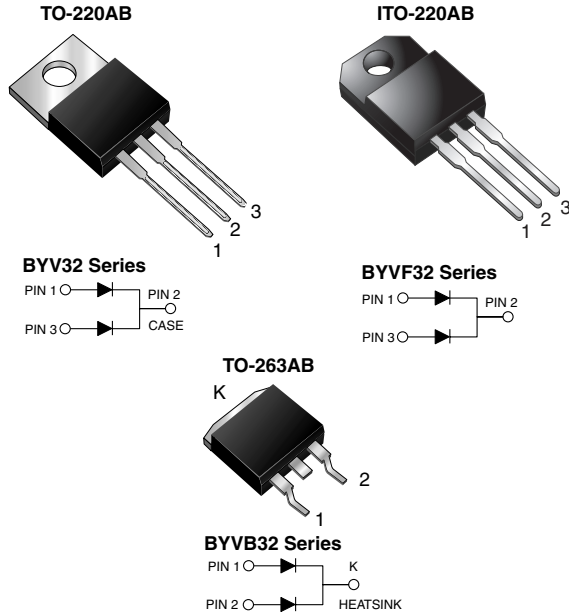


## Dual Common-Cathode Ultrafast Rectifier



### FEATURES

- Glass passivated 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 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

$I_{F(AV)}$	18 A
$V_{RRM}$	50 V to 200 V
$I_{FSM}$	150 A
$t_{tr}$	25 ns
$V_F$	0.85 V
$T_J \text{ max.}$	150 °C

### 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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	BYV32-50	BYV32-100	BYV32-150	BYV32-200	UNIT
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 20\text{ A}$ $I_F = 5.0\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	$V_F$			1.15 0.85		V
Maximum DC reverse current per diode at rated DC blocking voltage		$T_J = 25\text{ }^\circ\text{C}$ $T_J = 100\text{ }^\circ\text{C}$	$I_R$			10 600		$\mu\text{A}$
Maximum reverse recovery time per diode	$I_F = 1\text{ A}$ , $V_R = 30\text{ V}$ , $di/dt = 100\text{ A}/\mu\text{s}$ , $I_{rr} = 10\% I_{RM}$		$t_{rr}$			25		ns
Typical junction capacitance per diode	4.0 V, 1 MHz		$C_J$			45		pF

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

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

<b>ORDERING INFORMATION</b> (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
TO-220AB	BYV32-200HE3/45 <sup>(1)</sup>	1.85	45	50/tube	Tube
ITO-220AB	BYVF32-200HE3/45 <sup>(1)</sup>	1.97	45	50/tube	Tube
TO-263AB	BYVB32-200HE3/45 <sup>(1)</sup>	1.35	45	50/tube	Tube
TO-263AB	BYVB32-200HE3/81 <sup>(1)</sup>	1.35	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)

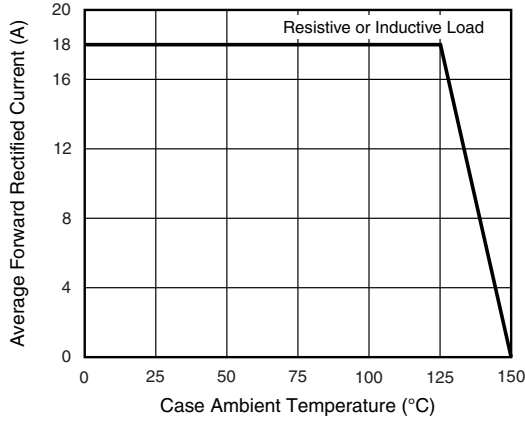


Figure 1. Forward Current Derating Curve

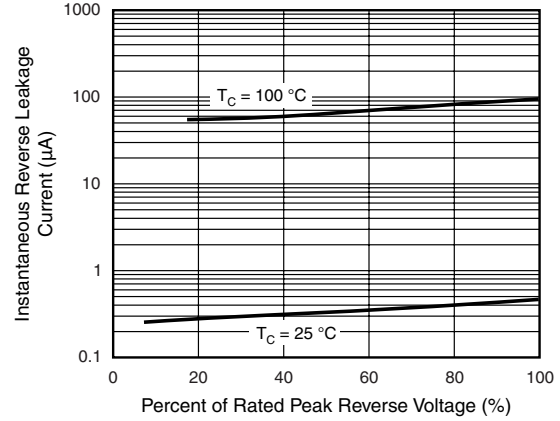


Figure 4. Typical Reverse Leakage Characteristics Per Diode

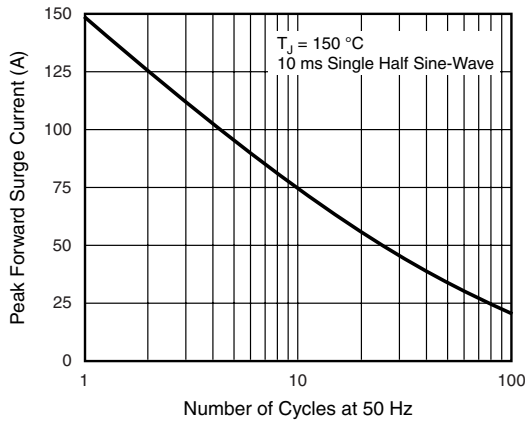


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

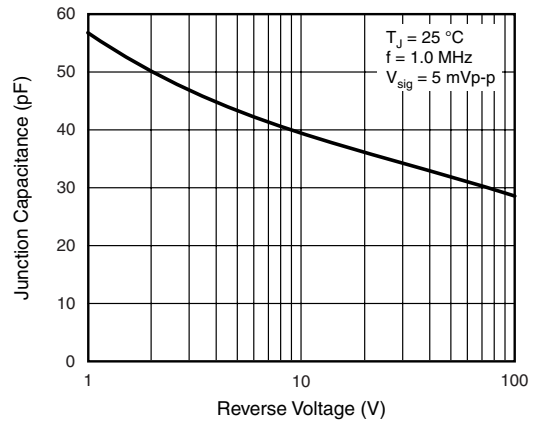


Figure 5. Typical Junction Capacitance Per Diode

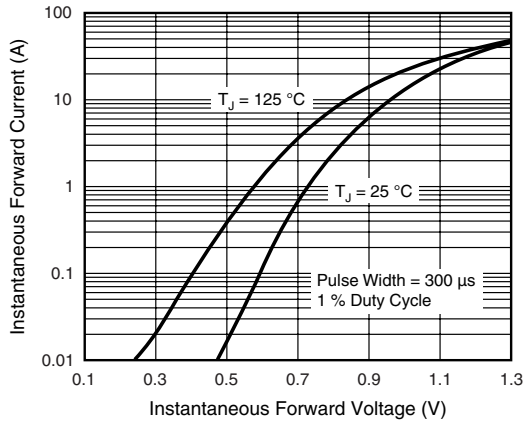
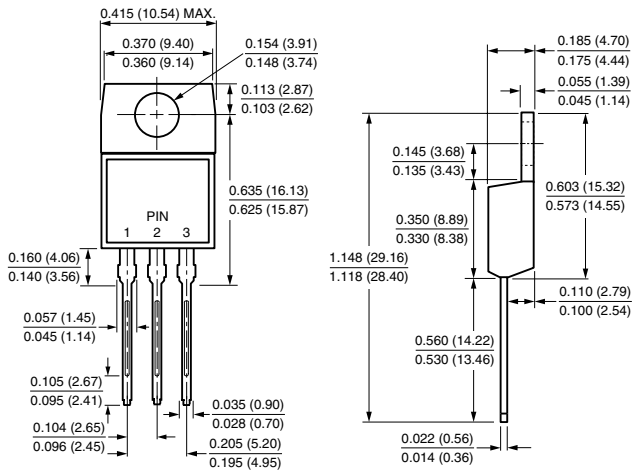


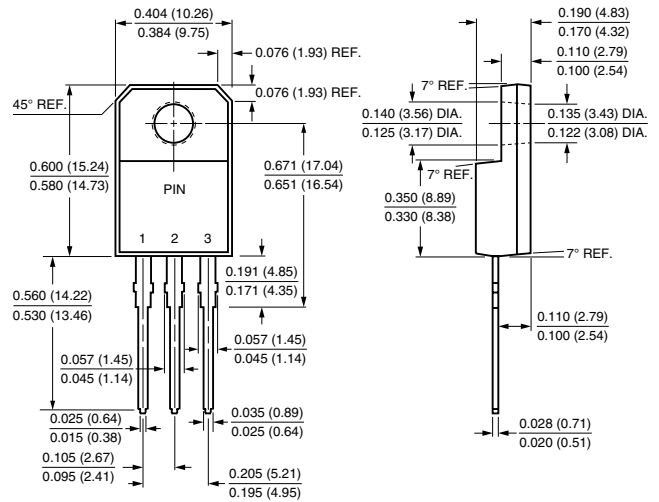
Figure 3. Typical Instantaneous Forward Characteristics Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

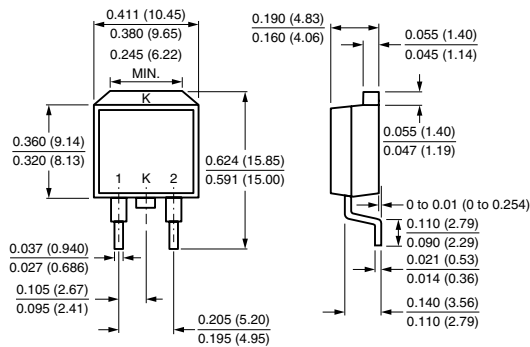
**TO-220AB**



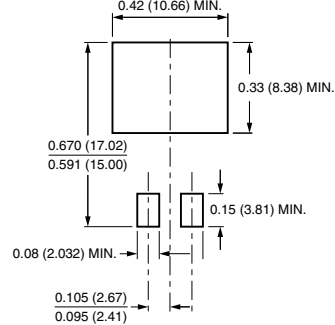
**ITO-220AB**



**TO-263AB**



**Mounting Pad Layout**





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