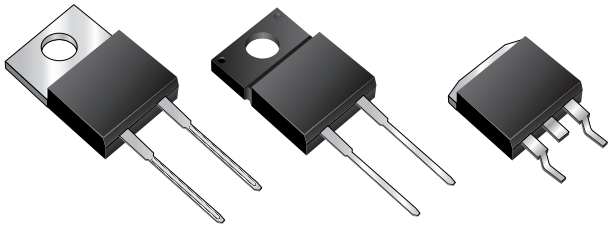
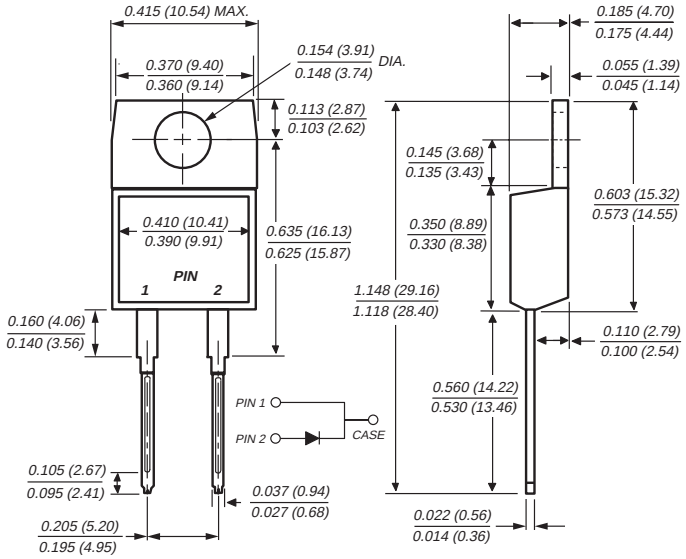
Ultrafast Plastic Rectifiers

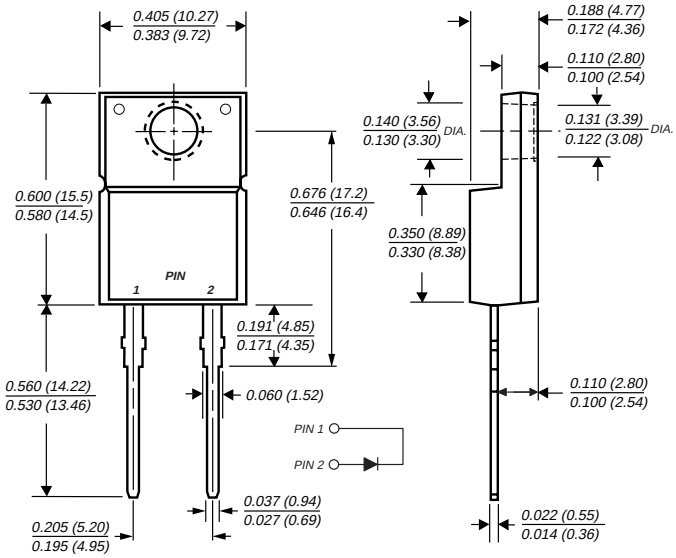


Reverse Voltage 50 to 600V
Forward Current 8.0 A
Reverse Recovery Time 35 to 50ns

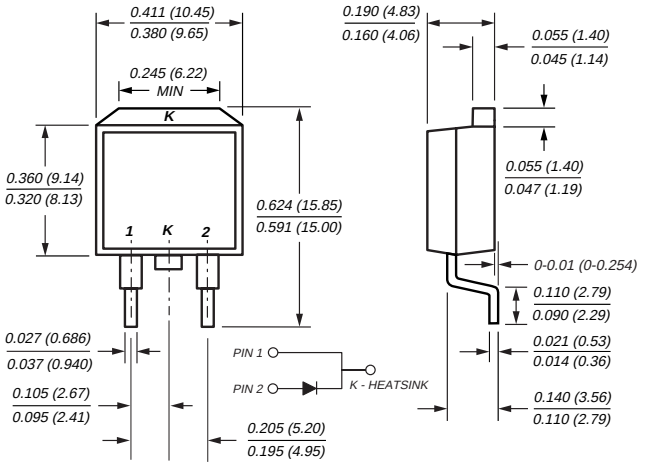
TO-220AC (FES8JT)



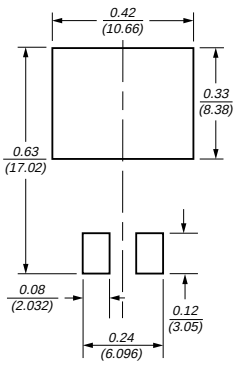
ITO-220AC (FESF8JT)



TO-263AB (FESB8JT)



Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

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

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

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_{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	$I_{F(AV)}$	8.0								A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) at T_C=100°C	I_{FSM}	200				125				A
Operating storage and temperature range	T_J, T_{STG}	–55 to +150								°C
RMS Isolation voltage (FESF type only) from terminals to heatsink with t=1.0 second, RH≤30%	V_{ISOL}	4500(1) 3500(2) 1500(3)								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(4)	V_F	0.95				1.30		1.50		V
Maximum DC reverse current at rated DC blocking voltage T_C=25°C T_C=100°C	I_R	10 500								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 4V, 1MHz	C_J	85						50		pF

Thermal Characteristics

(T_C = 25°C unless otherwise noted)

Parameter	Symbol	FES	FESF	FESB	Unit
Typical thermal resistance from junction to case	$R_{\Theta JC}$	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 ≤ 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 45 81	13" reel, 800/reel, 4.8K/carton Anti-Static tube, 50/tube, 2K/carton 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

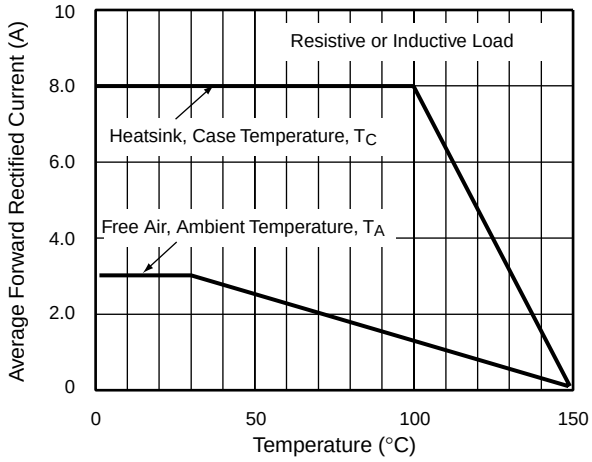


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current

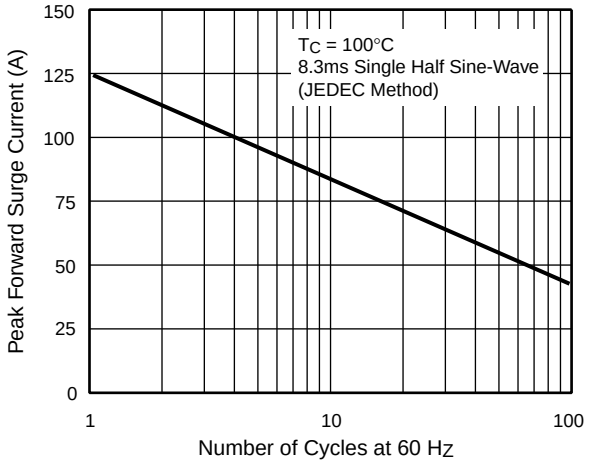


Fig. 3 – Typical Instantaneous Forward Characteristics

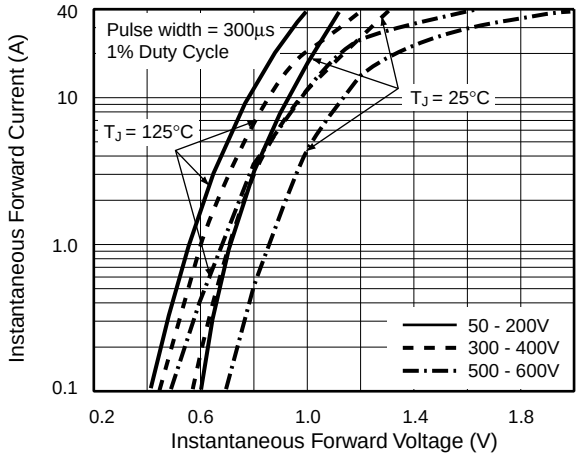


Fig. 4 – Typical Reverse Leakage Characteristics

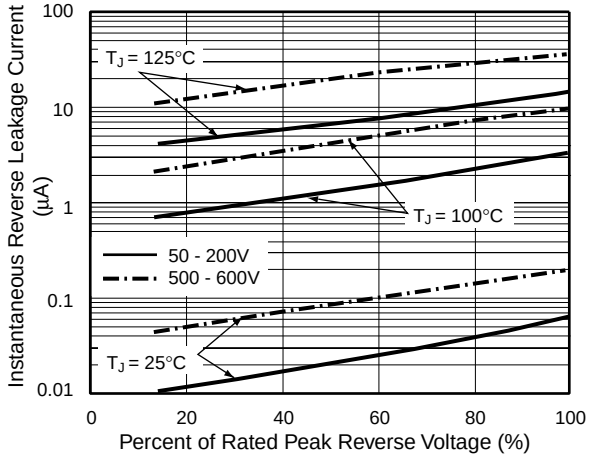


Fig. 5 – Typical Junction Capacitance