SWITCHMODE™ Power Rectifiers

ULTRAFAST RECTIFIERS
8.0 AMPERES, 200 VOLTS

BYW80-200

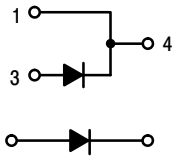
This state-of-the-art device is designed for use in switching power supplies, inverters and as free wheeling diodes.

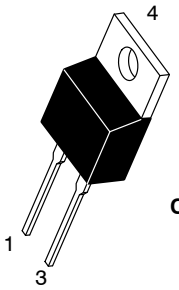
Features

- Ultrafast 35 Nanosecond Recovery Time
- 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

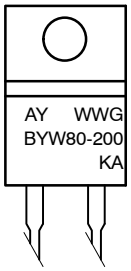
- Case: Epoxy, Molded
- Weight: 1.9 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260 °C Max. for 10 Seconds





CASE 221B
TO-220B
PLASTIC

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
BYW80-200 = Device Code
G = Pb-Free Package
KA = Diode Polarity

MAXIMUM RATINGS

Rating	Symbol	Values	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
Average Rectified Forward Current Total Device, (Rated V_R), T_C = 150 °C	$I_{F(AV)}$	8.0	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz), T_C = 150 °C	I_{FM}	16	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	100	A
Operating Junction Temperature and Storage Temperature Range	T_J, T_{stg}	−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.

ORDERING INFORMATION

Device	Package	Shipping
BYW80-200G	TO-220 (Pb-Free)	50 Units/Rail

DISCONTINUED (Note 1)

BYW80-200	TO-220	50 Units/Rail

1. **DISCONTINUED:** This device is not available. Please contact your **onsemi** representative for information. The most current information on this device may be available on www.onsemi.com.

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

May, 2025 – Rev. 4
Publication Order Number:
BYW80/D

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) (i_F = 7.0 A, T_C = 100 °C) (i_F = 22 A, T_C = 25 °C)	v_F	 0.85 1.25	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_J = 100 °C) (Rated dc Voltage, T_J = 25 °C)	i_R	 1 0.01	mA
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)	t_{rr}	 35 25	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

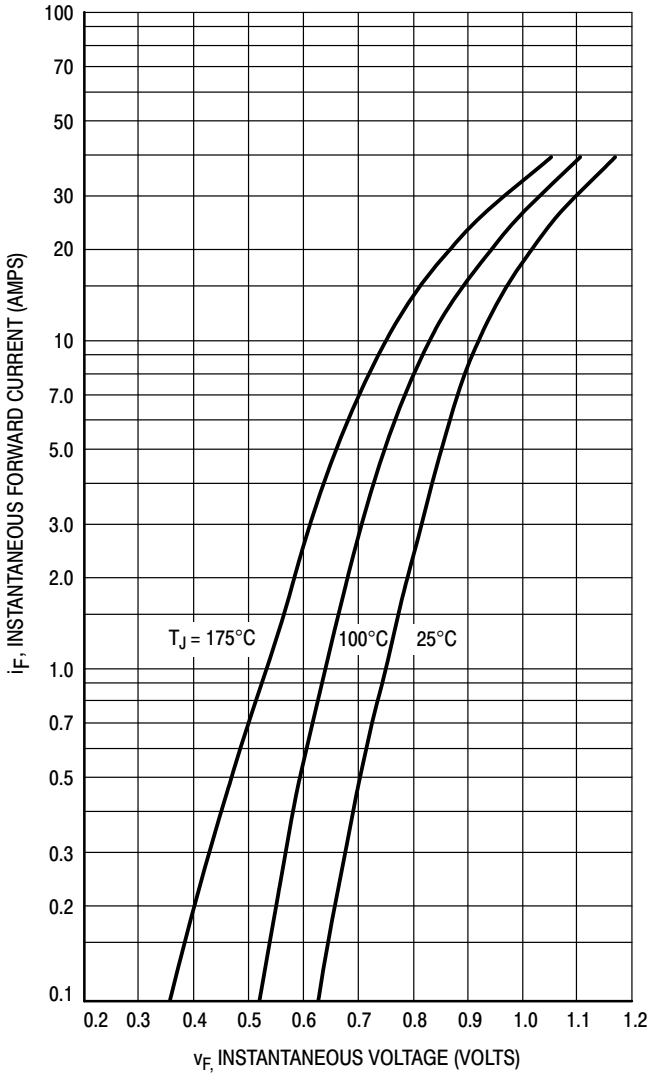


Figure 1. Typical Forward Voltage

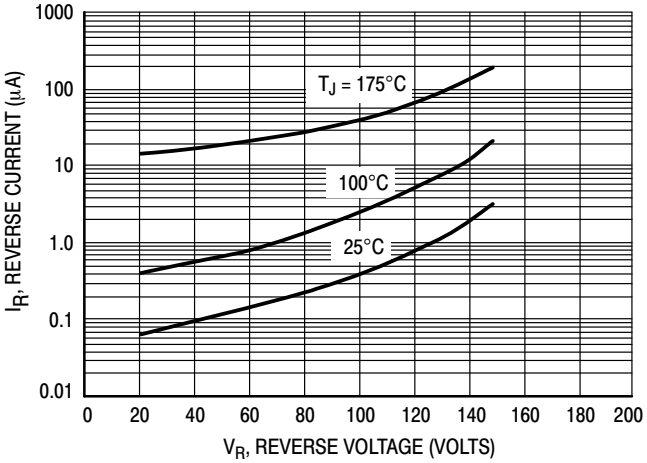


Figure 2. Typical Reverse Current*

* 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.

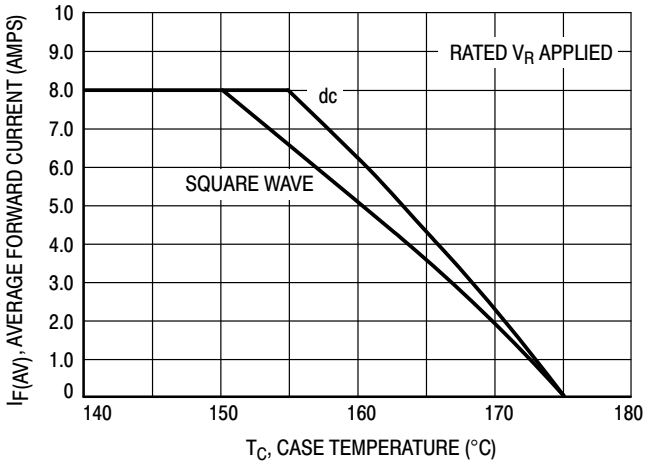


Figure 3. Current Derating, Case

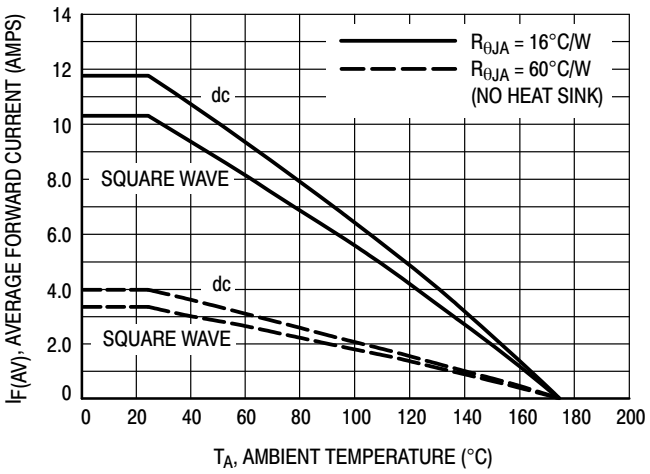


Figure 4. Current Derating, Ambient

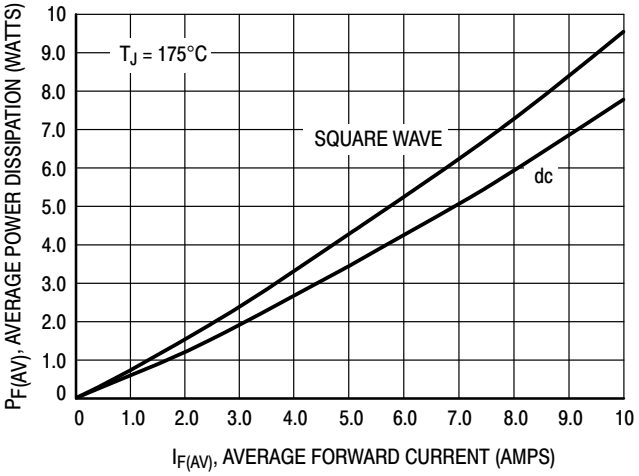


Figure 5. Power Dissipation

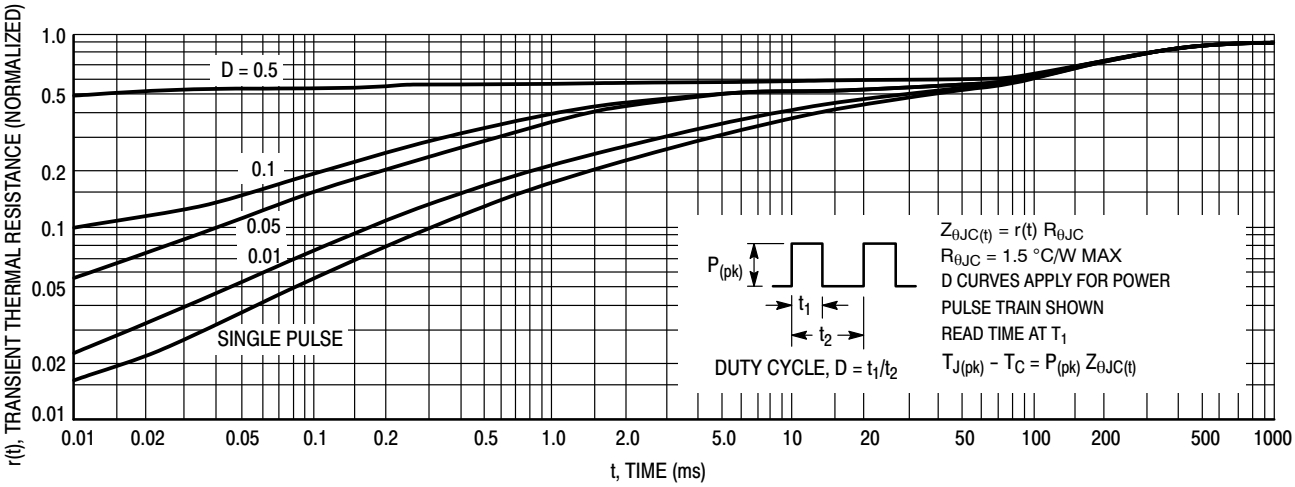


Figure 6. Thermal Response

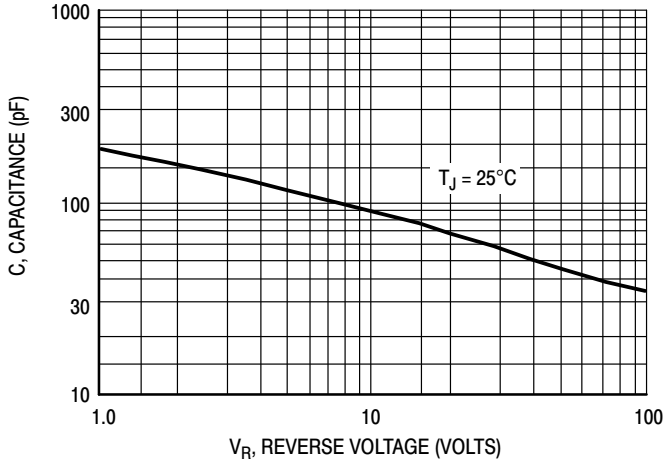


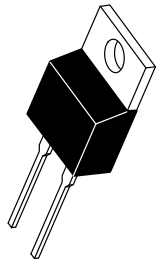
Figure 7. Typical Capacitance

REVISION HISTORY

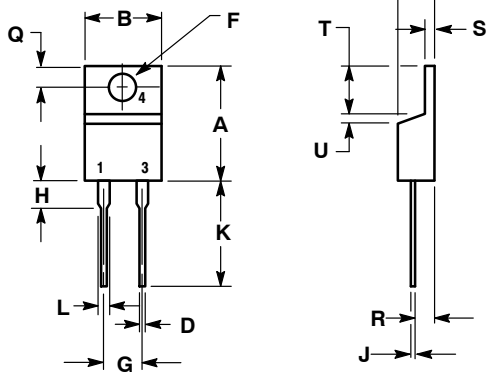
Revision	Description of Changes	Date
4	Rebranded the Data Sheet to onsemi format. BYW80-200 OPN Marked as Discontinued.	05/23/2025

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

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DESCRIPTION:	**TO−220, 2−LEAD**		**PAGE 1 OF 1**

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