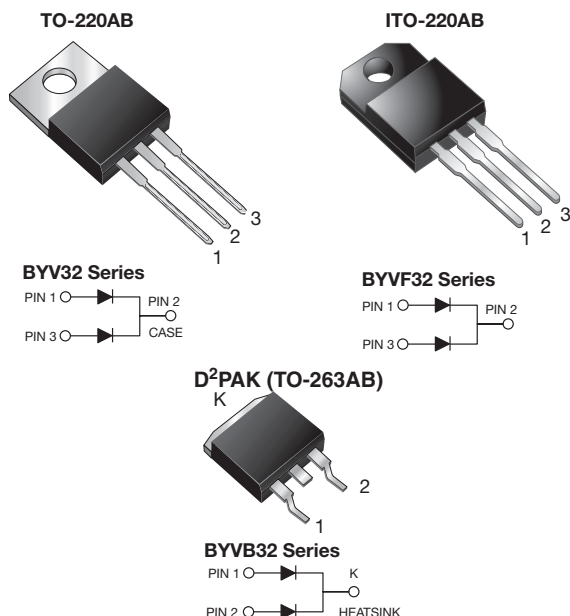


Dual Common-Cathode Ultrafast Rectifier


RoHS
COMPLIANT

FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low forward voltage drop
- 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

TYPICAL APPLICATIONS

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

DESIGN SUPPORT TOOLS AVAILABLE



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	18 A
V_{RRM}	50 V to 200 V
I_{FSM}	150 A
t_{rr}	25 ns
V_F	0.85 V
$T_J \text{ max.}$	150 °C
Package	TO-220AB, ITO-220AB, D²PAK (TO-263AB)
Circuit configuration	Common cathode

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 ($T_C = 25\text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	BYV32-50	BYV32-100	BYV32-150	BYV32-200	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 $T_C = 125\text{ °C}$	$I_{F(AV)}$	18				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	150				A
Operating storage and temperature range	T_J, T_{STG}	-65 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 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	BYV32-50	BYV32-100	BYV32-150	BYV32-200	UNIT
Maximum instantaneous forward voltage per diode	I _F = 20 A	T _J = 25 °C	V _F ⁽¹⁾	1.15				V
	F = 5.0 A	T _J = 100 °C		0.85				
Maximum DC reverse current per diode at rated DC blocking voltage			I _R	10				μA
				600				
Maximum reverse recovery time per diode	I _F = 1 A, V _R = 30 V dI/dt = 100 A/μs, I _{rr} = 10 % I _{RM}		t _{rr}	25				ns
Typical junction capacitance per diode	4.0 V, 1 MHz		C _J	45				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	BYV	BYVF	BYVB	UNIT	
Typical thermal resistance from junction to case per diode	$R_{\theta JC}$	1.6	5.0	1.6	$^{\circ}\text{C}/\text{W}$	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	BYV32-200-E3/45	1.85	45	50/tube	Tube
ITO-220AB	BYVF32-200-E3/45	1.97	45	50/tube	Tube
TO-263AB	BYVB32-200-E3/45	1.35	45	50/tube	Tube
TO-263AB	BYVB32-200-E3/81	1.35	81	800/reel	Tape and reel
ITO-220AB	BYVF32-200HE3_A/P ⁽¹⁾	1.97	P	50/tube	Tube
TO-263AB	BYVB32-200HE3_A/P ⁽¹⁾	1.35	P	50/tube	Tube
TO-263AB	BYVB32-200HE3_A/I ⁽¹⁾	1.35	I	800/reel	Tape and reel

Note

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



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

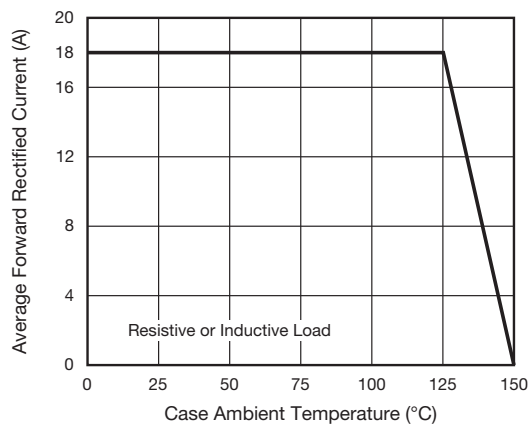


Fig. 1 - Forward Current Derating Curve

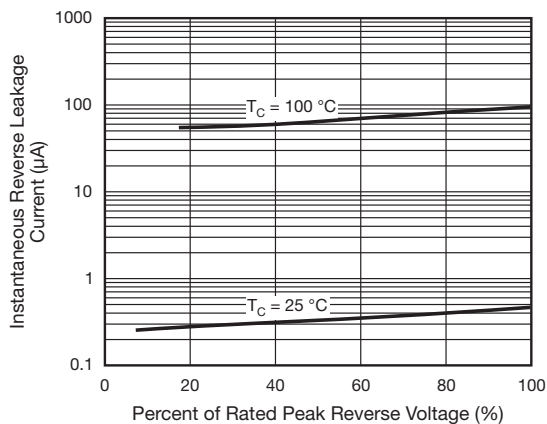


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

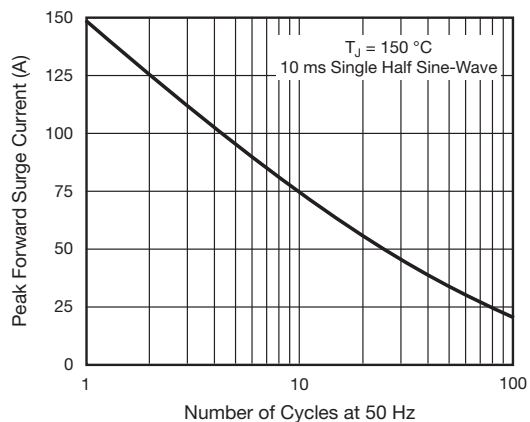


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

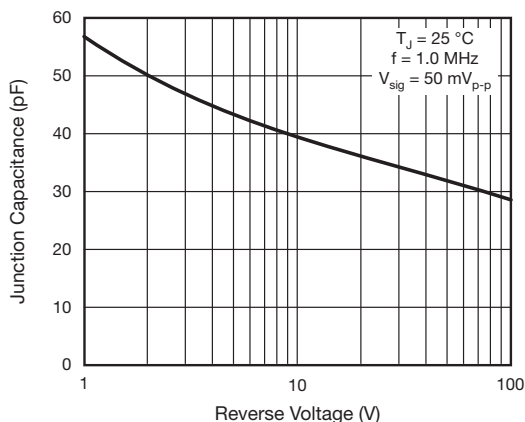


Fig. 5 - Typical Junction Capacitance Per Diode

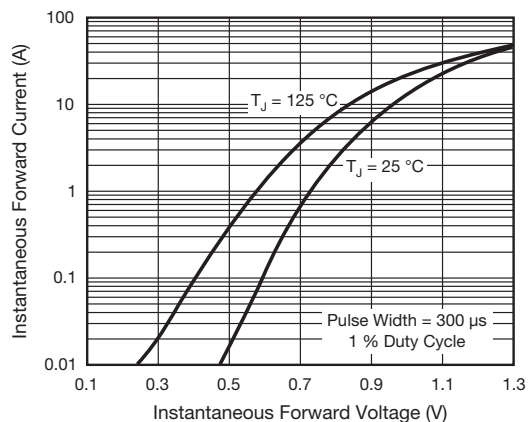
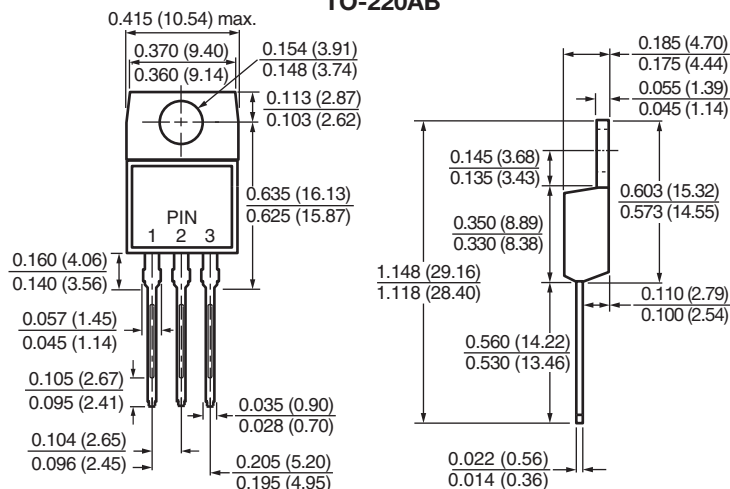


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

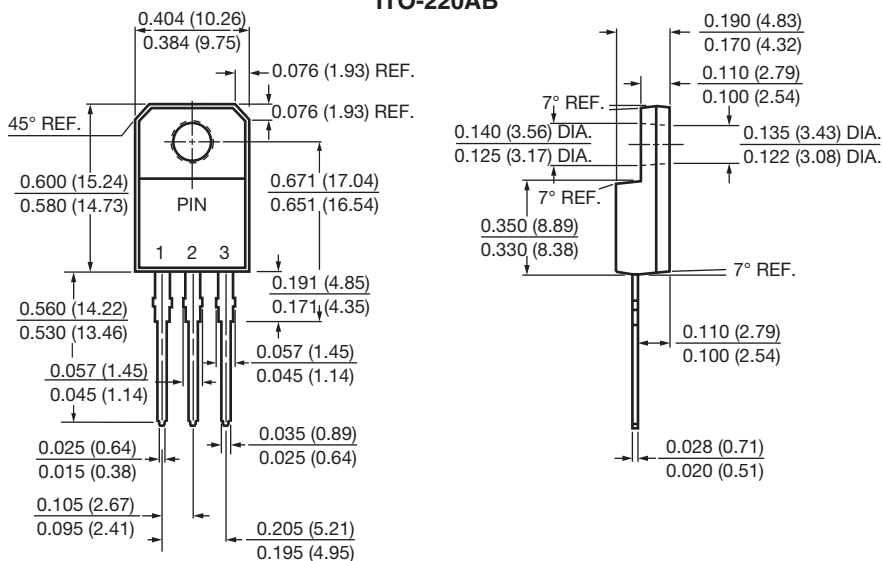


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

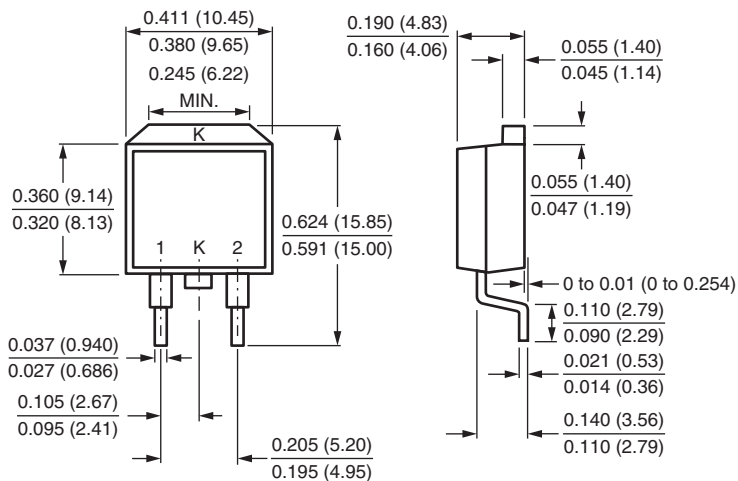
TO-220AB



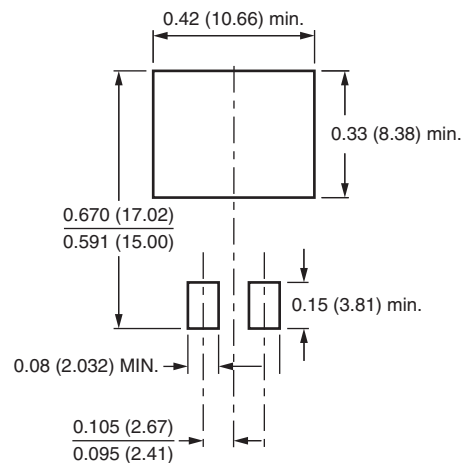
ITO-220AB



D²PAK (TO-263AB)



Mounting Pad Layout





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