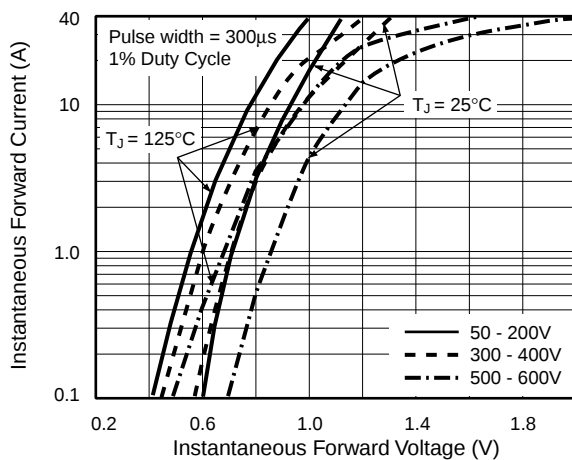
**Fig. 1 – Maximum Forward Current  
Derating Curve**



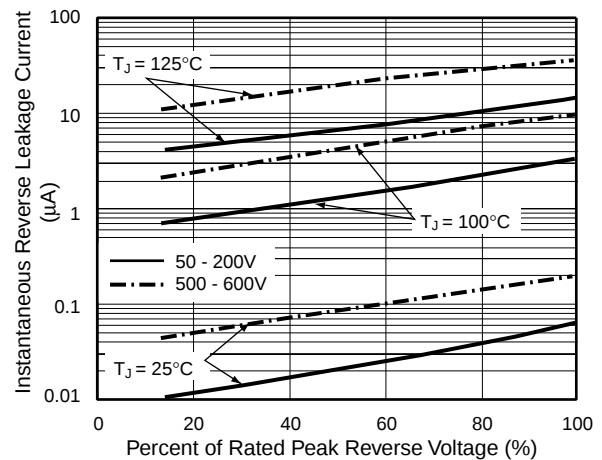
**Fig. 2 – Maximum Non-Repetitive Peak  
Forward Surge Current**



**Fig. 3 – Typical Instantaneous  
Forward Characteristics**



**Fig. 4 – Typical Reverse Leakage  
Characteristics**



**Fig. 5 – Typical Junction Capacitance**

