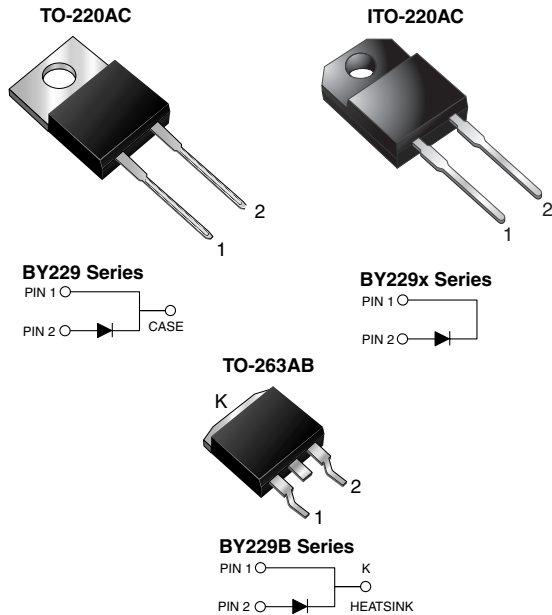




**THE DATASHEET OF  
BY229-200-E3/45**



## Fast Switching Plastic Rectifier



### FEATURES

- Glass passivated chip junction
- Superfast recovery time for 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-220AC and ITO-220AC package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes application.

### MECHANICAL DATA

**Case:** TO-220AC, ITO-220AC, 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 commercial 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	
$I_{F(AV)}$	8.0 A
$V_{RRM}$	200 V to 800 V
$I_{FSM}$	100 A
$t_{tr}$	145 ns
$V_F$	1.85 V
$T_J \text{ max.}$	150 °C

MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)						
PARAMETER	SYMBOL	BY229-200	BY229-400	BY229-600	BY229-800	UNIT
Maximum recurrent peak reverse voltage	$V_{RRM}$	200	400	600	800	V
Maximum RMS voltage	$V_{RMS}$	140	280	420	560	V
Maximum DC blocking voltage	$V_{DC}$	200	400	600	800	V
Maximum average forward rectified current at $T_C = 100\text{ °C}$	$I_{F(AV)}$	8.0				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100				A
Maximum slope of reverse recovery current $I_F = 2.0\text{ A}$ , $V_R = 30\text{ V}$ , $di/dt = 20\text{ }\mu\text{s}$	$di/dt$	60				A/ $\mu\text{s}$
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 150				°C
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1\text{ min}$	$V_{AC}$	1500				V

# BY229(X,B)-200 thru BY229(X,B)-800

Vishay General Semiconductor



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	BY229-200	BY229-400	BY229-600	BY229-800	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	20 A		$V_F$			1.85		V
Maximum DC reverse current at rated DC blocking voltage		$T_J = 25\text{ }^\circ\text{C}$ $T_J = 125\text{ }^\circ\text{C}$	$I_R$			10 300		$\mu\text{A}$
Maximum reverse recovery time	$I_F = 1.0\text{ A}$ , $V_R = 30\text{ V}$ , $di/dt = 50\text{ A}/\mu\text{s}$ , $I_{rr} = 10\% I_{RM}$		$t_{rr}$			145		ns
Maximum recovered stored charge	$I_F = 2.0\text{ A}$ , $V_R = 30\text{ V}$ , $di/dt = 20\text{ A}/\mu\text{s}$		$Q_{rr}$			700		nC

**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	BY229	BY229X	BY229B	UNIT
Typical thermal resistance from junction to case	$R_{\theta JC}$	2.0	4.8	2.0	$^\circ\text{C}/\text{W}$
Typical thermal resistance from junction to air	$R_{\theta JA}$	20	-	20	$^\circ\text{C}/\text{W}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	BY229-200-E3/45	1.80	45	50/tube	Tube
ITO-220AC	BY229X-200-E3/45	1.95	45	50/tube	Tube
TO-263AB	BY229B-200-E3/45	1.77	45	50/tube	Tube
TO-263AB	BY229B-200-E3/81	1.77	81	800/reel	Tape reel
TO-220AC	BY229-200HE3/45 <sup>(1)</sup>	1.80	45	50/tube	Tube
ITO-220AC	BY229X-200HE3/45 <sup>(1)</sup>	1.95	45	50/tube	Tube
TO-263AB	BY229B-200HE3/45 <sup>(1)</sup>	1.77	45	50/tube	Tube
TO-263AB	BY229B-200HE3/81 <sup>(1)</sup>	1.77	81	800/reel	Tape reel

**Note:**

(1) Automotive grade AEC Q101 qualified



**RATINGS AND CHARACTERISTICS CURVES**

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

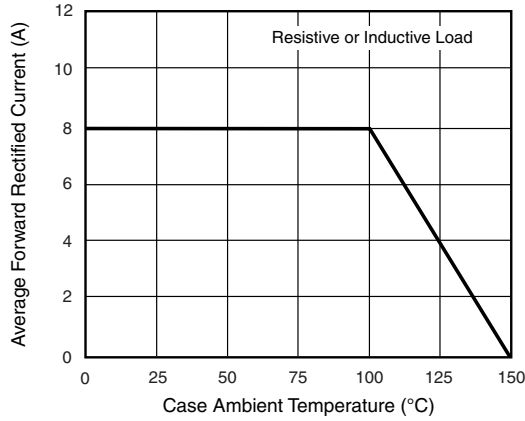


Figure 1. Forward Current Derating Curve

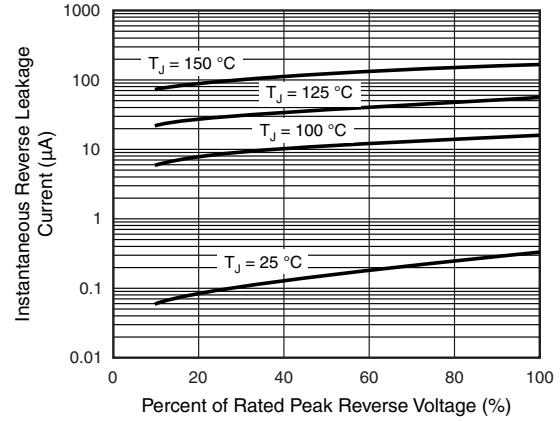


Figure 4. Typical Reverse Leakage Characteristics

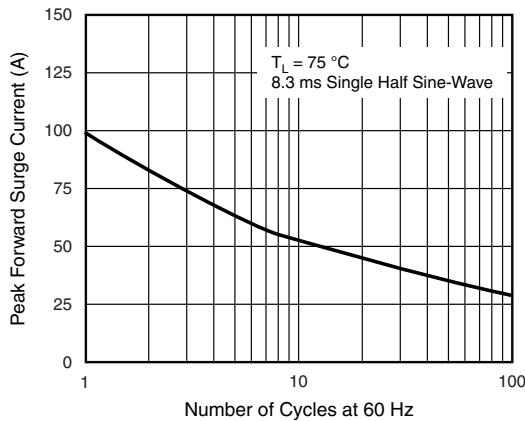


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

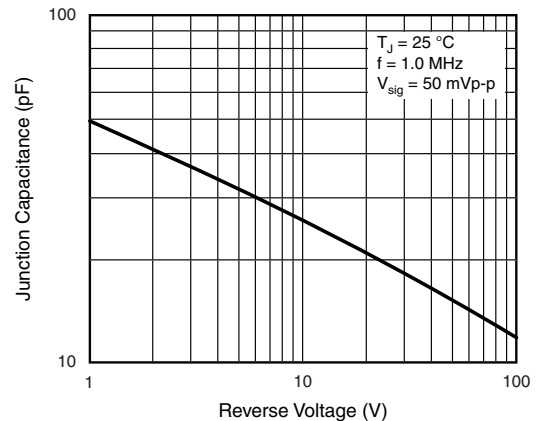


Figure 5. Typical Junction Capacitance

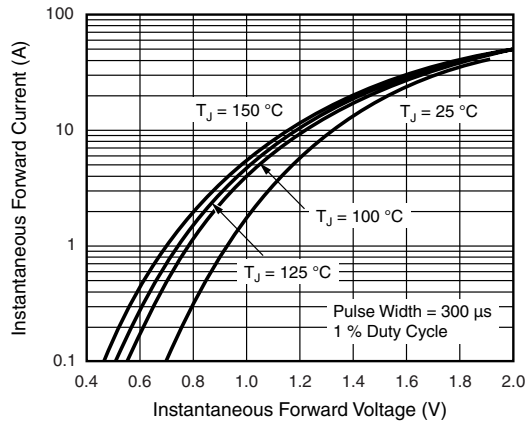
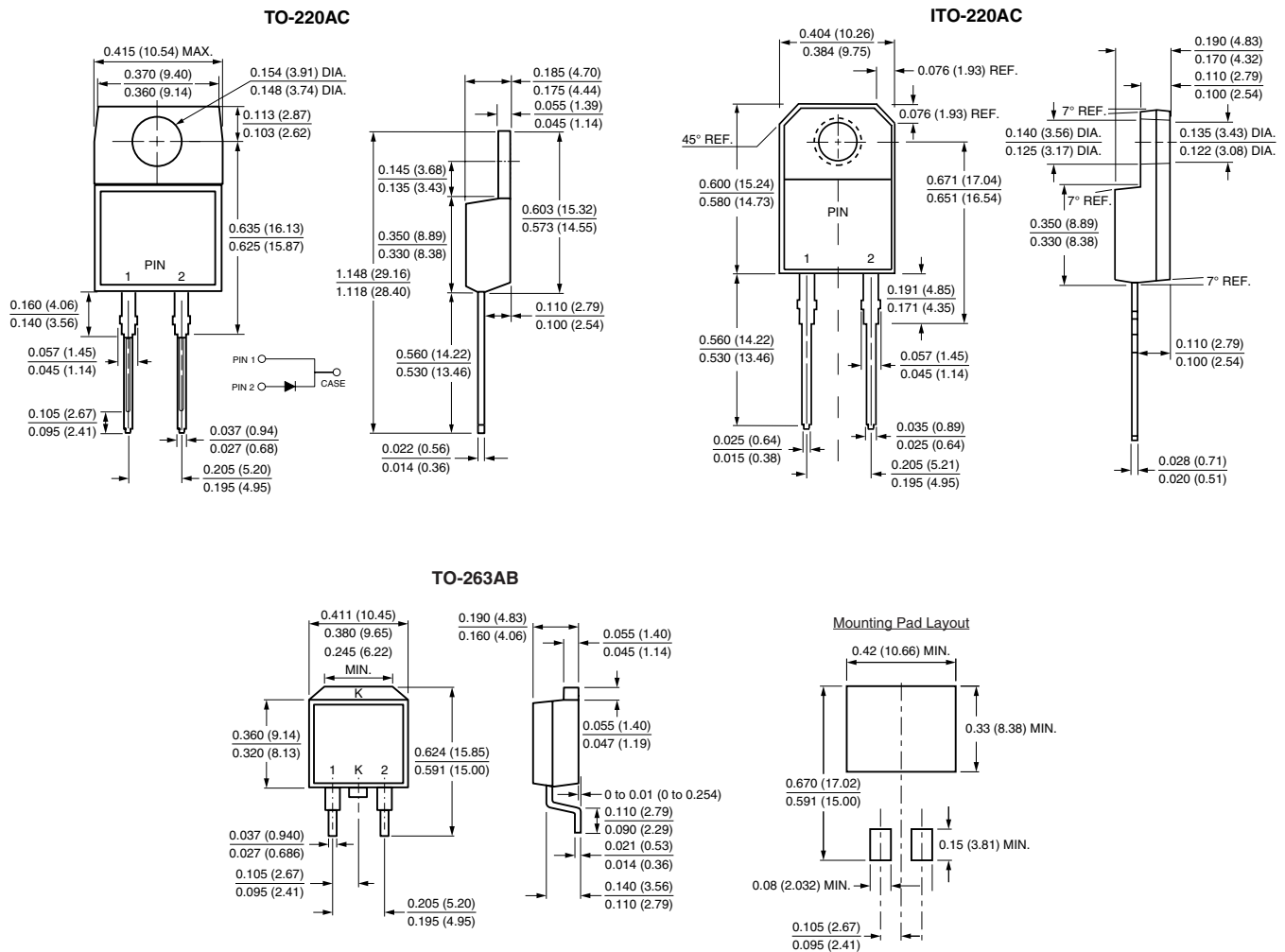


Figure 3. Typical Instantaneous Forward Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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