

T-11-23

**BZWO4 SERIES**  
GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

**GENERAL INSTRUMENT**



**FEATURES**

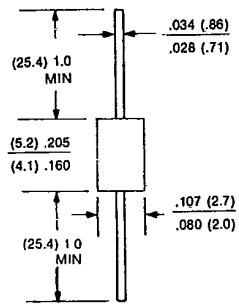
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction in DO-41 package
- 400W surge capability at 1 ms
- Excellent clamping capability
- Low zener impedance
- Fast response time: typically less than 1.0ps from 0 volts to BV min.
- Typical I<sub>a</sub> less than 1μ A above 10V
- High temperature soldering guaranteed: 300° C/10 seconds/.375", (9.5mm) lead length/5 lbs., (2.3kg) tension

**MECHANICAL DATA**

Case: Molded plastic over glass passivated junction  
 Terminals: Axial leads, solderable per MIL-STD-202, Method 208  
 Polarity: Color band denotes cathode except Bipolar  
 Mounting position: Any  
 Weight: 0.012 ounce, 0.3 gram

**VOLTAGE RANGE**  
6.8 to 440 Volts  
  
400 Watt Peak Power  
1.0 Watt Steady State

DO - 41



Dimensions in inches and (millimeters)

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25° C ambient temperature unless otherwise specified.  
 Single phase, half wave, 60 Hz, resistive or inductive load.  
 For capacitive load, derate current by 20%.

Rating	Symbol	Value	Units
Peak Power Dissipation at T <sub>A</sub> = 25° C, T <sub>p</sub> = 1ms (Note 1)	P <sub>pk</sub>	Minimum 400	Watts
Steady Power Dissipation at T <sub>L</sub> = 75° C Lead Lengths .375", (9.5mm) (Note 2)	PD	1.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	IFSM	40.0	Amps
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175	° C

Notes:  
 1. Non-repetitive current pulse per Fig. 3 and derated above T<sub>A</sub> = 25° C per Fig. 2.  
 2. Mounted on Copper Leaf area of 1.57 In<sup>2</sup> (40mm<sup>2</sup>).  
 3. 8.3 ms single half sine-wave duty cycle +4 pulses per Minutes maximum.

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use B.  
 Electrical characteristics apply in both directions.

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Device	Breakdown Voltage		Working Peak Reverse Voltage VRWM (Volts)	Maximum Reverse Leakage at VRWM In ( A)	Maximum Reverse Current IRSM (Note 2) r (Amps)	Maximum Reverse Voltage at IRSM (Clamping Voltage) VRSM (Volts)	Maximum Temperature Coefficient Of VBR (%/C)	
	VBR							@ IT (mA)
	MIN	MAX						
PBZW04P5V8	6.45	7.48	10	5.8	1000	38	10.5	.057
BZW04-5V8	6.45	7.14	10	5.8	1000	38	10.5	.057
PBZW04P6V4	7.13	8.25	10	6.4	500	35.4	11.3	.061
BZW04-6V4	7.13	7.88	10	6.4	500	35.4	11.3	.061
BZW04P7V0	7.79	9.02	10	7.02	200	33	12.1	.065
BZW04-7V0	7.79	8.61	10	7.02	200	33	12.1	.065
BZW04P7V8	8.65	10.0	1	7.78	50	30	13.4	.068
BZW04-7V8	8.65	9.55	1	7.78	50	30	13.4	.068
BZW04P8V5	9.50	11.0	1	8.55	10	27.6	14.5	.073
BZW04-8V5	9.50	10.50	1	8.55	10	27.6	14.5	.073
BZW04P9V4	10.5	11.6	1	9.4	5	25.7	15.6	.075
BZW04-9V4	10.5	11.6	1	9.4	5	25.7	15.6	.075
PBZW04P10	11.4	13.2	1	10.2	5	24	16.7	.078
BZW04-10	11.4	12.6	1	10.2	5	24	16.7	.078
BZW04P11	12.4	14.3	1	11.1	5	22	18.2	.081
BZW04-11	12.4	13.7	1	11.1	5	22	18.2	.081
PBZW04P13	14.3	16.5	1	12.8	5	19	21.2	.084
BZW04-13	14.3	15.8	1	12.8	5	19	21.2	.084
BZW04P14	15.2	17.6	1	13.6	5	17.8	22.5	.085
BZW04-14	15.2	16.8	1	13.6	5	17.8	22.5	.085
BZW04P15	17.1	19.8	1	15.3	5	16	25.2	.088
BZW04-15	17.1	18.9	1	15.3	5	16	25.2	.088
BZW04P17	19	22	1	17.1	5	14.5	27.7	.090
BZW04-17	19	21	1	17.1	5	14.5	27.7	.090
BZW04P19	20.9	24.2	1	18.8	5	13	30.6	.092
BZW04-19	20.9	23.1	1	18.8	5	13	30.6	.092
PBZW04P20	22.8	26.4	1	20.5	5	12	33.2	.094
BZW04-20	22.8	25.2	1	20.5	5	12	33.2	.094
PBZW04P23	25.7	29.7	1	23.1	5	10.7	37.5	.096
BZW04-23	25.7	28.4	1	23.1	5	10.7	37.5	.096
PBZW04P26	28.5	33	1	25.6	5	9.6	41.5	.097
BZW04-26	28.5	31.5	1	25.6	5	9.6	41.5	.097
PBZW04P28	31.4	36.3	1	28.2	5	8.8	45.7	.098
BZW04-28	31.4	34.7	1	28.2	5	8.8	45.7	.098
PBZW04P31	34.2	39.6	1	30.8	5	8	49.9	.099
BZW04-31	34.2	37.8	1	30.8	5	8	49.9	.099
PBZW04P33	37.1	42.9	1	33.3	5	7.4	53.9	.100
BZW04-33	37.1	41	1	33.3	5	7.4	53.9	.100
BZW04P37	40.9	47.3	1	36.8	5	6.7	59.3	.101
BZW04-37	40.9	45.2	1	36.8	5	6.7	59.3	.101
BZW04P40	44.7	51.7	1	40.2	5	6.2	64.8	.101
BZW04-40	44.7	49.4	1	40.2	5	6.2	64.8	.101
BZW04P44	48.5	56.1	1	43.6	5	5.7	70.1	.102
BZW04-44	48.5	53.6	1	43.6	5	5.7	70.1	.102
BZW04P48	53.2	61.6	1	47.8	5	5.2	77	.103
BZW04-48	53.2	58.8	1	47.8	5	5.2	77	.103
BZW04P53	58.9	68.2	1	53	5	4.7	85	.104
BZW04-53	58.9	65.1	1	53	5	4.7	85	.104
PBZW04P58	64.6	74.8	1	58.1	5	4.3	92	.104
BZW04-58	64.6	71.4	1	58.1	5	4.3	92	.104
BZW04P64	71.3	82.5	1	64.1	5	3.9	103	.105
BZW04-64	71.3	78.8	1	64.1	5	3.9	103	.105
PBZW04P70	77.9	90.2	1	70.1	5	3.5	113	.105
BZW04-70	77.9	86.1	1	70.1	5	3.5	113	.105
BZW04P78	86.5	100	1	77.8	5	3.2	125	.106
BZW04-78	86.5	95.5	1	77.8	5	3.2	125	.106
PBZW04P85	95	110	1	85.5	5	2.9	137	.106
BZW04-85	95	105	1	85.5	5	2.9	137	.106
BZW04P94	105	121	1	94	5	2.6	152	.107
BZW04-94	105	116	1	94	5	2.6	152	.107
BZW04P102	114	132	1	102	5	2.4	165	.107
BZW04-102	114	126	1	102	5	2.4	165	.107
BZW04P111	124	143	1	111	5	2.2	179	.107
BZW04-111	124	137	1	111	5	2.2	179	.107
PBZW04P128	143	165	1	128	5	2.0	207	.108
BZW04-128	143	158	1	128	5	2.0	207	.108
PBZW04P138	152	176	1	136	5	1.8	219	.108
BZW04-136	152	168	1	136	5	1.8	219	.108
BZW04P145	161	187	1	145	5	1.7	234	.108
BZW04-145	161	179	1	145	5	1.7	234	.108
BZW04P154	171	198	1	154	5	1.6	246	.108
BZW04-154	171	189	1	154	5	1.6	246	.108
PBZW04P171	190	220	1	171	5	1.5	274	.108
BZW04-171	190	210	1	171	5	1.5	274	.108
BZW04P188	209	242	1	188	5	1.4	301	.108
BZW04-188	209	231	1	188	5	1.4	301	.108
BZW04P213	237	275	1	213	5	1.5	344	.110
BZW04-213	237	263	1	213	5	1.5	344	.110
BZW04P239	266	306	1	239	5	1.5	384	.110
BZW04-239	266	294	1	239	5	1.5	384	.110
BZW04P258	285	330	1	256	5	1.2	414	.110
BZW04-256	285	315	1	256	5	1.2	414	.110
BZW04P273	304	352	1	273	5	1.2	438	.110
BZW04-273	304	336	1	273	5	1.2	438	.110
BZW04P299	332	385	1	299	5	0.9	482	.110
BZW04-299	332	368	1	299	5	0.9	482	.110
PBZW04P342	380	440	1	342	5	0.9	548	.110
BZW04-342	380	420	1	342	5	0.9	548	.110
PBZW04P376	418	484	1	376	5	0.8	603	.110
BZW04-376	418	462	1	376	5	0.8	603	.110

NOTES:  
 1. VBR measured after IT applied for 300 μs. IT = Square Wave Pulse or equivalent.  
 2. Surge Current Waveform per Figure 3 and Derated per Figure 2.  
 3. Vr = 3.5 V max, If = 50A for all types on 1/2 Square or Equivalent Sine Wave.  
 Pw = 83 ms, Duty Cycle = 4 Pulses per Minute Maximum.

**RATING AND CHARACTERISTIC CURVES  
 BZW04**

