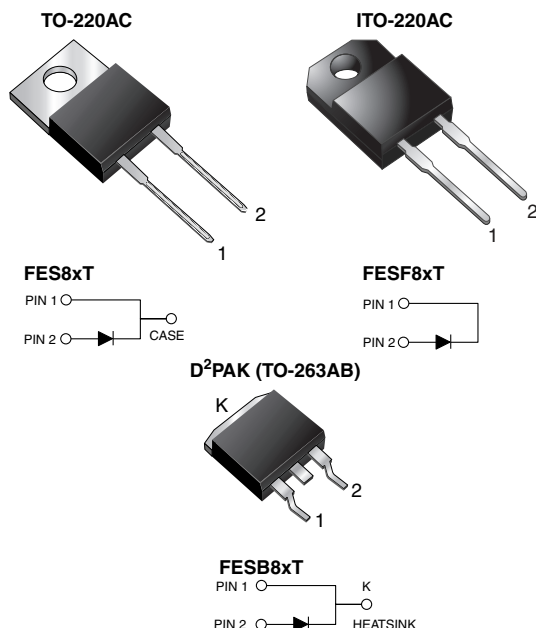


Ultrafast Plastic Rectifier



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	50 V to 600 V
I_{FSM}	125 A
t_{rr}	35 ns, 50 ns
V_F	0.95 V, 1.30 V, 1.50 V
T_J max.	150 °C
Package	TO-220AC, ITO-220AC, D²PAK (TO-263AB)
Circuit configurations	Single

FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (D²PAK (TO-263AB package))
- Solder dip 275 °C max., 10 s per JESD 22-B106 (for TO-220AC and ITO-220AC package)
- AEC-Q101 qualified available
 - Automotive ordering code:
 - base P/NHE3 (for ITO-220AC)
 - base P/NHM3 (for D²PAK (TO-263AB package))
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
Available

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, ITO-220AC, D²PAK (TO-263AB)

Molding compound meets UL 94V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified ("X" denotes revision code, e.g. A, B, ...)

Base P/N-M3 - RoHS-compliant, halogen-free, commercial grade

Base P/NHM3 - RoHS-compliant, halogen-free, AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 and M3 suffix meets JESD 201 class 1A whisker test, HE3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs max.

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

PARAMETER	SYMBOL	FES8AT FESF8AT	FES8BT FESF8BT	FES8CT FESF8CT	FES8DT FESF8DT FESB8DT	FES8FT FESF8FT	FES8GT FESF8GT FESB8GT	FES8HT FESF8HT	FES8JT FESF8JT FESB8JT	UNIT
Max. repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
Max. RMS voltage	V_{RMS}	35	70	105	140	210	280	350	420	V
Max. DC blocking voltage	V_{DC}	50	100	150	200	300	400	500	600	V
Max. average forward rectified current at $T_C = 100\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	8.0								A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	125								A
Operating storage and temperature range	T_J, T_{STG}	-55 to +150								$^{\circ}\text{C}$
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1\text{ min}$	V_{AC}	1500								V

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

PARAMETER	TEST CONDITIONS	SYMBOL	FES8AT FESF8AT	FES8BT FESF8BT	FES8CT FESF8CT	FES8DT FESF8DT FESB8DT	FES8FT FESF8FT	FES8GT FESF8GT FESB8GT	FES8HT FESF8HT	FES8JT FESF8JT FESB8JT	UNIT	
Max. instantaneous forward voltage ⁽¹⁾	8.0 A	V _F	0.95				1.3		1.5		V	
Max. DC reverse current at rated DC blocking voltage	T _C = 25 °C	I _R	10									μA
	T _C = 100 °C		500									
Max. reverse recovery time	I _F = 0.5 A, I _R = 1.0 I _{rr} = 0.25 A	t _{rr}	35				50				ns	
Typical junction capacitance	4.0 V, 1 MHz	C _J	85						50		pF	

Note

⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ 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	$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	FES8JT-E3/45	1.80	45	50/tube	Tube
ITO-220AC	FESF8JT-E3/45	1.85	45	50/tube	Tube
D ² PAK (TO-263AB)	FESB8JT-M3/I	1.33	I	800/reel	Tape and reel
ITO-220AC	FESF8JT HE3_A/P ⁽¹⁾	1.85	P	50/tube	Tube
D ² PAK (TO-263AB)	FESB8JTHM3/I ⁽¹⁾	1.33	I	800/reel	Tape and reel

Note

⁽¹⁾ AEC-Q101 qualified, available in ITO-220AC and D²PAK (TO-263AB) package

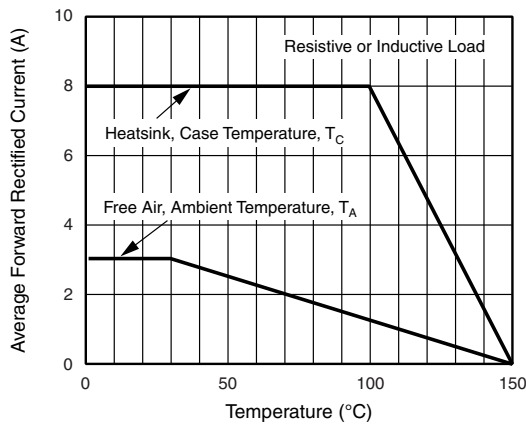
RATINGS AND CHARACTERISTICS CURVES ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Max. Forward Current Derating Curve

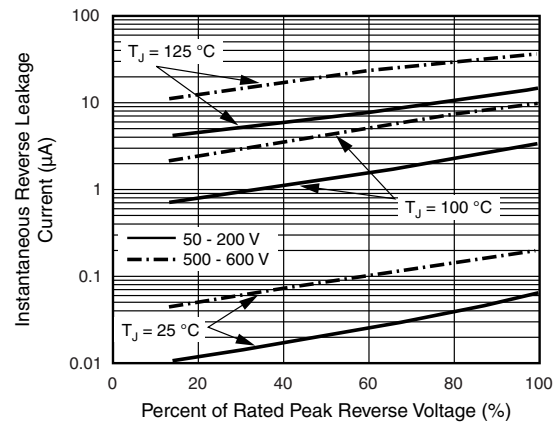


Fig. 4 - Typical Reverse Leakage Characteristics

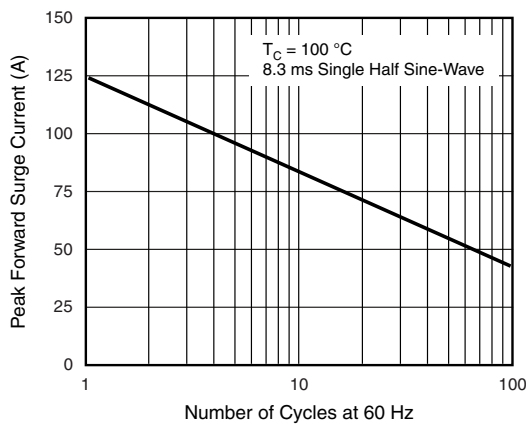


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

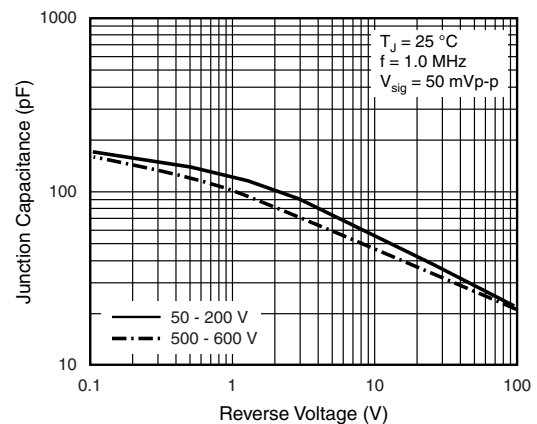


Fig. 5 - Typical Junction Capacitance

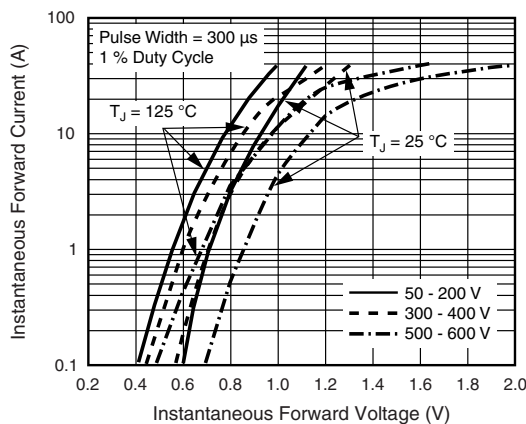
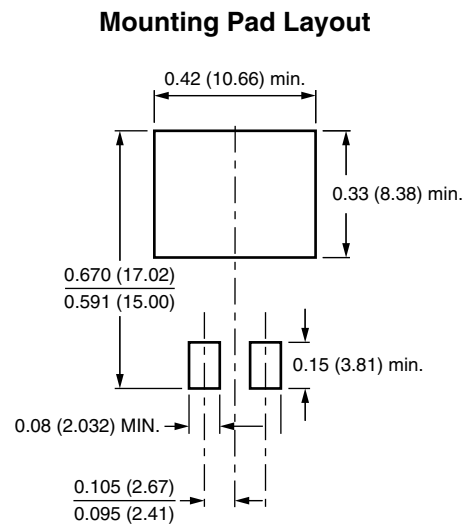
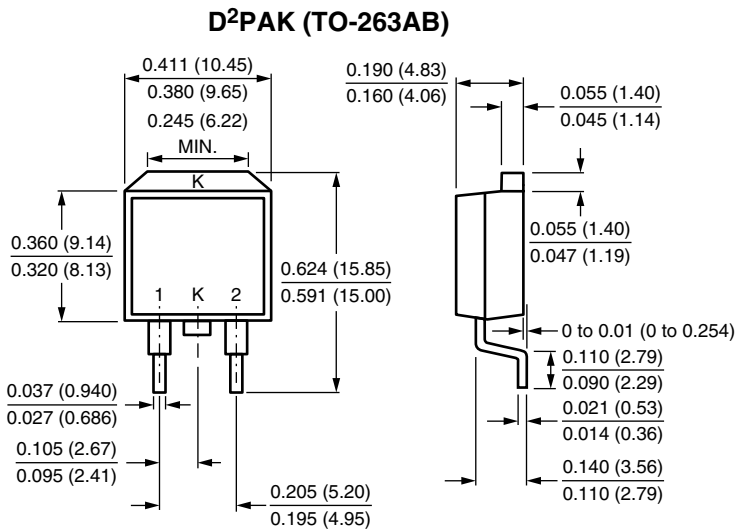
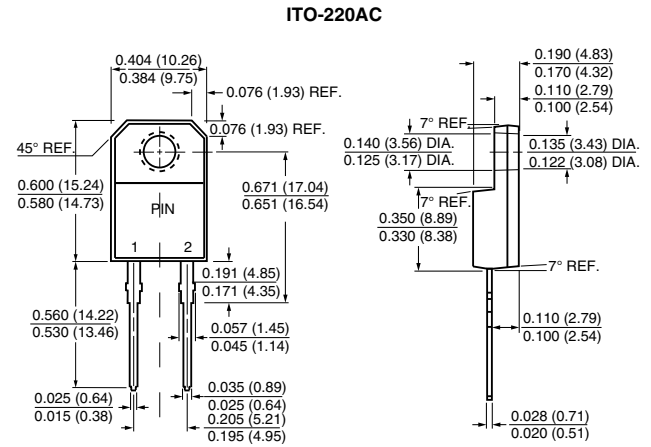
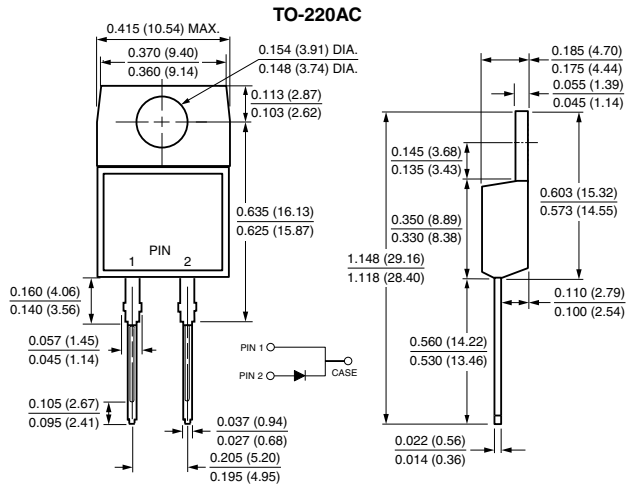


Fig. 3 - Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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