

## BZW04 SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE - 6.8 to 440 Volts**

**400 Watts Peak 1.0 Watt Steady State**

BZW04 PART NUMBER		REVERSE STAND- OFF VOLTAGE V <sub>RWM</sub> (V)	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MIN.@I <sub>T</sub>	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MAX.@I <sub>T</sub>	TEST CURRENT I <sub>T</sub> (mA)	MAXIMUM CLAMPING VOLTAGE @I <sub>pp</sub> V <sub>c</sub> (V)	PEAK PULSE CURRENT I <sub>pp</sub> (A)	REVERSE LEAKAGE @ V <sub>RWM</sub> I <sub>R</sub> (μA)
BZW 04P5V8	BZW 04P5V8B	5.80	6.45	7.48	10.0	10.5	38.00	900
BZW 04-5V8	BZW 04-5V8B	5.90	6.45	7.14	10.0	10.5	38.00	900
BZW 04P6V4	BZW 04P6V4B	6.40	7.13	8.25	10.0	11.3	35.00	500
BZW 04-6V4	BZW 04-6V4B	6.40	7.13	7.88	10.0	11.3	35.00	500
BZW 04P7V0	BZW 04P7V0B	7.02	7.79	9.02	1.0	12.1	33.00	200
BZW 04-7V0	BZW 04-7V0B	7.02	7.79	8.61	1.0	12.1	33.00	200
BZW 04P7V8	BZW 04P7V8B	7.78	8.65	10.00	1.0	13.4	30.00	50
BZW 04-7V8	BZW 04-7V8B	7.78	8.65	9.55	1.0	13.4	30.00	50
BZW 04P8V5	BZW 04P8V5B	8.55	9.50	11.00	1.0	14.5	28.00	10.0
BZW04-8V5	BZW04-8V5B	8.55	9.50	10.50	1.0	14.5	28.00	10.0
BZW 04P9V4	BZW 04P9V4B	9.40	10.50	12.10	1.0	15.6	25.70	5.0
BZW 04-9V4	BZW 04-9V4B	9.40	10.50	11.60	1.0	15.6	25.70	5.0
BZW 04P10	BZW 04P10B	10.86	11.40	13.20	1.0	16.7	24.00	5.0
BZW 04-10	BZW 04-10B	10.86	11.40	12.60	1.0	16.7	24.00	5.0
BZW 04P11	BZW 04P11B	11.82	12.40	14.30	1.0	18.2	22.00	5.0
BZW 04-11	BZW 04-11B	11.82	12.40	13.70	1.0	18.2	22.00	5.0
BZW 04P13	BZW 04P13B	13.63	14.30	16.50	1.0	21.2	19.00	5.0
BZW 04-13	BZW 04-13B	13.63	14.30	15.80	1.0	21.2	19.00	5.0
BZW 04P14	BZW 04P14B	14.48	15.20	17.60	1.0	22.5	17.80	5.0
BZW 04-14	BZW 04-14B	14.48	15.20	16.80	1.0	22.5	17.80	5.0
BZW 04P15	BZW 04P15B	16.29	17.10	19.80	1.0	25.2	16.00	5.0
BZW 04-15	BZW 04-15B	16.29	17.10	18.90	1.0	25.2	16.00	5.0
BZW 04P17	BZW 04P17B	18.10	19.00	22.00	1.0	27.7	14.50	5.0
BZW 04-17	BZW 04-17B	18.10	19.00	21.00	1.0	27.7	14.50	5.0
BZW 04P19	BZW 04P19B	19.91	20.90	24.20	1.0	30.6	13.00	5.0
BZW 04-19	BZW 04-19B	19.91	20.90	23.10	1.0	30.6	13.00	5.0
BZW 04P20	BZW 04P20B	21.72	22.80	26.40	1.0	33.2	12.00	5.0
BZW 04-20	BZW 04-20B	21.72	22.80	25.20	1.0	33.2	12.00	5.0
BZW 04P23	BZW 04P23B	24.49	25.70	29.70	1.0	37.5	10.70	5.0
BZW 04-23	BZW 04-23B	24.49	25.70	28.40	1.0	37.5	10.70	5.0
BZW 04P26	BZW 04P26B	27.16	28.50	33.00	1.0	41.5	9.60	5.0
BZW 04-26	BZW 04-26B	27.16	28.50	31.50	1.0	41.5	9.60	5.0
BZW 04 P28	BZW 04P28B	29.92	31.40	36.30	1.0	45.7	8.80	5.0
BZW 04-28	BZW 04-28B	29.92	31.40	34.70	1.0	45.7	8.80	5.0
BZW 04P31	BZW 04P31B	32.59	34.20	39.60	1.0	49.9	8.00	5.0
BZW 04-31	BZW 04-31B	32.59	34.20	37.80	1.0	49.9	8.00	5.0
BZW 04P33	BZW 04P33B	33.35	37.10	42.90	1.0	53.9	7.40	5.0
BZW 04-33	BZW 04-33B	33.35	37.10	41.00	1.0	53.9	7.40	5.0
BZW 04P37	BZW 04P37B	38.97	40.90	47.30	1.0	59.3	6.70	5.0
BZW 04-37	BZW 04-37B	38.97	40.90	45.20	1.0	59.3	6.70	5.0
BZW 04P40	BZW 04P40B	42.59	44.70	51.70	1.0	64.8	6.20	5.0
BZW 04-40	BZW 04-40B	42.59	44.70	49.40	1.0	64.8	6.20	5.0
BZW 04P44	BZW 04P44B	46.21	48.50	56.10	1.0	70.1	5.70	5.0
BZW 04-44	BZW 04-44B	46.21	48.50	53.60	1.0	70.1	5.70	5.0

**For bidirectional type having V<sub>rwm</sub> of 10 volts and less, the I<sub>R</sub> limit is double.**

**For Part No. which use the character "p" , the V<sub>BR</sub> is ± 10%**

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### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

**VOLTAGE - 6.8 to 440 Volts**

**400 Watts Peak 1.0 Watt Steady Stae**

BZW04 PART NUMBER		REVERSE STAND- OFF VOLTAGE V <sub>RWM</sub> (V)	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MIN.@I <sub>T</sub>	BREAKDOWN VOLTAGE V <sub>BR</sub> (V) MAX.@I <sub>T</sub>	TEST CURRENT I <sub>T</sub> (mA)	MAXIMUM CLAMPING VOLTAGE @I <sub>pp</sub> V <sub>c</sub> (V)	PEAK PULSE CURRENT I <sub>pp</sub> (A)	REVERSE LEAKAGE @ V <sub>RWM</sub> I <sub>R</sub> (μA)
BZW 04P48	BZW 04P48B	50.69	53.20	61.60	1.0	77.0	5.20	5.0
BZW 04-48	BZW 04-48B	50.69	53.20	58.80	1.0	77.0	5.20	5.0
BZW 04P53	BZW 04P53B	56.12	58.90	68.20	1.0	85.0	4.70	5.0
BZW 04-53	BZW 04-53B	56.12	58.90	65.10	1.0	85.0	4.70	5.0
BZW 04P58	BZW 04P58B	61.55	64.60	74.80	1.0	92.0	4.30	5.0
BZW 04-58	BZW 04-58B	61.55	64.60	71.40	1.0	92.0	4.30	5.0
BZW 04P64	BZW 04P64B	67.94	71.30	82.50	1.0	103.0	3.90	5.0
BZW 04-64	BZW 04-64B	67.94	71.30	78.80	1.0	103.0	3.90	5.0
BZW 04P70	BZW 04P70B	74.23	77.90	90.20	1.0	113.0	3.50	5.0
BZW 04-70	BZW 04-70B	74.23	77.90	86.10	1.0	113.0	3.50	5.0
BZW 04P78	BZW 04P78B	82.42	86.50	100.00	1.0	125.0	3.20	5.0
BZW 04-78	BZW 04-78B	82.42	86.50	95.50	1.0	125.0	3.20	5.0
BZW 04P85	BZW 04P85B	90.52	95.00	110.00	1.0	137.0	2.90	5.0
BZW 04-85	BZW 04-85B	90.52	95.00	105.00	1.0	137.0	2.90	5.0
BZW 04P94	BZW 04P94B	100.00	105.00	121.00	1.0	152.0	2.60	5.0
BZW 04-94	BZW 04-94B	100.00	105.00	116.00	1.0	152.0	2.60	5.0
BZW 04P102	BZW 04P102B	108.70	114.00	132.00	1.0	165.0	2.40	5.0
BZW 04-102	BZW 04-102B	108.70	114.00	126.00	1.0	165.0	2.40	5.0
BZW 04P110	BZW 04P110B	118.20	124.00	143.00	1.0	179.0	2.20	5.0
BZW 04-110	BZW 04-110B	118.20	124.00	137.00	1.0	179.0	2.20	5.0
BZW 04P128	BZW 04P128B	136.30	143.00	165.00	1.0	207.0	2.00	5.0
BZW 04-128	BZW 04-128B	136.30	143.00	158.00	1.0	207.0	2.00	5.0
BZW 04P136	BZW 04P136B	144.80	152.00	176.00	1.0	219.0	1.80	5.0
BZW 04-136	BZW 04-136B	144.80	152.00	168.00	1.0	219.0	1.80	5.0
BZW 04P145	BZW 04P145B	153.40	161.00	187.00	1.0	234.0	1.70	5.0
BZW 04-145	BZW 04-145B	153.40	161.00	179.00	1.0	234.0	1.70	5.0
BZW 04P154	BZW 04P154B	162.90	171.00	198.00	1.0	246.0	1.60	5.0
BZW 04-154	BZW 04-154B	162.90	171.00	189.00	1.0	246.0	1.60	5.0
BZW 04P171	BZW 04P171B	181.00	190.00	220.00	1.0	274.0	1.50	5.0
BZW 04-171	BZW 04-171B	181.00	190.00	210.00	1.0	274.0	1.50	5.0
BZW 04P188	BZW 04P188B	199.20	209.00	242.00	1.0	301.0	1.40	5.0
BZW 04-188	BZW 04-188B	199.20	209.00	231.00	1.0	301.0	1.40	5.0
BZW 04P213	BZW 04P213B	225.80	237.00	275.00	1.0	344.0	1.50	5.0
BZW 04-213	BZW 04-213B	225.80	237.00	263.00	1.0	344.0	1.50	5.0
BZW 04P239	BZW 04P239B	253.50	266.00	308.00	1.0	384.0	1.50	5.0
BZW 04-239	BZW 04-239B	253.50	266.00	294.00	1.0	384.0	1.50	5.0
BZW 04P256	BZW 04P256B	271.60	285.00	330.00	1.0	414.0	1.20	5.0
BZW 04-256	BZW 04-256B	271.60	285.00	315.00	1.0	414.0	1.20	5.0
BZW 04P273	BZW 04P273B	289.70	304.00	352.00	1.0	438.0	1.20	5.0
BZW 04-273	BZW 04-273B	289.70	304.00	336.00	1.0	438.0	1.20	5.0
BZW 04P299	BZW 04P299B	316.30	332.00	385.00	1.0	482.0	0.90	5.0
BZW 04-299	BZW 04-299B	316.30	332.00	368.00	1.0	482.0	0.90	5.0
BZW 04P342	BZW 04P342B	362.10	380.00	440.00	1.0	548.0	0.90	5.0
BZW 04-342	BZW 04-342B	362.10	380.00	420.00	1.0	548.0	0.90	5.0
BZW 04P376	BZW 04P376B	398.30	418.00	484.00	1.0	603.0	0.80	5.0
BZW 04-376	BZW 04-376B	398.30	418.00	462.00	1.0	603.0	0.80	5.0

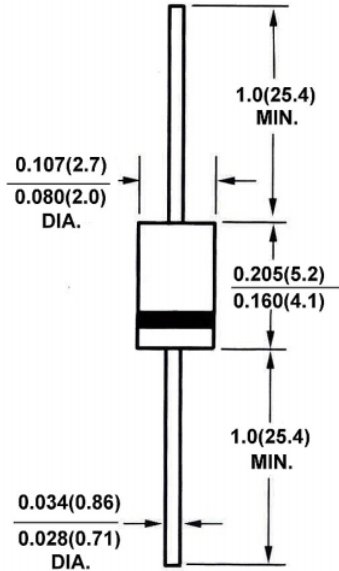
**For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.**

**For Part No. which use the character "p" , the V<sub>BR</sub> is ± 10%**

## BZW04 SERIES

### GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR VOLTAGE-6.8 to 440 Volts 400 watt Peak Power / 1.0 Watt Steady State

#### DO-204AL (DO-41 Plastic) FEATURES



- Plastic package
- Glass passivated chip junction in DO-41 Package
- 400W surge capability at 10/1000  $\mu$ s wave from
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 Volts to BV min.
- Typical IR less than 1mA above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length, 5lbs., (2.3kg) tension

#### MECHANICAL DATA

- Case:** JEDEC DO-41 Molded Plastic
- Terminal:** Axial leads, solderables per MIL-STD-750, Method 2026
- Polarity:** Color band denotes cathode except Bipolar
- Mounting Position:** Any
- Weight:** 0.012 ounce, 0.3 grams

Dimensions in inches and (millimeters)

#### DEVICES FOR BIPOLAR APPLICATION

For Bidirectional use B Suffix for types BZW 04-5V8 thru types BZW 04-376 (e.g. BZW 04-5V8B , BZW 04-376B)  
Electrical characteristics apply in both directions

#### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation at $T_A = 25$ , $T_P = 1$ ms (Note 1)	$P_{PPM}$	Minimum 400	Watts
Steady State Power Dissipation at $T_L = 75$ , Lead lengths .375", (9.5mm) (Note 2)	$P_{M(AV)}$	1	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3)	$I_{FSM}$	40	Amps
Operating junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 175	

Notes :

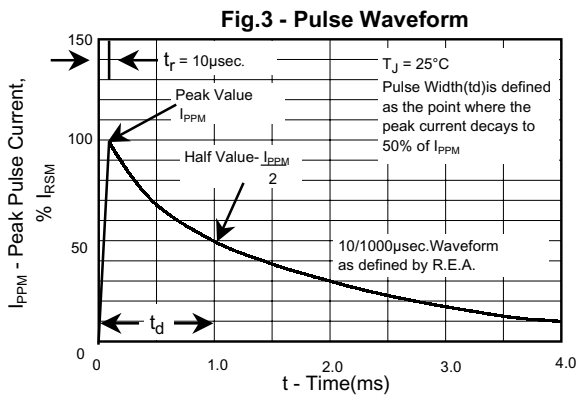
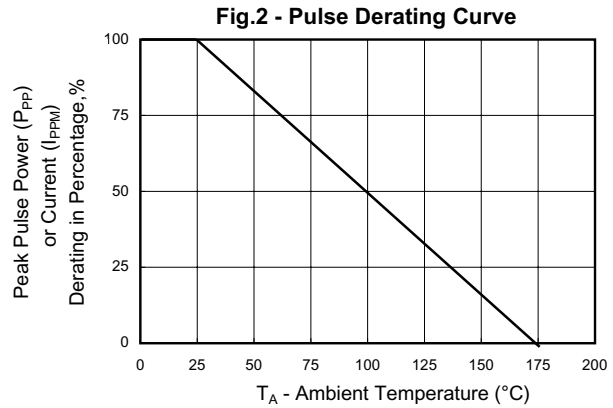
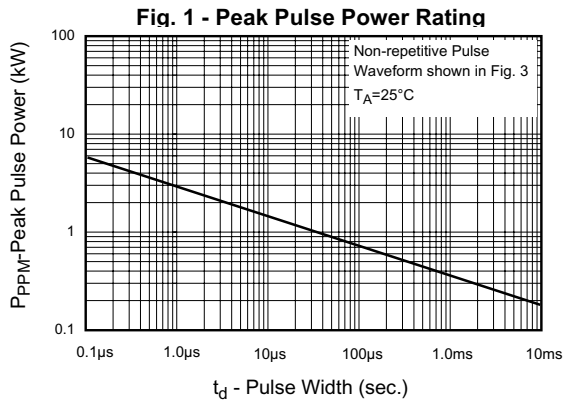
1. Non-repetitive current pulse , per Fig. 3 and derated above  $T_A = 25$  per Fig. 2 .
2. Mounted on Copper Pad area of 1.6×1.6" (40×40mm) per Fig. 5.
3. 8.3ms single half sine-wave , or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

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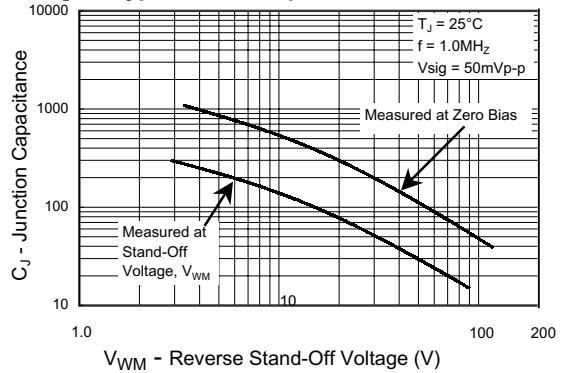
## RATINGS AND CHARACTERISTIC CURVES

### Ratings and

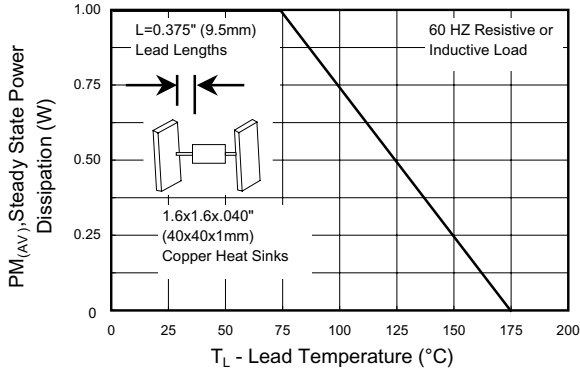
### Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)



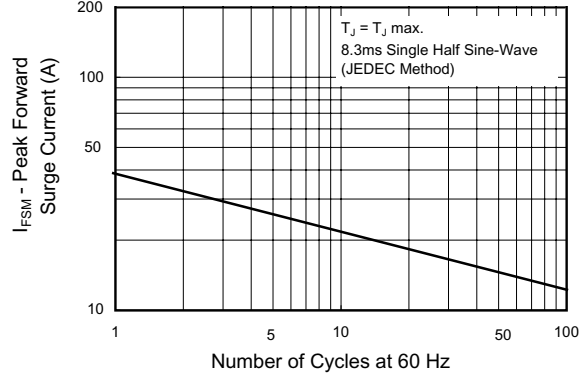
**Fig. 4 - Typ. Junction Capacitance Uni-Directional**



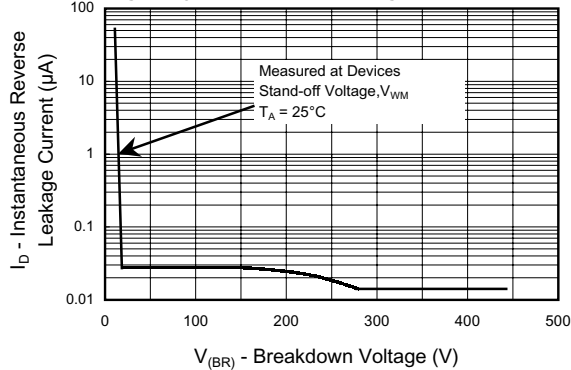
**Fig. 5 - steady State Power Derating Curve**



**Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only**



**Fig. 7 - Typical Reverse Leakage Characteristics**



**Fig. 8 - Typ. Transient Thermal Impedance**

