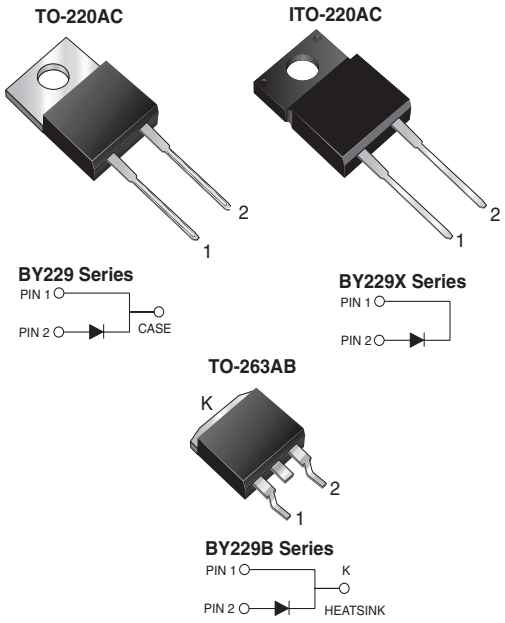
Fast Switching Plastic Rectifier

Major Ratings and Characteristics

$I_{F(AV)}$	8.0 A
V_{RRM}	200 V to 800 V
I_{FSM}	100 A
t_{rr}	145 ns
V_F	1.85 V
T_j max	150 °C



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-020C

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 (E3 Suffix) leads, solderable per J-STD-002B and MIL-STD-750, Method 2026

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

Maximum Ratings

(T_C = 25 °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 °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 A, V_R = 30 V, di/dt = 20 μs	dir/dt	60				A/μs
Operating junction and storage temperature range	T_J, T_{STG}	- 40 to + 150				°C
RMS Isolation voltage from terminals to heatsink with t = 1 second, RH ≤ 30 % (BY229X only)	V_{ISOL}	4500 (1) 3500 (2) 1500 (3)				V

Electrical Characteristics

(T_C = 25 °C unless otherwise noted)

Parameter	Test condition	Symbol	BY229-200	BY229-400	BY229-600	BY229-800	Unit
Maximum instantaneous forward voltage	at 20 A(4)	V_F	1.85				V
Maximum DC reverse current at rated DC blocking voltage	T_J = 25 °C T_J = 125 °C	I_R	10 300				µA
Maximum reverse recovery time	at I_F = 1.0 A, V_R = 30 V, di/dt = 50 A/µs, I_{rr} = 10 % I_{RM}	t_{rr}	145				ns
Maximum recovered stored charge	I_F = 2.0 A, V_R = 30 V, di/dt = 20 A/µs	Q_{rr}	700				nC

Notes:

(1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset

(2) Clip mounting (on case), where leads do overlap heatsink

(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")

(4) Pulse test: 300 µs pulse width, 1 % duty cycle

Thermal Characteristics

(T_C = 25 °C unless otherwise noted)

Parameter	Symbol	BY229	BY229X	BY229B	Unit
Typical thermal resistance, junction to case	$R_{\theta JC}$	2.0	4.8	2.0	°C/W
Typical thermal resistance, junction to air	$R_{\theta JA}$	20	-	20	°C/W

Ratings and Characteristics Curves

(T_A = 25 °C unless otherwise noted)

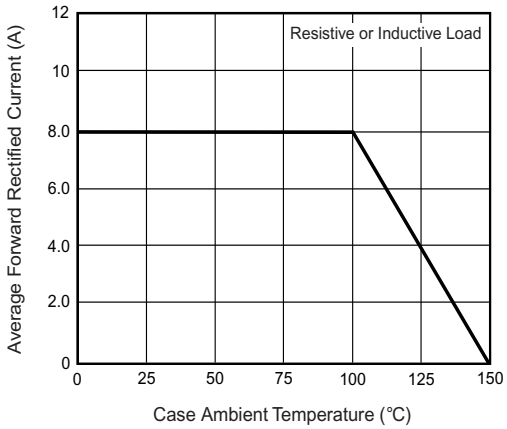


Figure 1. Forward Current Derating Curve

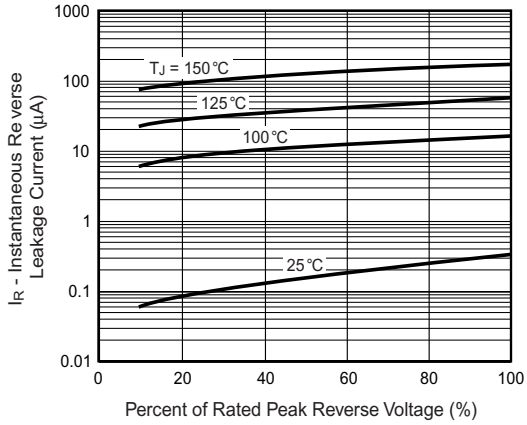


Figure 4. Typical Reverse Leakage Characteristics

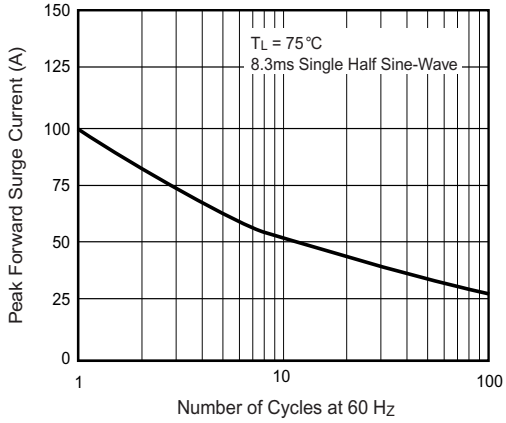


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

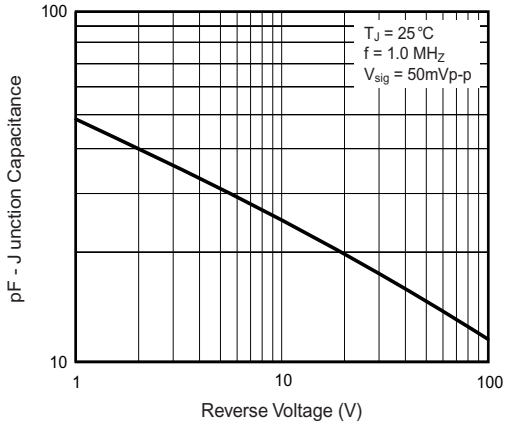


Figure 5. Typical Junction Capacitance

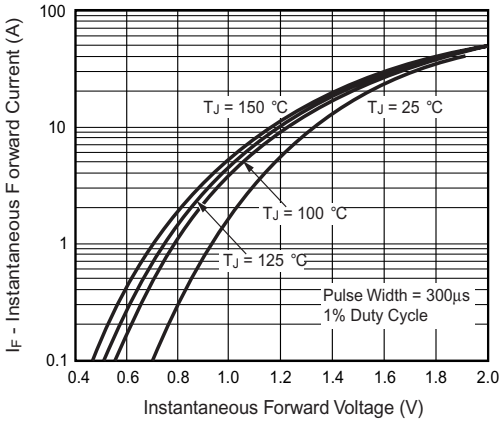
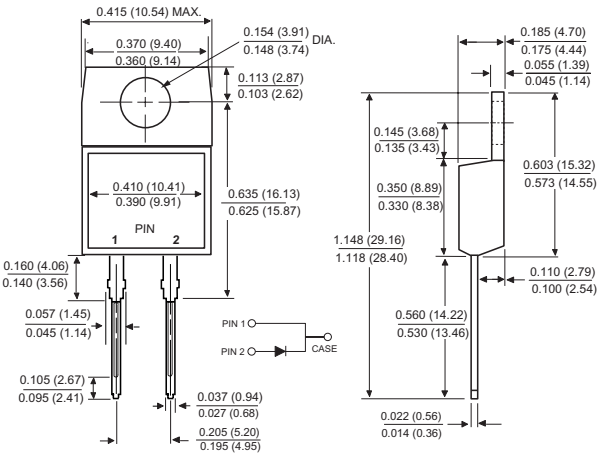


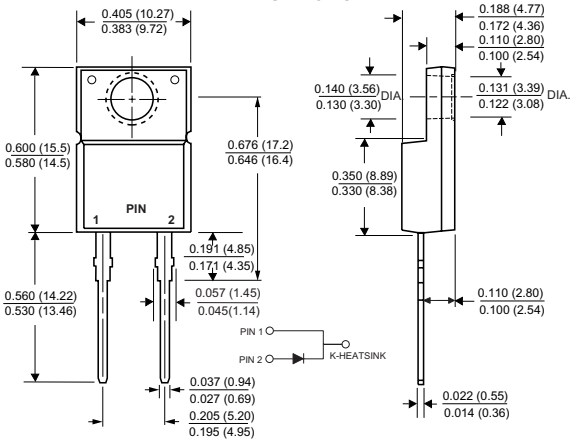
Figure 3. Typical Instantaneous Forward Characteristics

Package outline dimensions in inches (millimeters)

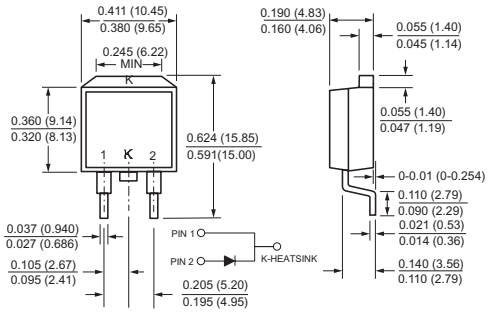
TO-220AC



ITO-220AC



TO-263AB



Mounting Pad Layout