

8A, 100V - 200V Ultrafast Dual Diodes

The BYW51 series devices are low forward voltage drop, ultra-fast-recovery rectifiers ($t_{RR} < 35\text{ns}$). They use a planar ion-implanted epitaxial construction.

These devices are intended for use as output rectifiers and fly-wheel diodes in a variety of high-frequency pulse-width-modulated and switching regulators. Their low stored charge and attendant fast reverse-recovery behavior minimize electrical noise generation and in many circuits markedly reduce the turn-on dissipation of the associated power switching transistors.

Ordering Information

PACKAGING AVAILABILITY

PART NUMBER	PACKAGE	BRAND
BYW51-100	TO-220AB	BYW51100
BYW51-150	TO-220AB	BYW51150
BYW51-200	TO-220AB	BYW51200

NOTE: When ordering, use the entire part number.

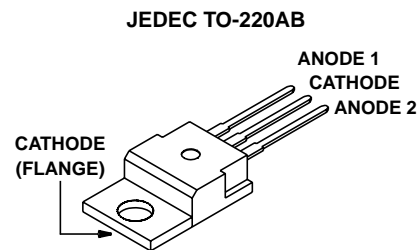
Features

- Ultra Fast Recovery Time (<35ns)
- Low Forward Voltage
- Low Thermal Resistance
- Planar Design
- Wire-Bonded Construction

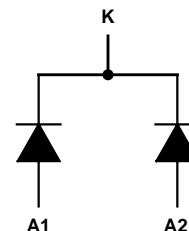
Applications

- General Purpose
- Power Switching Circuits to 100kHz
- Full-Wave Rectification

Package



Symbol



Absolute Maximum Ratings Per Junction

	BYW51-100	BYW51-150	BYW51-200	UNITS
Maximum Peak Repetitive Reverse Voltage V_{RRM}	100	150	200	V
Maximum Peak Surge Voltage V_{RSM}	110	165	220	V
Repetitive Peak Surge Current I_{FRM} , $t_P < 10\mu\text{s}$	100	100	100	A
Nonrepetitive Peak Surge Current $I_F(\text{RMS})$, Total	20	20	20	A
Average Rectified forward Current $I_{F(\text{AV})}$, Total $T_C = +125^\circ\text{C}$, $a = 0.5$	8	8	8	A
Repetitive Peak Surge Current I_{FSM} $t_P = 10\text{ms}$, Sinusoidal	100	100	100	A
Maximum Power Dissipation P_D , $T_C = +125^\circ\text{C}$	20	20	20	W
Operating and Storage Temperature T_J	-40 + 150	-40 + 150	-40 + 150	$^\circ\text{C}$
T_L (Lead Temperature During Soldering) At Distance $> 1/8$ in. (3.17mm) From Case For 10s max.	260	260	260	$^\circ\text{C}$

BYW51-100, BYW51-150, BYW51-200

Electrical Specifications Per Junction

SYMBOL	TEST CONDITIONS			LIMITS						UNITS
	T _J °C	VOLTAGE V _R V	CURRENT i _F A	BYW51-100		BYW51-150		BYW51-200		
				MIN	MAX	MIN	MAX	MIN	MAX	
I _R	25	100	-	-	5	-	-	-	-	μA
		150	-	-	-	-	5	-	-	μA
		200	-	-	-	-	-	-	5	μA
	100	100	-	-	1	-	-	-	-	mA
		150	-	-	-	-	-	1	-	mA
		200	-	-	-	-	-	-	1	mA
V _F	25	-	8	-	0.95	-	0.95	-	0.95	V
	100	-	8	-	0.89	-	0.89	-	0.89	V
t _{RR}	25	-	1 (Note 1)	-	35	-	35	-	35	ns
R _{θJC} , Per Leg		-	-	-	2.5	-	2.5	-	2.5	°C/W
R _{θJC} , Total		-	-	-	1.3	-	1.3	-	1.3	°C/W
R _{θJA}		-	-	-	60	-	60	-	60	°C/W
C _J	25	10	0	All types (typ.) 40						pF

NOTE:

1. di_F/dt > 50A/μs, I_{RM}(rec) < 1A, I_{RR} = 0.25A.

Typical Performance Curves

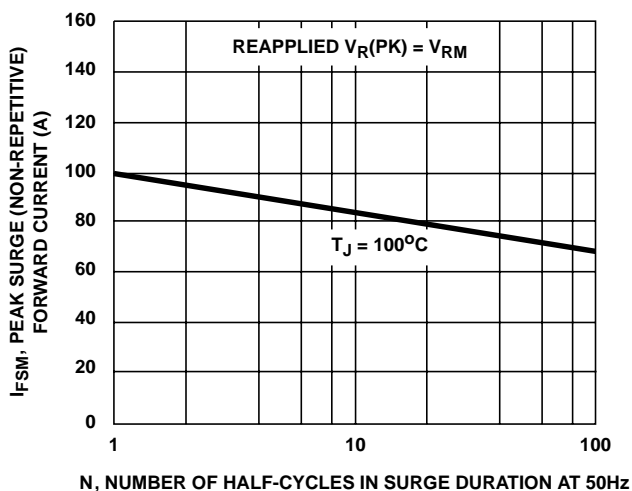


FIGURE 1. PEAK SURGE FORWARD CURRENT vs SURGE DURATION

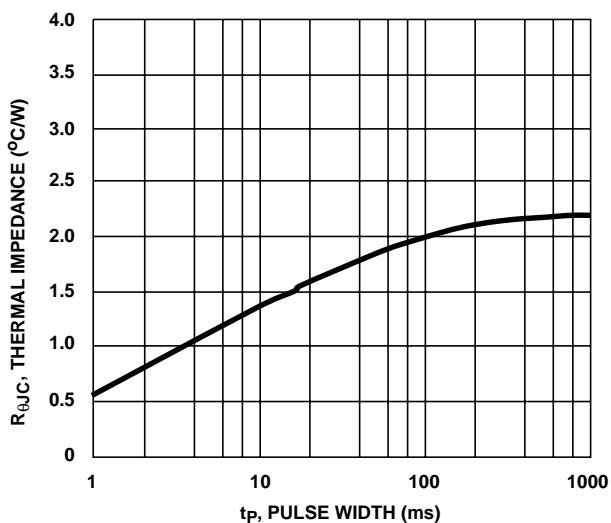


FIGURE 2. THERMAL IMPEDANCE vs PULSE WIDTH (PER JUNCTION)

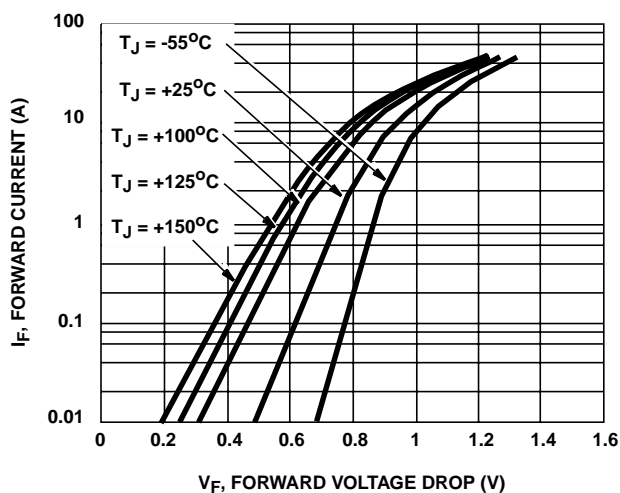


FIGURE 3. TYPICAL FORWARD CURRENT vs FORWARD VOLTAGE DROP

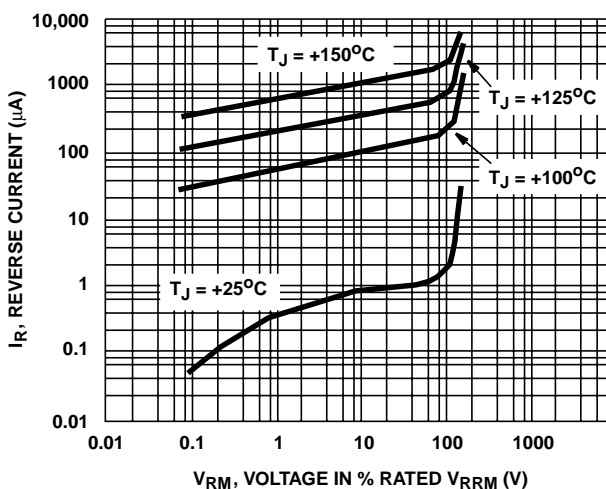


FIGURE 4. TYPICAL REVERSE CURRENT vs VOLTAGE

All Intersil semiconductor products are manufactured, assembled and tested under **ISO9000** quality systems certification.

Intersil semiconductor products are sold by description only. Intersil Corporation reserves the right to make changes in circuit design and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Intersil is believed to be accurate and reliable. However, no responsibility is assumed by Intersil or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Intersil or its subsidiaries.

For information regarding Intersil Corporation and its products, see web site www.intersil.com

Sales Office Headquarters

NORTH AMERICA

Intersil Corporation
P. O. Box 883, Mail Stop 53-204
Melbourne, FL 32902
TEL: (321) 724-7000
FAX: (321) 724-7240

EUROPE

Intersil SA
Mercure Center
100, Rue de la Fusee
1130 Brussels, Belgium
TEL: (32) 2.724.2111
FAX: (32) 2.724.22.05

ASIA

Intersil (Taiwan) Ltd.
7F-6, No. 101 Fu Hsing North Road
Taipei, Taiwan
Republic of China
TEL: (886) 2 2716 9310
FAX: (886) 2 2715 3029

This datasheet has been downloaded from:

www.DatasheetCatalog.com

Datasheets for electronic components.