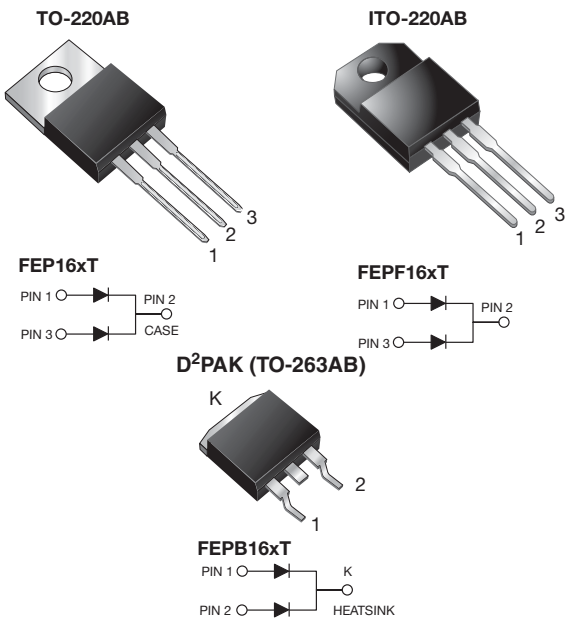
THE DATASHEET OF

FEPF16BT-E3/45

Dual Common Cathode Ultrafast Plastic Rectifier



FEATURES

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

RoHS COMPLIANT

DESIGN SUPPORT TOOLS AVAILABLE

3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 8.0 A
V_{RRM}	50 V to 600 V
I_{FSM}	200 A, 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-220AB, ITO-220AB, D²PAK (TO-263AB)
Circuit configurations	Common cathode

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-220AB, ITO-220AB, D²PAK (TO-263AB)
Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,....)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs max.

MAXIMUM RATINGS (T_C = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	FEP16AT	FEP16BT	FEP16CT	FEP16DT	FEP16FT	FEP16GT	FEP16HT	FEP16JT	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								A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	200				125				A
Operating storage and temperature range	T_J, T_{STG}	-55 to +150								°C
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min	V_{AC}	1500								V

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ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)												
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**FEP 16AT**	**FEP 16BT**	**FEP 16CT**	**FEP 16DT**	**FEP 16FT**	**FEP 16GT**	**FEP 16HT**	**FEP 16JT**	**UNIT**
Maximum instantaneous forward voltage per diode	8.0 A		V_F (1)	0.95				1.30		1.50		V
Maximum DC reverse current per diode at rated DC blocking voltage		T_C = 25 °C	I_R	10								µA
		T_C = 100 °C		500								
Maximum reverse recovery time per diode	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	35				50				ns
Typical junction capacitance per diode	4.0 V, 1 MHz		C_J	85						60		pF

Note

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

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**FEP**	**FEPF**	**FEPB**	**UNIT**
Typical thermal resistance from junction to case per diode	$R_{\theta JC}$	2.2	3.1	2.2	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AB	FEP16JT-E3/45	1.85	45	50/tube	Tube
ITO-220AB	FEPF16JT-E3/45	1.97	45	50/tube	Tube
TO-263AB	FEPB16JT-E3/45	1.35	45	50/tube	Tube
TO-263AB	FEPB16JT-E3/81	1.35	81	800/reel	Tape and reel
ITO-220AB	FEPF16JTHE3_A/P (1)	1.97	P	50/tube	Tube
TO-263AB	FEPB16JTHE3_A/P (1)	1.35	P	50/tube	Tube
TO-263AB	FEPB16JTHE3_A/I (1)	1.35	I	800/reel	Tape and reel

Note

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

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

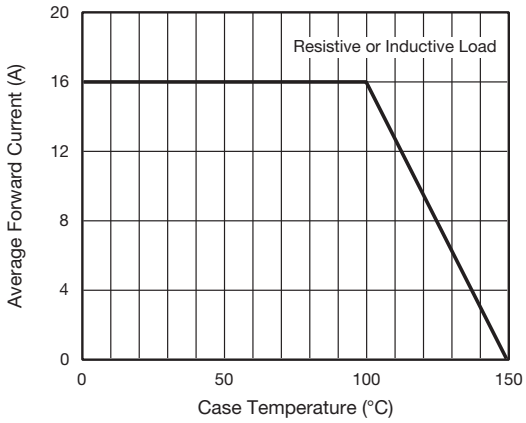

Fig. 1 - Forward Current Derating Curve

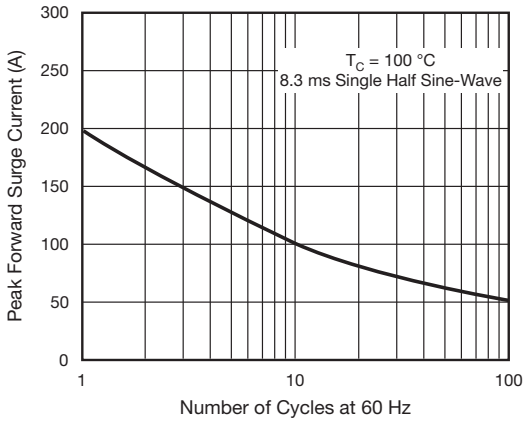

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

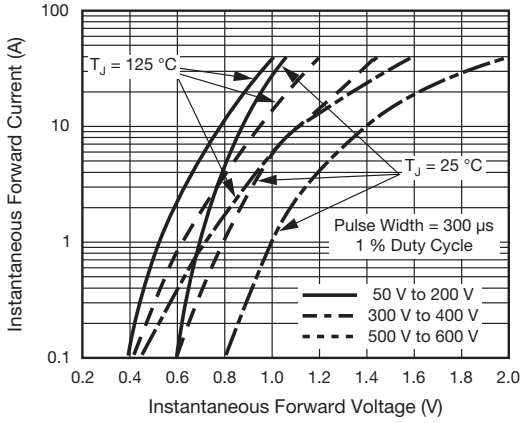

Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

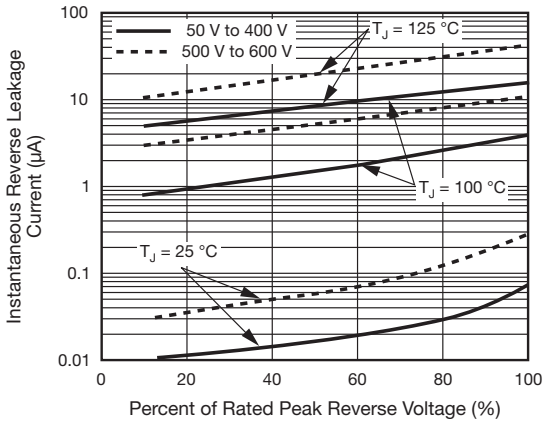

Fig. 4 - Typical Reverse Characteristics Per Diode

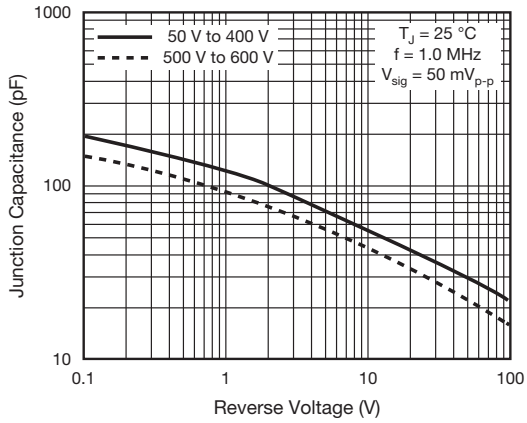

Fig. 5 - Typical Junction Capacitance Per Diode

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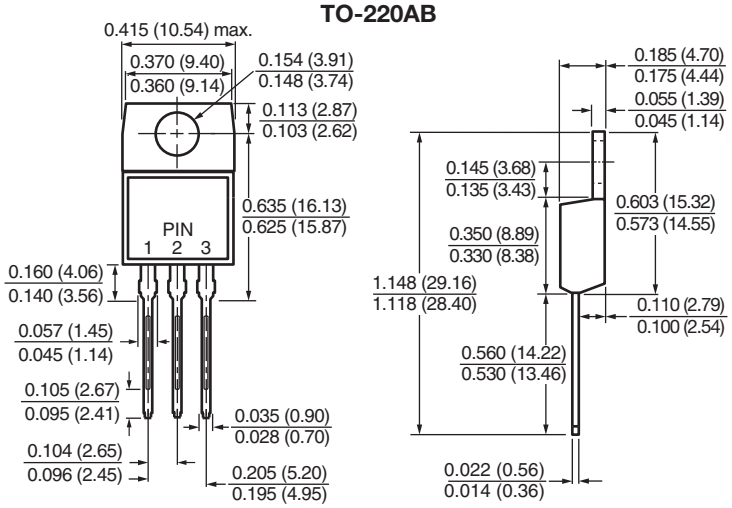
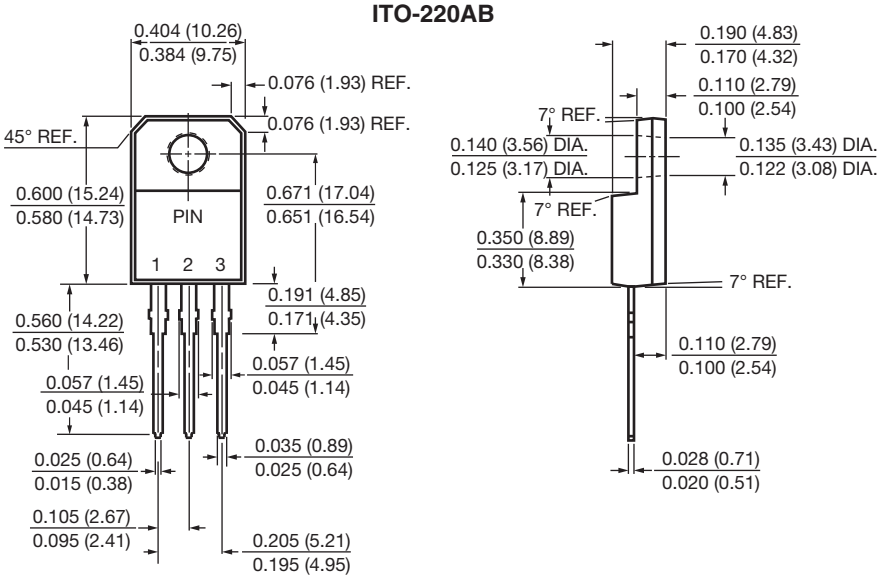
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

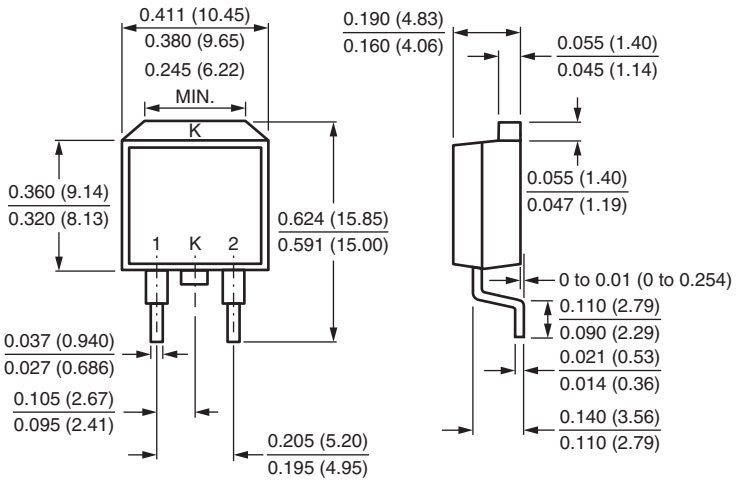
TO-220AB



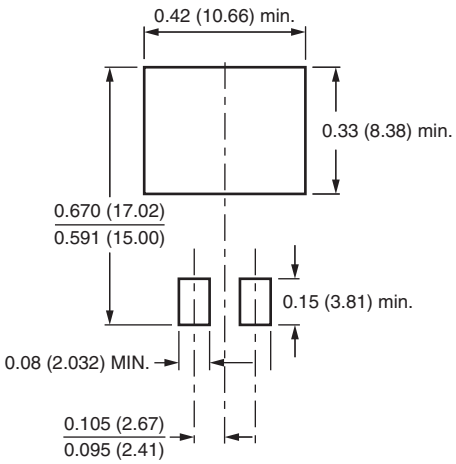
ITO-220AB



D²PAK (TO-263AB)



Mounting Pad Layout



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