Switch-mode Power Rectifiers

BYW29-200

ULTRAFAST RECTIFIERS 8.0 AMPERES 200 VOLTS

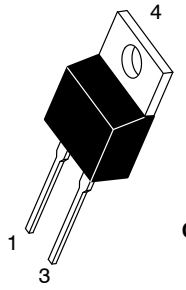
This state−of−the−art device is designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

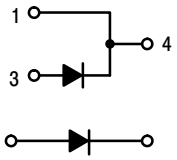
- 175°C Operating Junction Temperature
- Popular TO−220 Package
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Low Forward Voltage
- Low Leakage Current
- High Temperature Glass Passivated Junction
- Pb−Free Package is Available*

Mechanical Characteristics

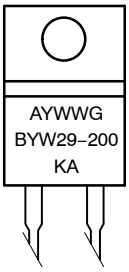
- Case: Epoxy, Molded, Epoxy Meets UL 94 V−0
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL1 Requirements
- ESD Ratings: Machine Model,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



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

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°C	8.0	A
I_{FM}	Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz), T_C = 150°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.

ORDERING INFORMATION

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

DISCONTINUED (Note 1)

BYW29−200	TO−220	50 Units/Rail

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.

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

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

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%

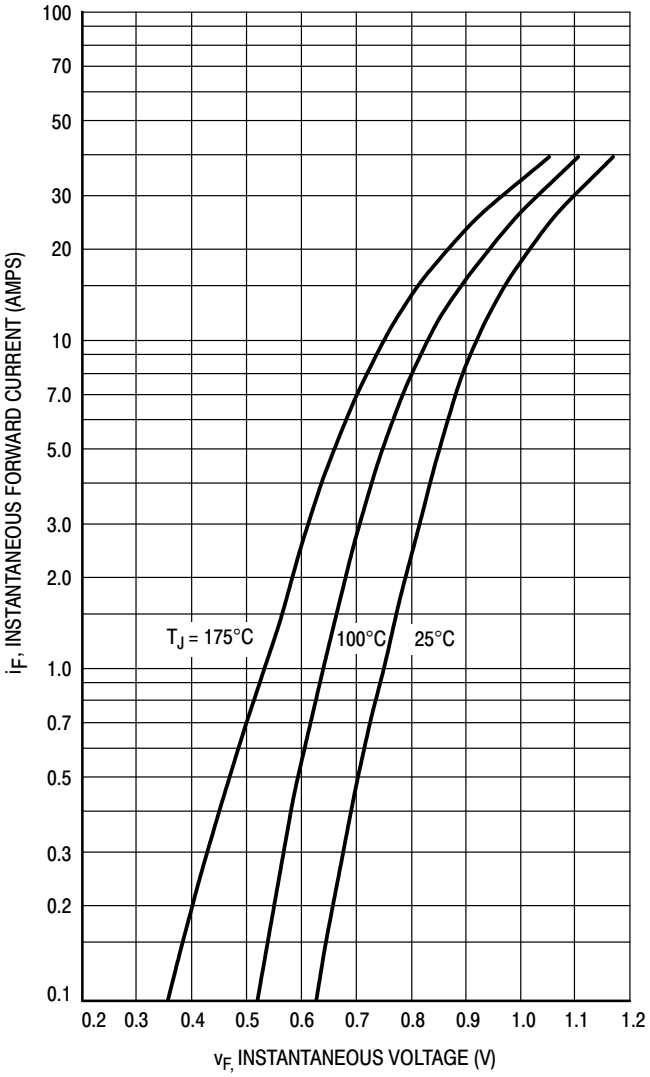


Figure 1. Typical Forward Voltage

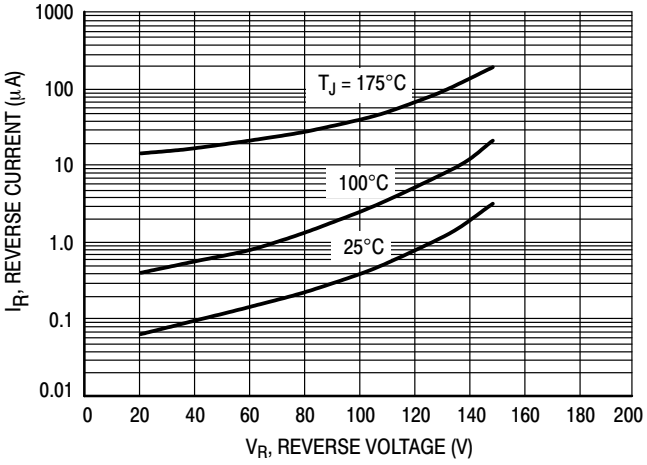


Figure 2. Typical Reverse Current*

* 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.

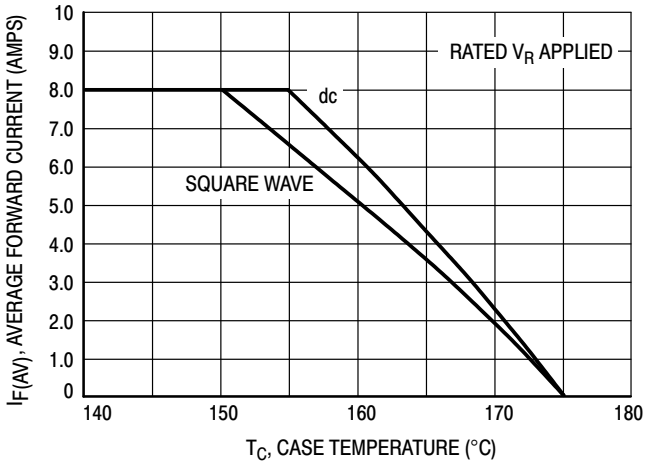


Figure 3. Current Derating, Case

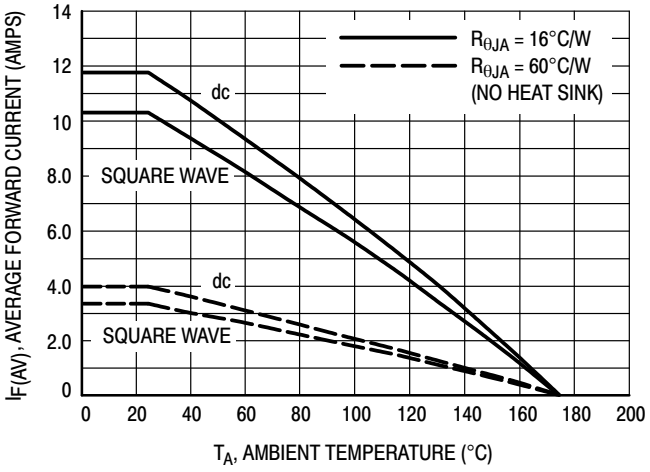


Figure 4. Current Derating, Ambient

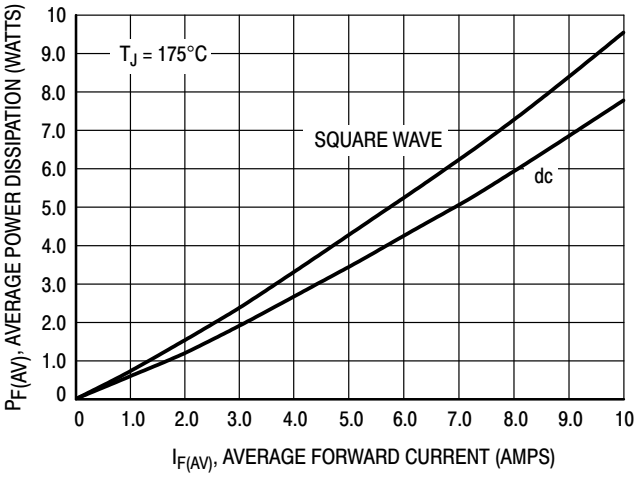


Figure 5. Power Dissipation

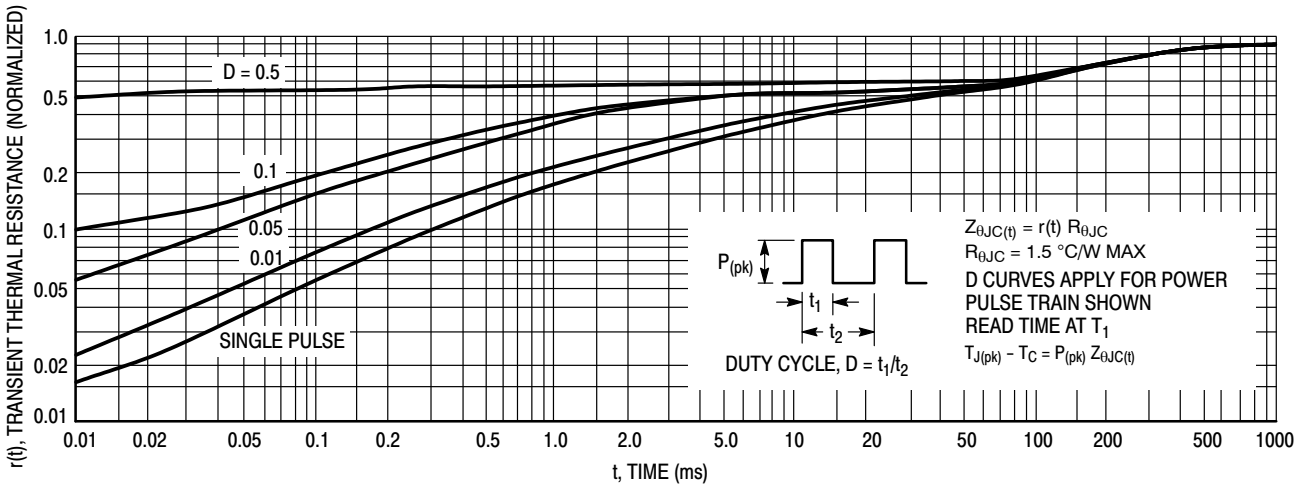


Figure 6. Thermal Response

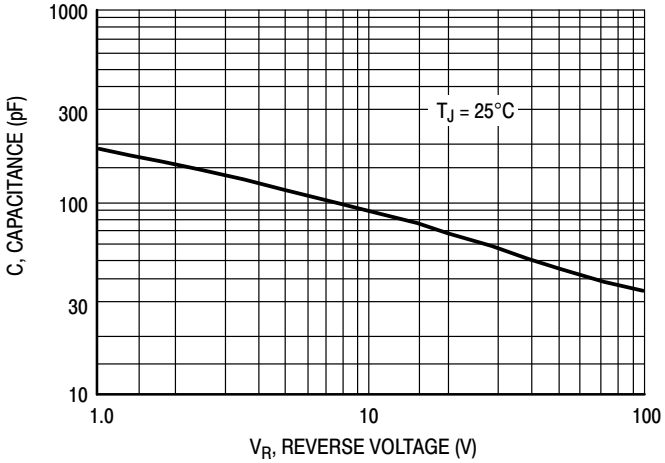
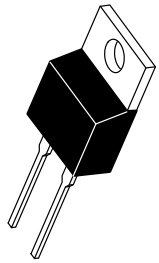


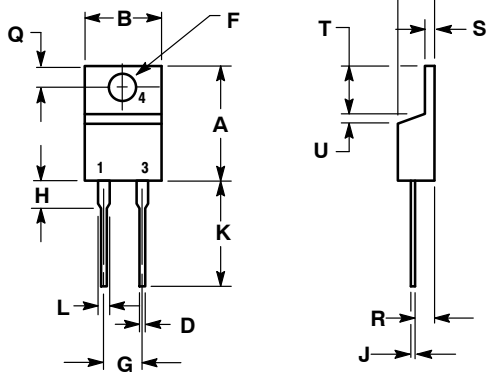
Figure 7. Typical Capacitance

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.

	INCHES		MILLIMETERS	
DIM	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

DOCUMENT NUMBER:	**98ASB42149B**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	**TO−220, 2−LEAD**		**PAGE 1 OF 1**

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales