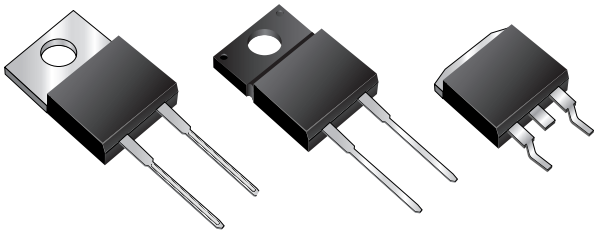
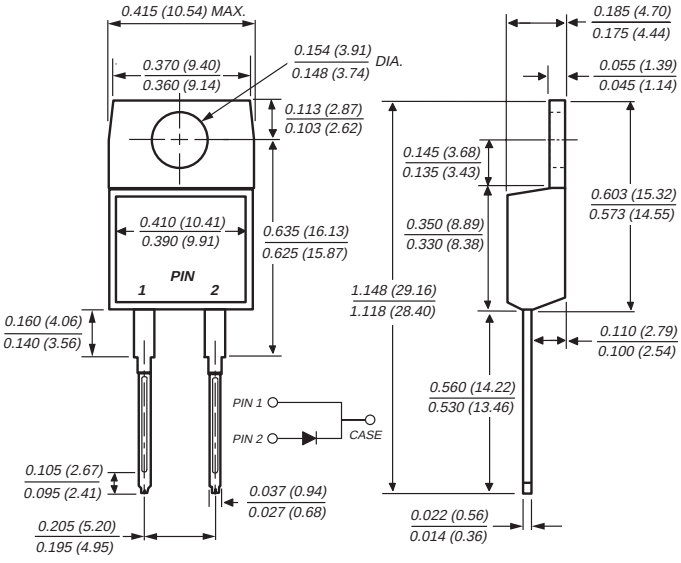
Vishay Semiconductors
formerly General Semiconductor

# Ultrafast Plastic Rectifiers

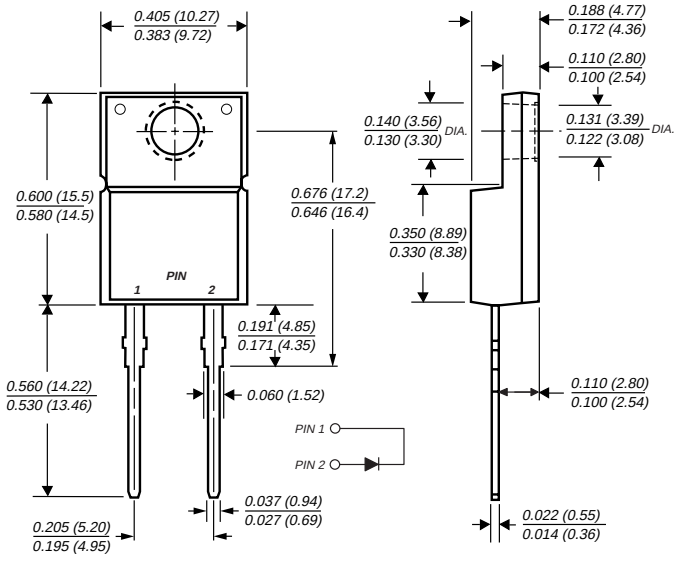
**Reverse Voltage** 50 to 600V
**Forward Current** 16A
**Reverse Recovery Time** 35/50ns



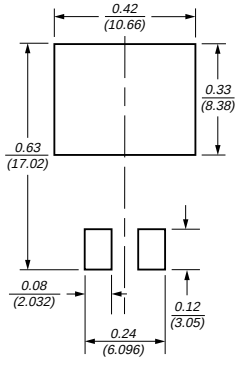
### TO-220AC (FES16JT Series)




### ITO-220AC (FESF16JT Series)

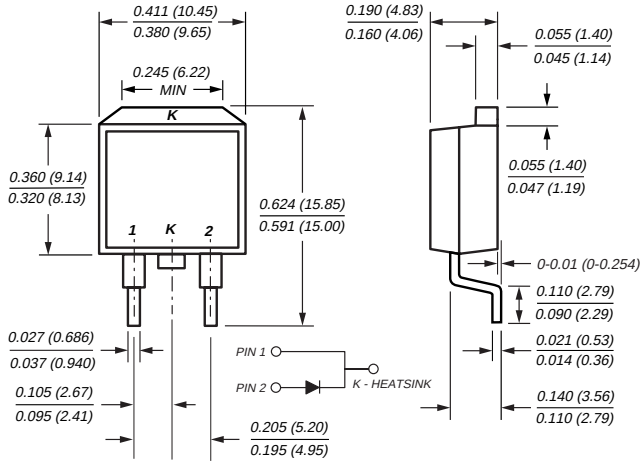



### Mounting Pad Layout TO-263AB




*Dimensions in inches and (millimeters)*

### TO-263AB (FESB16JT Series)




## Features

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

## 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/10 sec. at terminals

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

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

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

## Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | FES 16AT | FES 16BT | FES 16CT | FES 16DT | FES 16FT | FES 16GT | FES 16HT | FES 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°C | $I_{F(AV)}$ | 16.0 | | | | | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at $T_C$=100°C | $I_{FSM}$ | 250.0 | | | | | | | | A |
| Operating storage and temperature range | $T_J$, $T_{STG}$ | –65 to +150 | | | | | | | | °C |
| RMS isolation voltage (FESF) from terminals to heatsink with t = 1.0 second, RH ≤ 30% | $V_{ISOL}$ | 4500(1)<br>3500(2)<br>1500(3) | | | | | | | | V |

## Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | FES 16AT | FES 16BT | FES 16CT | FES 16DT | FES 16FT | FES 16GT | FES 16HT | FES 16JT | Unit |
|---|---|---|---|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage at 16A | $V_F$ | 0.975 | | | | 1.30 | | 1.50 | | V |
| Maximum DC reverse current at rated DC blocking voltage$T_C$ = 100°C | $I_R$ | 10<br>500 | | | | | | | | µA |
| Maximum reverse recovery time at $I_F$ = 0.5A, $I_R$ = 1.0A, $I_{rr}$ = 0.25A | $t_{rr}$ | 35 | | | | 50 | | | | ns |
| Typical junction capacitance at 4.0V, 1MHz | $C_J$ | 175 | | | | | | 145 | | pF |

## Thermal Characteristics

($T_C$ = 25°C unless otherwise noted)

| Parameter | Symbol | FES | FESF | FESB | Unit |
|---|---|---|---|---|---|
| Typical thermal resistance from junction to case | $R_{\theta JC}$ | 1.2 | 1.7 | 1.2 | °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 ≤ 4.9mm (0.19”)
(4) Pulse test: 300µs pulse width, 1% duty cycle

## Ordering Information

| Product | Case | Package Code | Package Option |
|---|---|---|---|
| FES16JT | TO-220AC | 45 | Anti-Static tube, 50/tube, 2K/carton |
| FESF16JT | ITO-220AC | 45 | Anti-Static tube, 50/tube, 2K/carton |
| FESB16JT | TO-263AB | 31<br>45<br>81 | 13” reel, 800/reel, 4.8K/carton<br>Anti-Static tube, 50/tube, 2K/carton<br>Anti-Static 13” reel, 800/reel, 4.8K/carton |

## Ratings and Characteristic Curves ($T_A$ = 25°C unless otherwise noted)

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

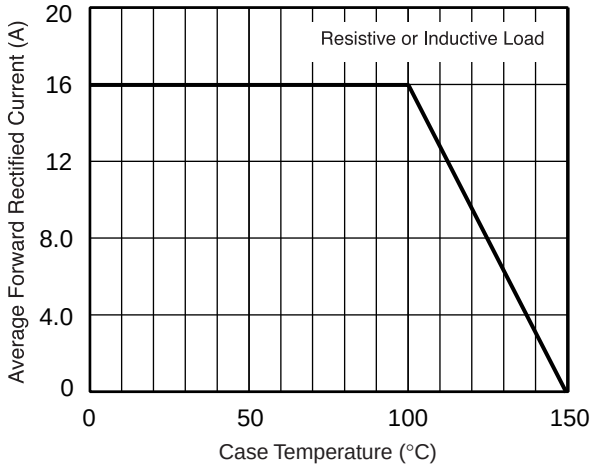



**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current**

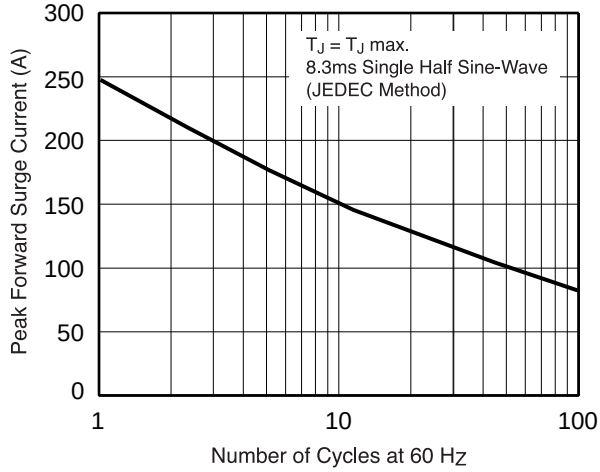



**Fig. 3 – Typical Instantaneous Forward Characteristics**

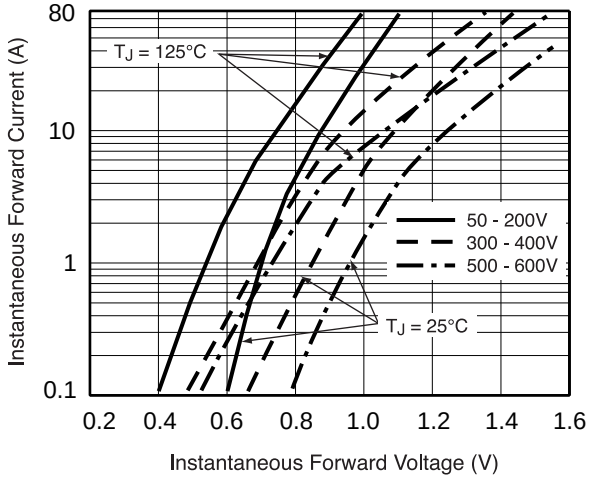
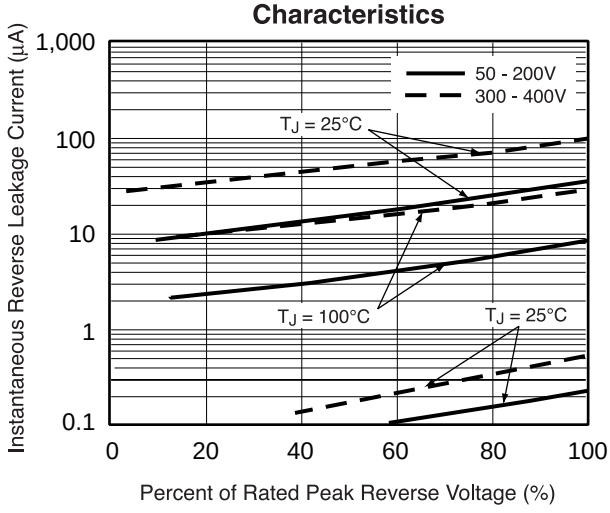



**Fig. 4 – Typical Reverse Leakage Characteristics**



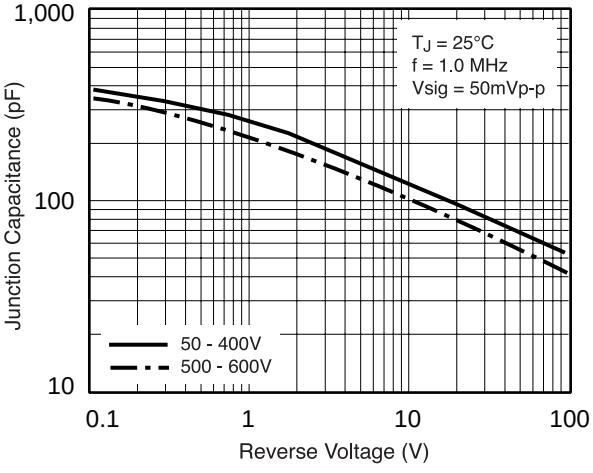


**Fig. 5 – Typical Junction Capacitance**