

# Switch-mode Power Rectifiers

## BYW29-200

This state-of-the-art device is designed for use in switching power supplies, inverters and as free wheeling diodes.

### Features

- 175°C Operating Junction Temperature
- Popular TO-220 Package
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Pb-Free Package is Available\*

### Mechanical Characteristics

- Case: Epoxy, Molded, Epoxy Meets UL 94 V-0
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL1 Requirements
- ESD Ratings: Machine Model, C (> 400 V)  
Human Body Model, 3B (> 8000 V)

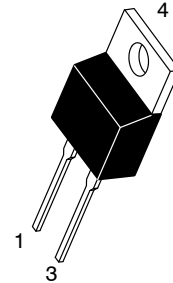
### MAXIMUM RATINGS

Symbol	Rating	Value	Unit
$V_{RRM}$ $V_{RWM}$ $V_R$	Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	200	V
$I_{F(AV)}$	Average Rectified Forward Current Total Device, (Rated $V_R$ ), $T_C = 150^\circ\text{C}$	8.0	A
$I_{FM}$	Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz), $T_C = 150^\circ\text{C}$	16	A
$I_{FSM}$	Nonrepetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half-wave, Single Phase, 60 Hz)	100	A
$T_J, T_{stg}$	Operating Junction Temperature and Storage Temperature Range	-65 to +175	°C

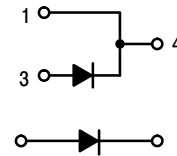
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

\*For additional information on our Pb-Free strategy and soldering details, please download the [onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D](#).

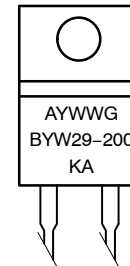
## ULTRAFAST RECTIFIERS 8.0 AMPERES 200 VOLTS



TO-220B  
CASE 221B  
PLASTIC



### MARKING DIAGRAM



- A = Assembly Location
- Y = Year
- WW = Work Week
- G = Pb-Free Package
- BYW29-200 = Device Code
- KA = Diode Polarity

### ORDERING INFORMATION

Device	Package	Shipping
BYW29-200G	TO-220 (Pb-Free)	50 Units/Rail

### DISCONTINUED (Note 1)

BYW29-200	TO-220	50 Units/Rail
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1. **DISCONTINUED:** This device is not recommended for new design. Please contact your **onsemi** representative for information. The most current information on this device may be available on [www.onsemi.com](http://www.onsemi.com).

## BYW29-200

### THERMAL CHARACTERISTICS

Symbol	Rating	Value	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction-to-Case	3.0	$^{\circ}\text{C}/\text{W}$

### ELECTRICAL CHARACTERISTICS

Symbol	Rating	Value	Unit
$v_F$	Maximum Instantaneous Forward Voltage (Note 1) ( $i_F = 5.0 \text{ A}$ , $T_C = 100^{\circ}\text{C}$ ) ( $i_F = 20 \text{ A}$ , $T_C = 25^{\circ}\text{C}$ )	0.85 1.3	V
$i_R$	Maximum Instantaneous Reverse Current (Note 1) (Rated Dc Voltage, $T_J = 100^{\circ}\text{C}$ ) (Rated Dc Voltage, $T_J = 25^{\circ}\text{C}$ )	600 5.0	$\mu\text{A}$
$t_{rr}$	Maximum Reverse Recovery Time ( $I_F = 1.0 \text{ A}$ , $di/dt = 50 \text{ A}/\mu\text{s}$ ) ( $I_F = 0.5 \text{ A}$ , $i_R = 1.0 \text{ A}$ , $I_{REC} = 0.25 \text{ A}$ )	35 25	ns

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

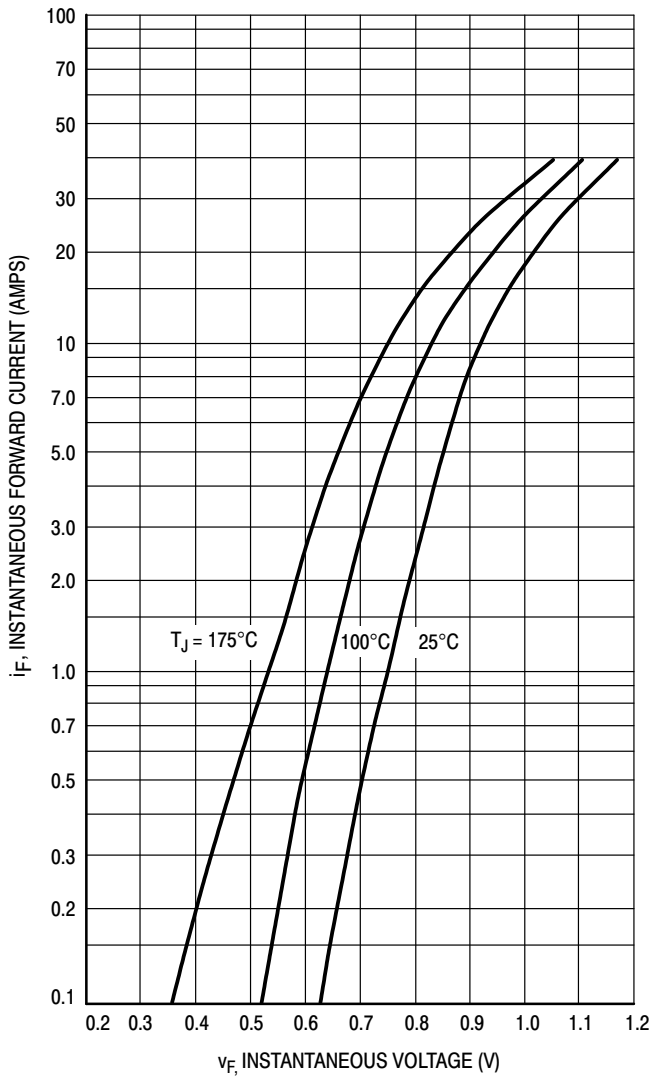


Figure 1. Typical Forward Voltage

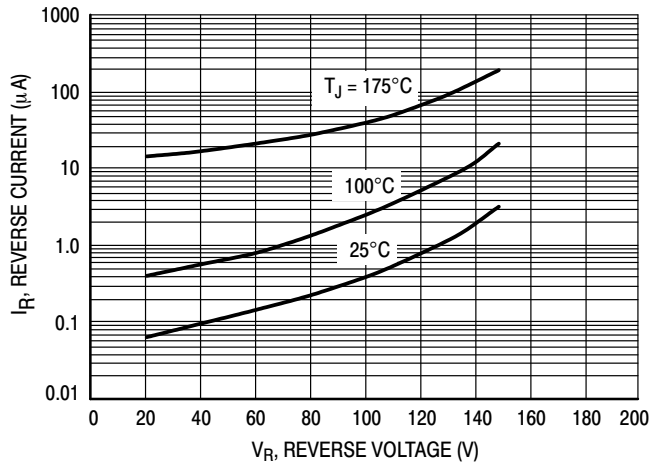


Figure 2. Typical Reverse Current\*

\* The curves shown are typical for the highest voltage device in the grouping. Typical reverse current for lower voltage selections can be estimated from these same curves if  $V_R$  is sufficiently below rated  $V_R$ .

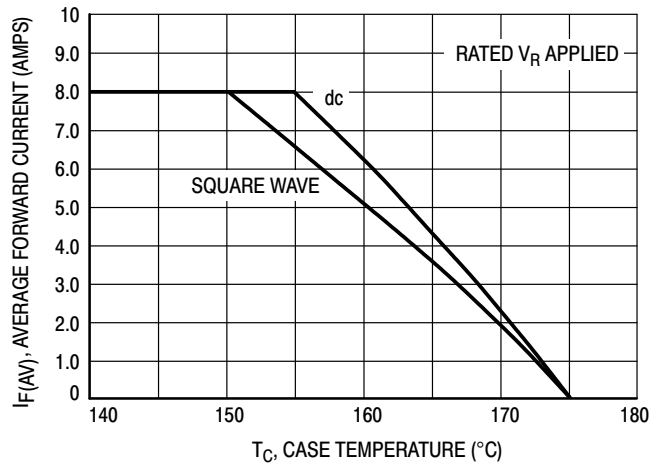


Figure 3. Current Derating, Case

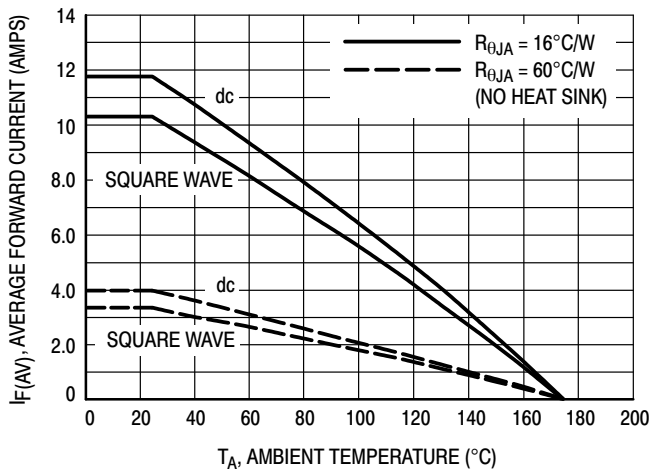


Figure 4. Current Derating, Ambient

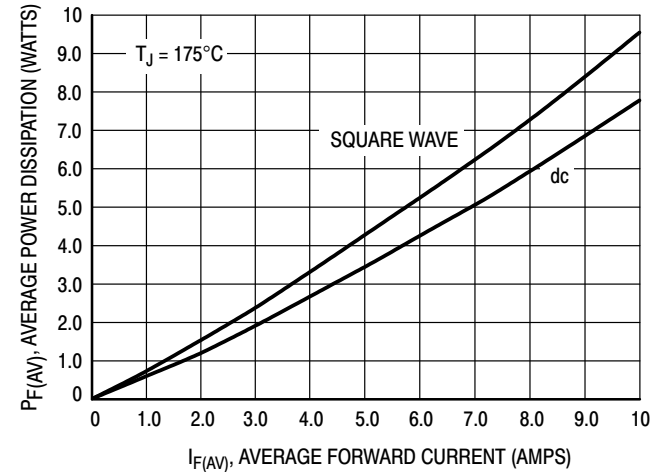


Figure 5. Power Dissipation

# BYW29-200

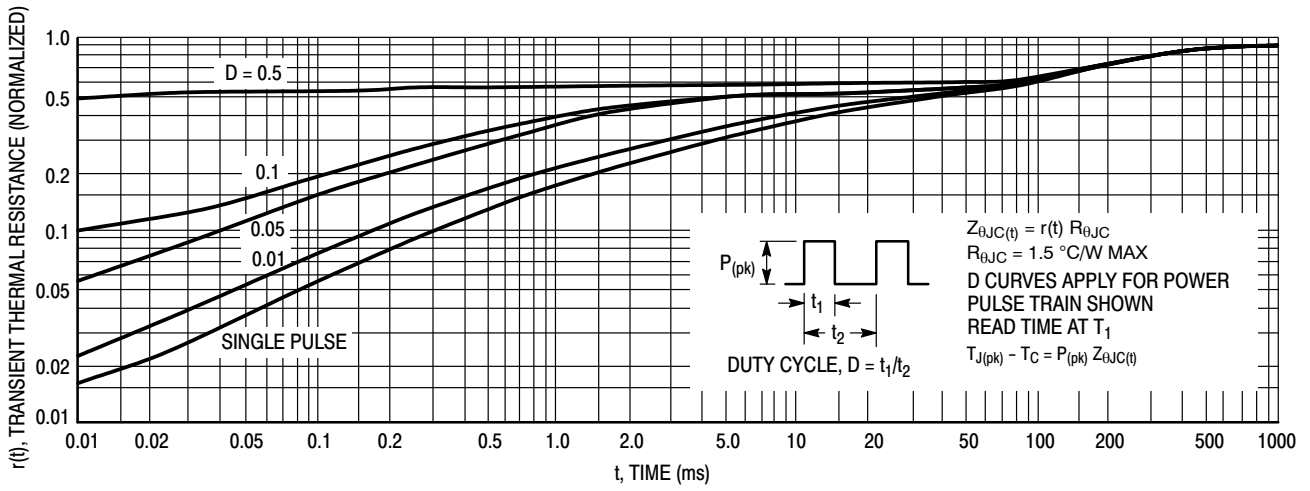


Figure 6. Thermal Response

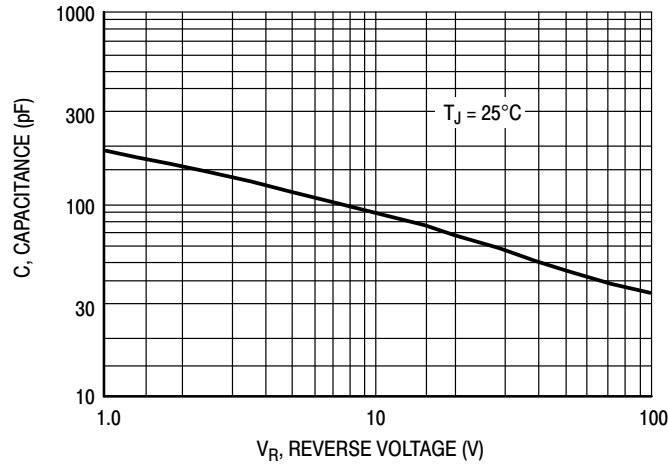
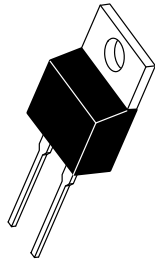


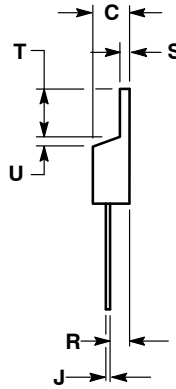
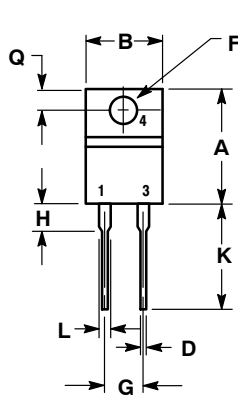
Figure 7. Typical Capacitance

TO-220, 2-LEAD  
CASE 221B-04  
ISSUE F

DATE 12 APR 2013



SCALE 1:1



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.595	0.620	15.11	15.75
B	0.380	0.405	9.65	10.29
C	0.160	0.190	4.06	4.82
D	0.025	0.039	0.64	1.00
F	0.142	0.161	3.61	4.09
G	0.190	0.210	4.83	5.33
H	0.110	0.130	2.79	3.30
J	0.014	0.025	0.36	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.14	1.52
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.14	1.39
T	0.235	0.255	5.97	6.48
U	0.000	0.050	0.000	1.27

STYLE 1:  
PIN 1. CATHODE  
2. N/A  
3. ANODE  
4. CATHODE

STYLE 2:  
PIN 1. ANODE  
2. N/A  
3. CATHODE  
4. ANODE

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