

# BZW06 SERIES

**V<sub>BR</sub> : 6.8 - 440 Volts**  
**P<sub>PK</sub> : 600 Watts**

## FEATURES :

- \* 600W surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time : typically less than 1.0 ps from 0 volt to V<sub>BR(min)</sub>
- \* Typical I<sub>R</sub> less than 1μA above 10V
- \* Pb / RoHS Free

## MECHANICAL DATA :

- \* Case : DO-15 Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
- \* Polarity : Color band denotes cathode end
- \* Mounting position : Any
- \* Weight : 0.4 gram

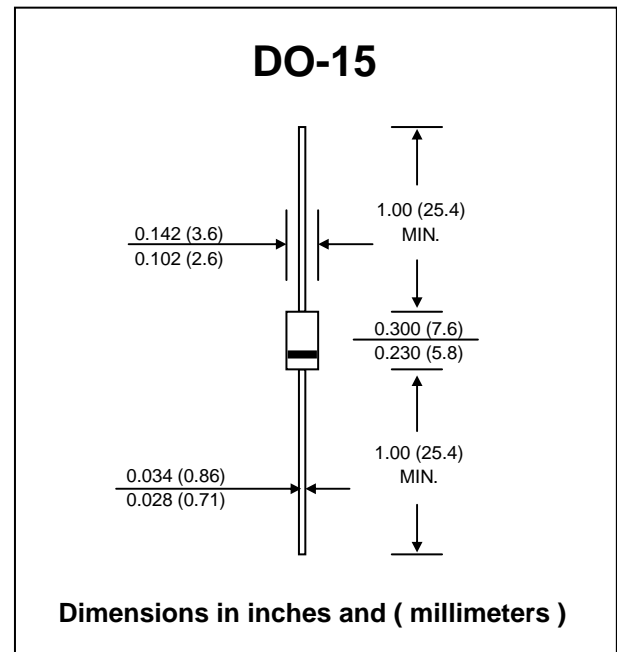
## DEVICES FOR BIPOLAR APPLICATIONS

For bi-directional use B Suffix.  
 Electrical characteristics apply in both directions

## MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

# TRANSIENT VOLTAGE SUPPRESSOR



Rating	Symbol	Value	Unit	
Peak Pulse Power for 1 msec. Exponential Pulse	PPP	Minimum 600	Watt	
Steady State Power Dissipation ( L=10mm )	P <sub>D</sub>	5.0	Watt	
Non Repetitive Peak Forward Surge Current ( t =10ms )	I <sub>FSM</sub>	100	Amp.	
Max. Forward Voltage drop at I <sub>F</sub> = 50A	V <sub>F</sub>	V <sub>BR</sub> ≤ 220V	3.5	Volt
		V <sub>BR</sub> > 220V	5.0	Volt
Max. Thermal Resistance ( L=10mm.)	R <sub>thj-a</sub>	60	°C / W	
Storage Temperature Range	T <sub>STG</sub>	- 65 to + 175	°C	

### Notes :

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
- (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.

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Types	Breakdown Voltage @ It ( Note 1 )			Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Leakage @ V <sub>RWM</sub> I <sub>RM</sub> (μA)	Maximum Peak pulse Current I <sub>PP</sub> (A)	Maximum Clamping Voltage @ I <sub>PP</sub> V <sub>RSM</sub> (V)	Typical Capaciyance (Note 2) C (pF)
	V <sub>BR</sub> (V)		It (mA)					
	Min.	Max.						
BZW06P5V8	6.45	7.48	10	5.80	1000	57	10.5	4000
BZW06-5V8	6.45	7.14	10	5.80	1000	57	10.5	4000
BZW06P6V4	7.13	7.25	10	6.40	500	53	11.3	3700
BZW06-6V4	7.13	7.88	10	6.40	500	53	11.3	3700
BZW06P7V0	7.79	9.02	10	7.02	200	50	12.1	3400
BZW06-7V0	7.79	8.61	10	7.02	200	50	12.1	3400
BZW06P7V8	8.65	10.0	1.0	7.78	50	45	13.4	3100
BZW06-7V8	8.65	9.55	1.0	7.78	50	45	13.4	3100
BZW06P8V5	9.50	11.0	1.0	8.55	10	41	14.5	2800
BZW06-8V5	9.50	10.5	1.0	8.55	10	41	14.5	2800
BZW06P9V4	10.5	12.1	1.0	9.40	5.0	38	15.6	2500
BZW06-9V4	10.5	11.6	1.0	9.40	5.0	38	15.6	2500
BZW06P10	11.4	13.2	1.0	10.2	5.0	36	16.7	2300
BZW06-10	11.4	12.6	1.0	10.2	5.0	36	16.7	2300
BZW06P11	12.4	14.3	1.0	11.1	5.0	33	18.2	2150
BZW06-11	12.4	13.7	1.0	11.1	5.0	33	18.2	2150
BZW06P13	14.3	16.5	1.0	12.8	5.0	28	21.2	1900
BZW06-13	14.3	15.8	1.0	12.8	5.0	28	21.2	1900
BZW06P14	15.2	17.6	1.0	13.6	5.0	27	22.5	1800
BZW06-14	15.2	16.8	1.0	13.6	5.0	27	22.5	1800
BZW06P15	17.1	19.8	1.0	15.3	1.0	24	25.2	1600
BZW06-15	17.1	18.9	1.0	15.3	1.0	24	25.2	1600
BZW06P17	19.0	22.0	1.0	17.1	1.0	22	27.2	1500
BZW06-17	19.0	21.0	1.0	17.1	1.0	22	27.2	1500
BZW06P19	20.9	24.2	1.0	18.8	1.0	20	30.6	1350
BZW06-19	20.9	23.1	1.0	18.8	1.0	20	30.6	1350
BZW06P20	22.8	26.4	1.0	20.5	1.0	18	33.2	1250
BZW06-20	22.8	25.2	1.0	20.5	1.0	18	33.2	1250
BZW06P23	25.7	29.7	1.0	23.1	1.0	16	37.5	1150
BZW06-23	25.7	28.4	1.0	23.1	1.0	16	37.5	1150
BZW06P26	28.5	33.0	1.0	25.6	1.0	14.5	41.5	1075
BZW06-26	28.5	31.5	1.0	25.6	1.0	14.5	41.5	1075
BZW06P28	31.4	36.3	1.0	28.2	1.0	13.1	45.7	1000
BZW06-28	31.4	34.7	1.0	28.2	1.0	13.1	45.7	1000
BZW06P31	34.2	39.6	1.0	30.8	1.0	12.0	49.9	950
BZW06-31	34.2	37.8	1.0	30.8	1.0	12.0	49.9	950
BZW06P33	37.1	42.9	1.0	33.3	1.0	11.1	53.9	900
BZW06-33	37.1	41.0	1.0	33.3	1.0	11.1	53.9	900
BZW06P37	40.9	47.3	1.0	36.8	1.0	10.1	59.3	850
BZW06-37	40.9	45.2	1.0	36.8	1.0	10.1	59.3	850
BZW06P40	44.7	51.7	1.0	40.2	1.0	9.3	64.8	800
BZW06-40	44.7	49.4	1.0	40.2	1.0	9.3	64.8	800
BZW06P44	48.5	56.1	1.0	43.6	1.0	8.6	70.1	750
BZW06-44	48.5	53.6	1.0	43.6	1.0	8.6	70.1	750
BZW06P48	53.2	61.6	1.0	47.8	1.0	7.8	77	700
BZW06-48	53.2	58.8	1.0	47.8	1.0	7.8	77	700

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Types	Breakdown Voltage @ It ( Note 1 )			Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Peak pulse Current	Maximum Clamping Voltage @ IPP	Typical Capaciyance (Note 2)
	VBR (V)		It					
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)	(pF)
BZW06P53	58.9	68.2	1.0	53	1.0	7.1	85	650
BZW06-53	58.9	65.1	1.0	53	1.0	7.1	85	650
BZW06P58	64.6	74.8	1.0	58.1	1.0	6.5	92	625
BZW06-58	64.6	71.4	1.0	58.1	1.0	6.5	92	625
BZW06P64	71.3	82.5	1.0	64.1	1.0	5.8	103	575
BZW06-64	71.3	78.8	1.0	64.1	1.0	5.8	103	575
BZW06P70	77.9	90.2	1.0	70.1	1.0	5.3	113	550
BZW06-70	77.9	86.1	1.0	70.1	1.0	5.3	113	550
BZW06P78	86.5	100	1.0	77.8	1.0	4.8	125	525
BZW06-78	86.5	95.5	1.0	77.8	1.0	4.8	125	525
BZW06P85	95	110	1.0	85.8	1.0	4.4	137	500
BZW06-85	95	105	1.0	85.8	1.0	4.4	137	500
BZW06P94	105	121	1.0	94	1.0	3.9	152	470
BZW06-94	105	116	1.0	94	1.0	3.9	152	470
BZW06P102	114	132	1.0	102	1.0	3.6	165	450
BZW06-102	114	126	1.0	102	1.0	3.6	165	450
BZW06P111	124	143	1.0	111	1.0	3.4	179	420
BZW06-111	124	137	1.0	111	1.0	3.4	179	420
BZW06P128	143	165	1.0	128	1.0	2.9	207	400
BZW06-128	143	158	1.0	128	1.0	2.9	207	400
BZW06P136	152	176	1.0	136	1.0	2.7	219	380
BZW06-136	152	168	1.0	136	1.0	2.7	219	380
BZW06P145	161	187	1.0	145	1.0	2.6	234	370
BZW06-145	161	179	1.0	145	1.0	2.6	234	370
BZW06P154	171	198	1.0	154	1.0	2.4	246	360
BZW06-154	171	189	1.0	154	1.0	2.4	246	360
BZW06P171	190	220	1.0	171	1.0	2.2	274	350
BZW06-171	190	210	1.0	171	1.0	2.2	274	350
BZW06P188	209	242	1.0	188	1.0	2.0	301	330
BZW06-188	209	231	1.0	188	1.0	2.0	301	330
BZW06P213	237	275	1.0	213	1.0	1.8	344	310
BZW06-213	237	263	1.0	213	1.0	1.8	344	310
BZW06P239	266	308	1.0	239	1.0	1.7	384	300
BZW06-239	266	294	1.0	239	1.0	1.7	384	300
BZW06P256	285	330	1.0	256	1.0	1.6	414	290
BZW06-256	285	315	1.0	256	1.0	1.6	414	290
BZW06P273	304	352	1.0	273	1.0	1.6	436	280
BZW06-273	304	336	1.0	273	1.0	1.6	436	280
BZW06P299	332	285	1.0	299	1.0	1.6	482	270
BZW06-299	332	368	1.0	299	1.0	1.6	482	270
BZW06P342	380	440	1.0	342	1.0	1.3	548	360
BZW06-342	380	420	1.0	342	1.0	1.3	548	360
BZW06P376	418	484	1.0	376	1.0	1.3	603	350
BZW06-376	418	462	1.0	376	1.0	1.3	603	350

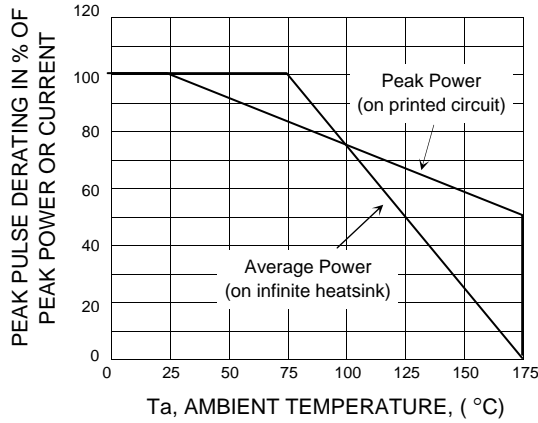
### Notes:

(1) Pulse test :  $t_p < 50$  ms.

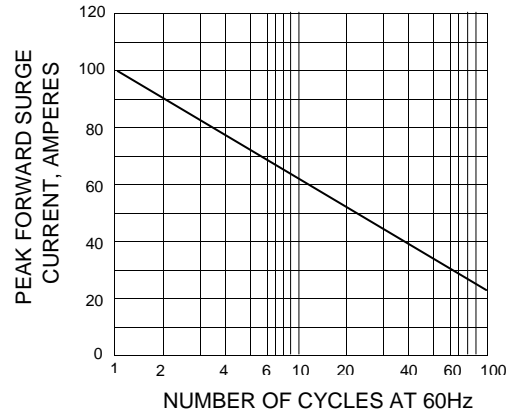
(2)  $V_R = 0$  V,  $f = 1$  MHz. For bidirectional types, capacitance value is divided by 2.

## RATING AND CHARACTERISTIC CURVES ( BZW06 SERIES )

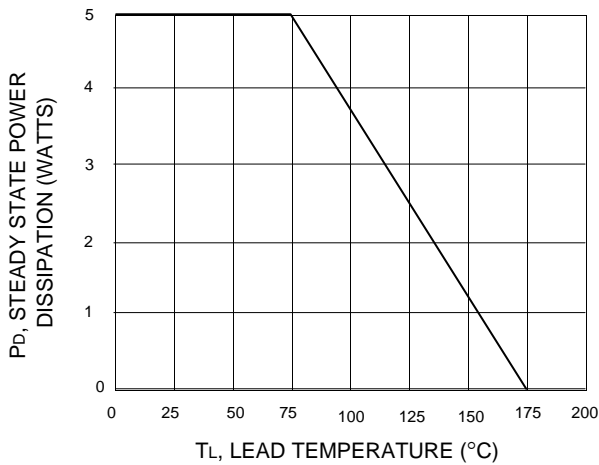
**FIG.1 - POWER DISSIPATION DERATING VERSUS AMBIENT TEMPERATURE**



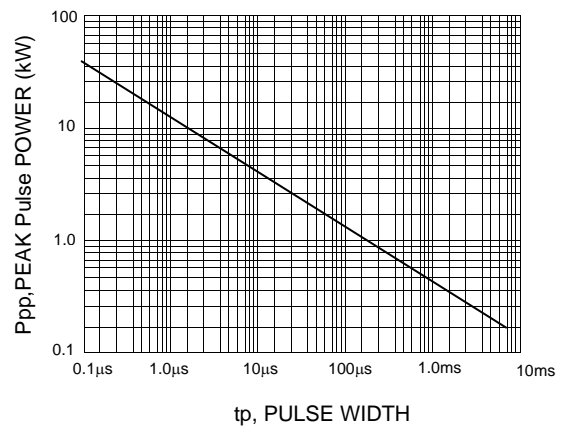
**FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3 - STEADY STATE POWER DERATING**



**FIG.4 - PULSE RATING CURVE**



**FIG.5 - PULSE WAVEFORM**

