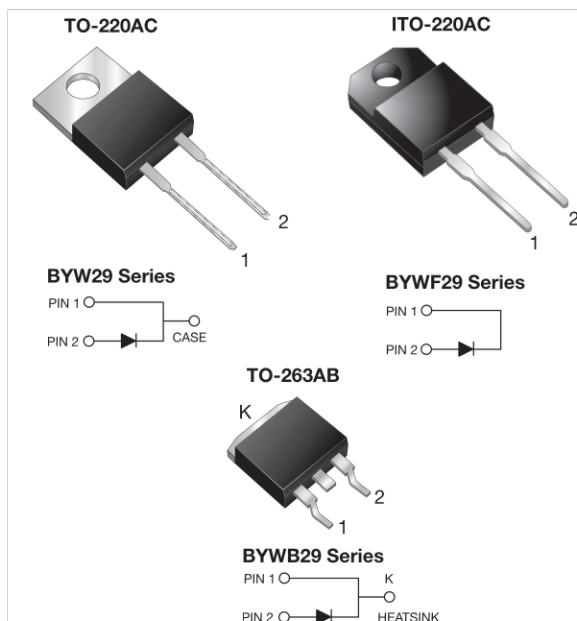
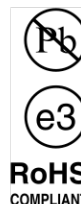


Ultrafast Rectifier



FEATURES

- Power pack
- Glass passivated pallet 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-220AC and ITO-220AC package)
- AEC-Q101 qualified
- 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.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	8.0 A
V_{RRM}	50 V to 200 V
I_{FSM}	100 A
t_{rr}	25 ns
V_F	0.8 V
$T_J \text{ max.}$	150 °C
Package	TO-220AC, ITO-220AC, TO-263AB
Diode variations	Single die

MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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	BYW29-50	BYW29-100	BYW29-150	BYW29-200	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 $T_C = 105\text{ °C}$	$I_{F(AV)}$	8.0				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	100				A
Operating and storage temperature range	T_J, T_{STG}	-65 to +150				°C
Isolation voltage (ITO-220AC 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	BYW29-50	BYW29-100	BYW29-150	BYW29-200	UNIT
Maximum instantaneous forward voltage	I _F = 20 A	T _J = 25 °C	V _F ⁽¹⁾	1.3				V
	I _F = 8.0 A	T _J = 150 °C		0.8				
Maximum DC reverse current at rated DC blocking voltage		T _C = 25 °C	I _R	10				μA
		T _C = 100 °C		500				
Maximum reverse recovery time	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	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	BYW	BYWF	BYWB	UNIT
Typical thermal resistance from junction to case per leg	$R_{\theta JC}$	2.5	5.5	2.5	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	BYW29-200-E3/45	1.80	45	50/tube	Tube
ITO-220AC	BYWF29-200-E3/45	1.95	45	50/tube	Tube
TO-263AB	BYWB29-200-E3/45	1.77	45	50/tube	Tube
TO-263AB	BYWB29-200-E3/81	1.77	81	800/reel	Tape and reel
TO-220AC	BYW29-200HE3/45 ⁽¹⁾	1.80	45	50/tube	Tube
ITO-220AC	BYWF29-200HE3/45 ⁽¹⁾	1.95	45	50/tube	Tube
TO-263AB	BYWB29-200HE3/45 ⁽¹⁾	1.77	45	50/tube	Tube
TO-263AB	BYWB29-200HE3/81 ⁽¹⁾	1.77	81	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified



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

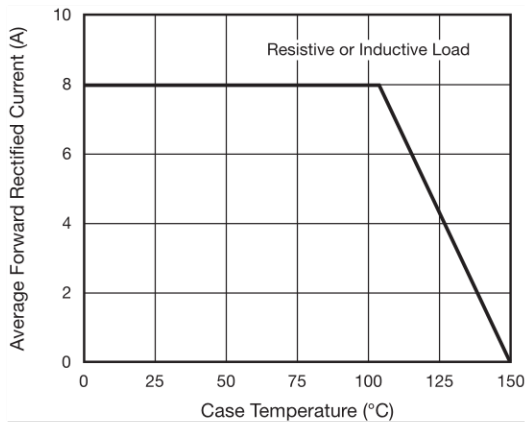


Fig. 1 - Maximum Forward Current Derating Curve

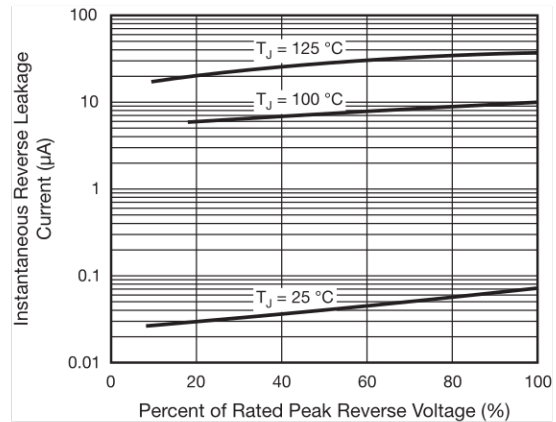


Fig. 4 - Typical Reverse Leakage Characteristics

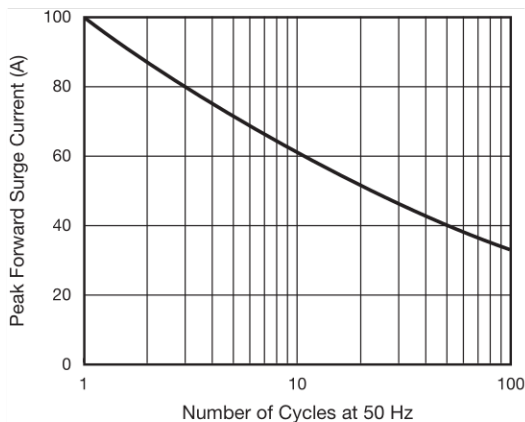


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

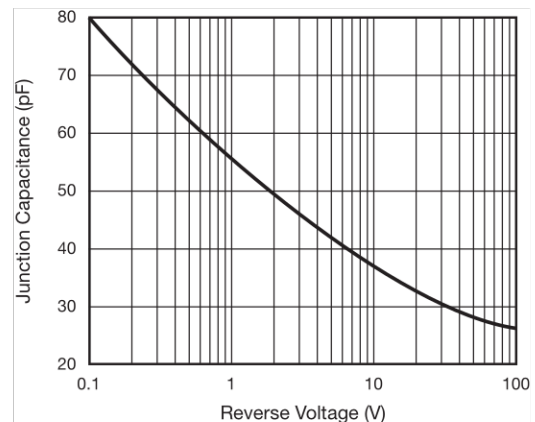


Fig. 5 - Typical Junction Capacitance

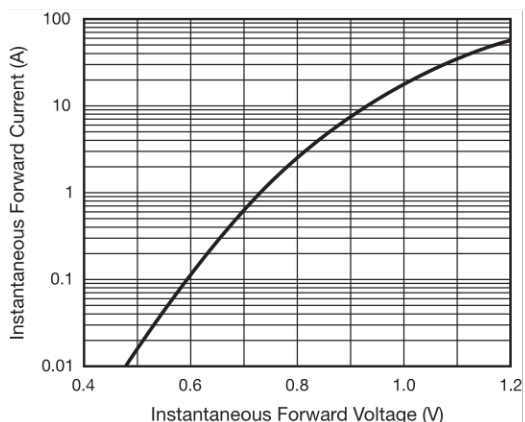


Fig. 3 - Typical Instantaneous Forward Characteristics



Vishay General Semiconductor

TO-220AC

Front View Dimensions:

- Overall width: 0.415 (10.54) MAX.
- Distance from top edge to mounting hole center: 0.370 (9.40)
- Mounting hole diameter: 0.154 (3.91) DIA.
- Distance from mounting hole center to case edge: 0.148 (3.74) DIA.
- Distance from mounting hole center to case edge (bottom): 0.113 (2.87)
- Distance from mounting hole center to case edge (bottom): 0.103 (2.62)
- Distance from mounting hole center to case edge (bottom): 0.635 (16.13)
- Distance from mounting hole center to case edge (bottom): 0.625 (15.87)
- Pin 1 and Pin 2 locations are indicated.

Side View Dimensions:

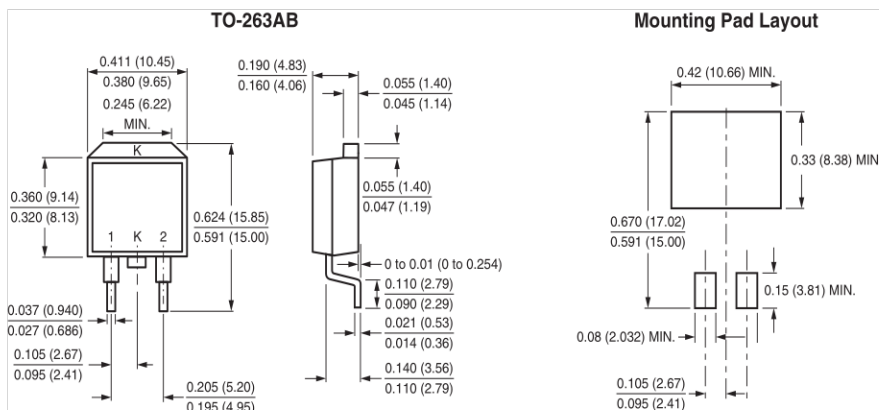
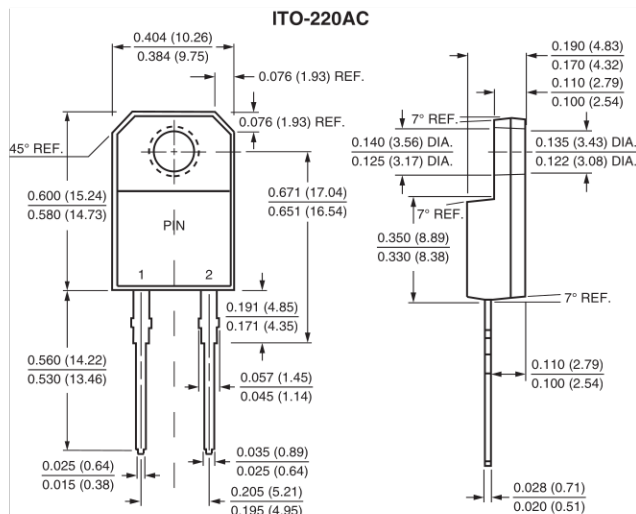
- Overall height: 0.185 (4.70)
- Distance from top edge to case edge: 0.175 (4.44)
- Distance from top edge to case edge: 0.055 (1.39)
- Distance from top edge to case edge: 0.045 (1.14)
- Distance from top edge to case edge: 0.145 (3.68)
- Distance from top edge to case edge: 0.135 (3.43)
- Distance from top edge to case edge: 0.350 (8.89)
- Distance from top edge to case edge: 0.330 (8.38)
- Distance from top edge to case edge: 0.603 (15.32)
- Distance from top edge to case edge: 0.573 (14.55)
- Distance from top edge to case edge: 0.110 (2.79)
- Distance from top edge to case edge: 0.100 (2.54)
- Distance from top edge to case edge: 0.560 (14.22)
- Distance from top edge to case edge: 0.530 (13.46)
- Distance from top edge to case edge: 0.022 (0.56)
- Distance from top edge to case edge: 0.014 (0.36)

Detail View Dimensions:

- Distance from top edge to case edge: 0.160 (4.06)
- Distance from top edge to case edge: 0.140 (3.56)
- Distance from top edge to case edge: 0.057 (1.45)
- Distance from top edge to case edge: 0.045 (1.14)
- Distance from top edge to case edge: 0.105 (2.67)
- Distance from top edge to case edge: 0.095 (2.41)
- Distance from top edge to case edge: 0.037 (0.94)
- Distance from top edge to case edge: 0.027 (0.68)
- Distance from top edge to case edge: 0.205 (5.20)
- Distance from top edge to case edge: 0.195 (4.95)

Pin Connections:

- PIN 1 is connected to CASE.
- PIN 2 is connected to CASE.





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