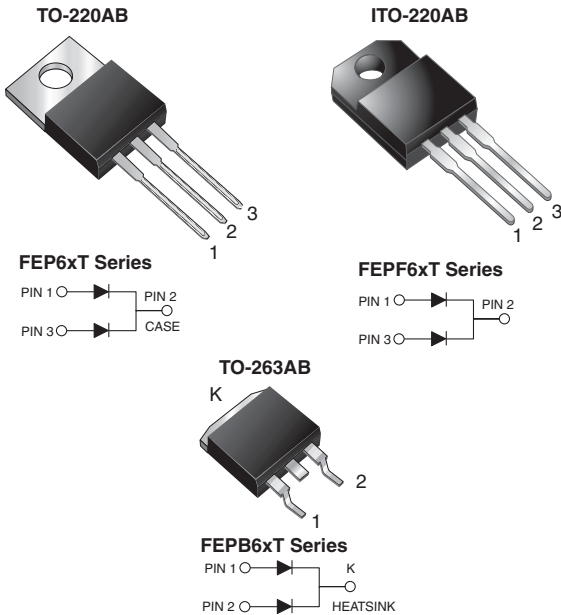




**THE DATASHEET OF
FEP6BT-E3/45**



Dual Common-Cathode Ultrafast Rectifier



FEATURES

- Glass passivated 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 (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, dc-to-dc converters, and other power switching application.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB

Epoxy meets UL 94V-0 flammability rating

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

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	6.0 A
V_{RRM}	50 V to 200 V
I_{FSM}	75 A
t_{tr}	35 ns
V_F	0.975 V
$T_J \text{ max.}$	150 °C

MAXIMUM RATINGS ($T_C = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	FEP6AT	FEP6BT	FEP6CT	FEP6DT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	V
Maximum average forward rectified current at $T_C = 105 \text{ °C}$	$I_{F(AV)}$	6.0				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	75				A
Operating storage and temperature range	T_J, T_{STG}	- 55 to + 150				°C
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1 \text{ min}$	V_{AC}	1500				V



ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	FEP6AT	FEP6BT	FEP6CT	FEP6DT	UNIT
Maximum instantaneous forward voltage per diode ⁽¹⁾	3.0 A	V_F	0.975				V
Maximum DC reverse current at rated DC blocking voltage per diode	$T_C = 25\text{ }^\circ\text{C}$ $T_C = 100\text{ }^\circ\text{C}$	I_R	5.0 50				μA
Maximum reverse recovery time per diode	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$	t_{rr}	35				ns
Typical junction capacitance per diode	4.0 V, 1 MHz	C_J	28				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	FEP6	FEPF6	FEPB6	UNIT
Typical thermal resistance from junction to case per diode	$R_{\theta JC}$	3.6	5.1	3.6	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	FEP6DT-E3/45	1.81	45	50/tube	Tube
ITO-220AB	FEPF6DT-E3/45	1.97	45	50/tube	Tube
TO-263AB	FEPB6DT-E3/45	1.33	45	50/tube	Tube
TO-263AB	FEPB6DT-E3/81	1.33	81	800/reel	Tape and reel
TO-220AB	FEP6DTHE3/45 ⁽¹⁾	1.81	45	50/tube	Tube
ITO-220AB	FEPF6DTHE3/45 ⁽¹⁾	1.97	45	50/tube	Tube
TO-263AB	FEPB6DTHE3/45 ⁽¹⁾	1.33	45	50/tube	Tube
TO-263AB	FEPB6DTHE3/81 ⁽¹⁾	1.33	81	800/reel	Tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

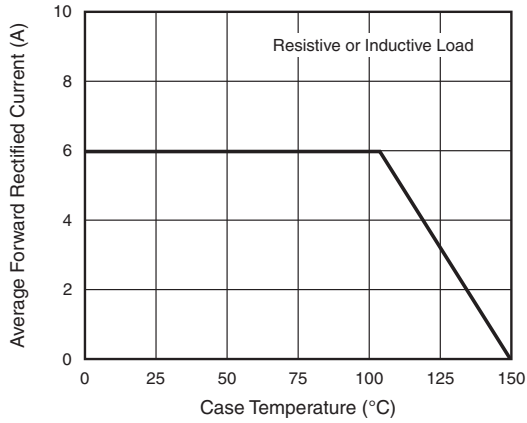


Figure 1. Maximum Forward Current Derating Curve

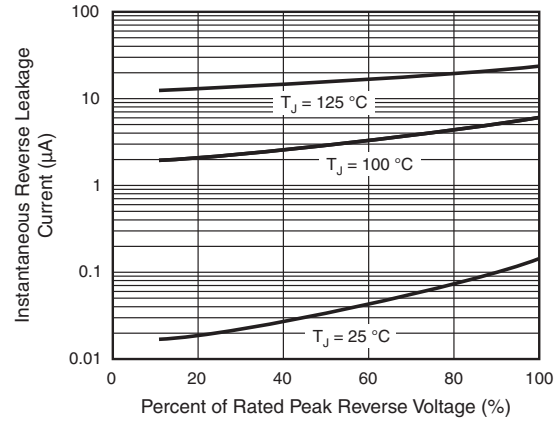


Figure 4. Typical Reverse Leakage Characteristics Per Diode

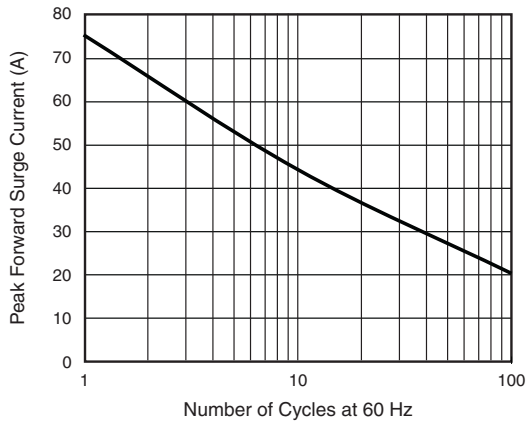


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

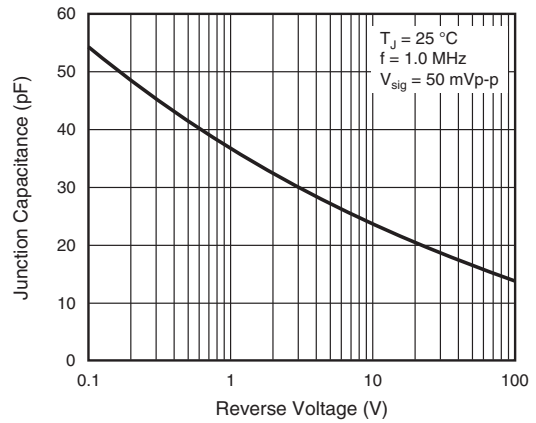


Figure 5. Typical Junction Capacitance Per Diode

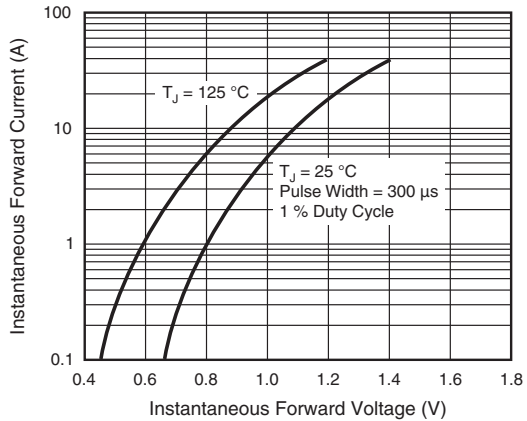
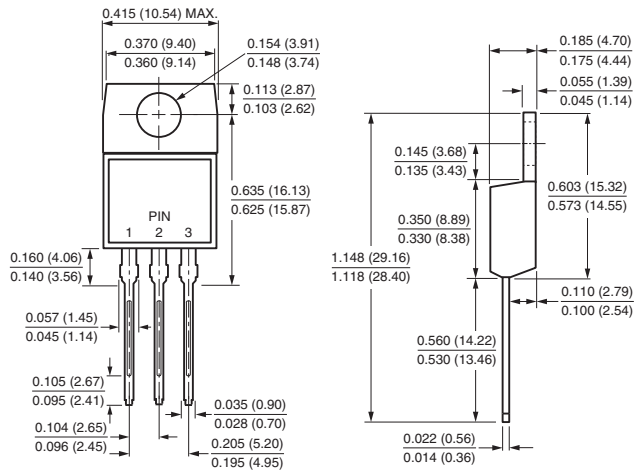


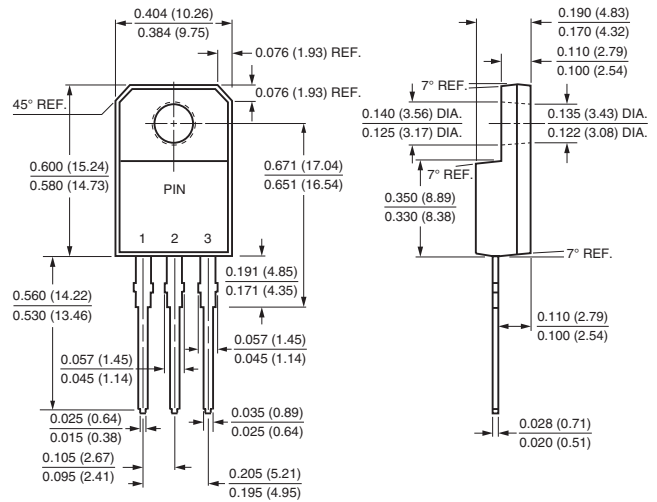
Figure 3. Typical Instantaneous Forward Characteristics Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

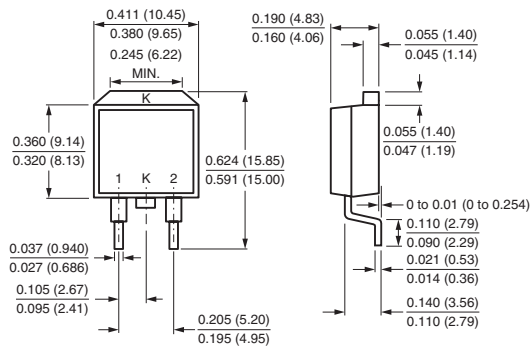
TO-220AB



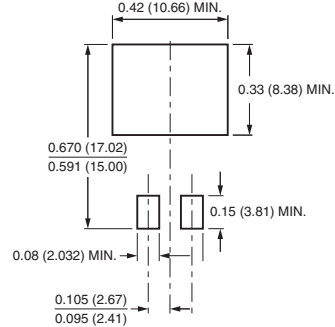
ITO-220AB



TO-263AB



Mounting Pad Layout





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