

# 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)

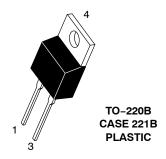
### **MAXIMUM RATINGS**

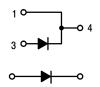
Symbol	Rating	Value	Unit
V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	200	٧
I <sub>F(AV)</sub>	Average Rectified Forward Current Total Device, (Rated $V_R$ ), $T_C = 150^{\circ}C$	8.0	Α
I <sub>FM</sub>	Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz), $T_C = 150$ °C	16	Α
I <sub>FSM</sub>	Nonrepetitive Peak Surge Current (Surge Applied at Rated Load Conditions Half-wave, Single Phase, 60 Hz)	100	A
T <sub>J</sub> , T <sub>stg</sub>	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.

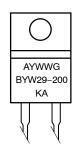
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# ULTRAFAST RECTIFIERS 8.0 AMPERES 200 VOLTS





#### **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

 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 <a href="https://www.onsemi.com">www.onsemi.com</a>.

<sup>\*</sup>For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, <u>SOLDERRM/D</u>.

# BYW29-200

# THERMAL CHARACTERISTICS

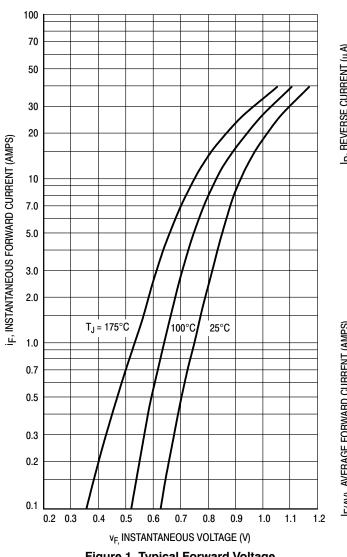
Symbol	Rating	Value	Unit
$R_{ heta JC}$	Maximum Thermal Resistance, Junction-to-Case	3.0	°C/W

# **ELECTRICAL CHARACTERISTICS**

Symbol	Rating	Value	Unit
v <sub>F</sub>	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
İR	Maximum Instantaneous Reverse Current (Note 1) (Rated Dc Voltage, $T_J$ = 100°C) (Rated Dc Voltage, $T_J$ = 25°C)	600 5.0	μΑ
t <sub>rr</sub>	Maximum Reverse Recovery Time $ (I_F=1.0~A,~di/dt=50~A/\mu s)                                   $	35 25	ns

<sup>1.</sup> Pulse Test: Pulse Width = 300  $\mu$ s, Duty Cycle  $\leq 2.0\%$ 

1000



IR, REVERSE CURRENT (μA)  $T_J = 175^{\circ}C$ 100 10 100°C 1.0 25°C 0.1 0.01 20 40 100 120 140 160 180 V<sub>R</sub>, REVERSE VOLTAGE (V)

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  $V_R$ .

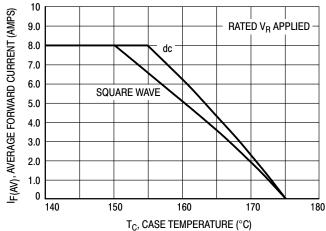


Figure 1. Typical Forward Voltage

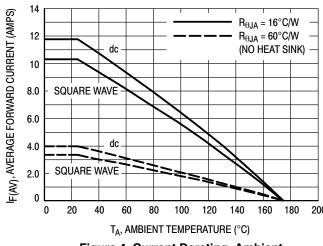


Figure 4. Current Derating, Ambient

Figure 3. Current Derating, Case

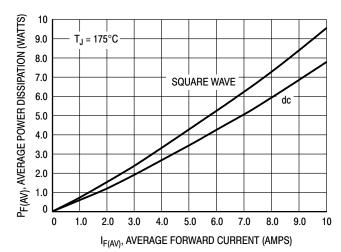


Figure 5. Power Dissipation

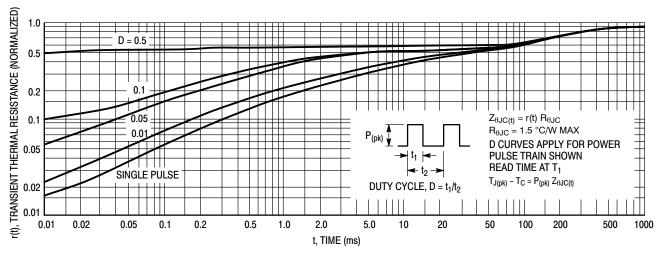


Figure 6. Thermal Response

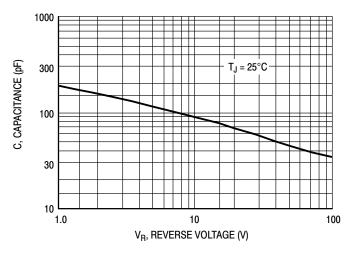
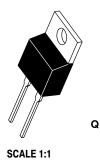


Figure 7. Typical Capacitance





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

**DATE 12 APR 2013** 

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

	INCHES		MILLIN	IETERS
DIM	MIN	MAX	MIN	MAX
Α	0.595	0.620	15.11	15.75
В	0.380	0.405	9.65	10.29
С	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
Н	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

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

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