

# BZW50 Series

Stand-off Zener Voltage: 10 - 180 Volts  
 Peak Power: 5000 Watts

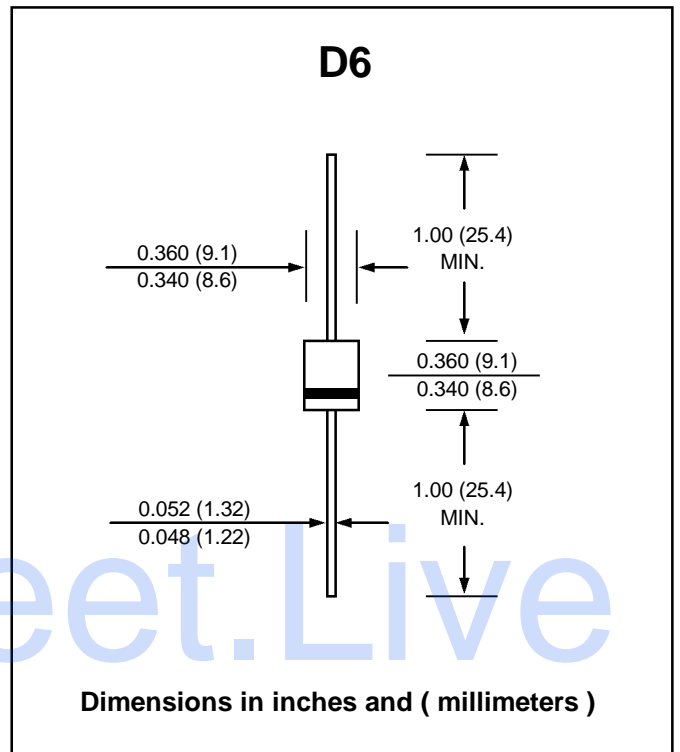
## FEATURES :

- \* 5000W (10/1000µs) Peak Pulse Power
- \* Excellent clamping capability
- \* Low incremental surge resistance
- \* Fast response time : typically less than 1.0 ps from 0 volt to  $V_{BR(min.)}$
- \* **Pb / RoHS Free**

## MECHANICAL DATA

- \* Case : Molded plastic body
- \* 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 : 2.1 grams

# TRANSIENT VOLTAGE SUPPRESSOR



## MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak pulse power dissipation <sup>(1)</sup> , $T_J$ initial = $T_a$	$P_{PK}$	5000	W
Power dissipation on infinite heat sink , $T_a = 75^\circ\text{C}$	$P_D$	6.5	W
Non repetitive surge peak forward current for unidirectional type , $t_p = 10 \text{ ms}$ , $T_J$ initial = $T_a$	$I_{FSM}$	500	A
Maximum lead temperature for soldering during 10s at 5mm from case	$T_L$	230	°C
Thermal resistance junction to lead	$R_{\theta JL}$	15	°C/W
Thermal resistance junction to ambient, L = 10mm	$R_{\theta JA}$	65	°C/W
Operating and storage temperature range	$T_J, T_{STG}$	- 65 to + 175	°C

## Note:

(1) For surge greater than the maximum values, the diode will fail in short-circuit.

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Type No.		Breakdown voltage (Note 1)			Max. Leakage current @ $V_{RM}$		Clamping voltage 10/1000 $\mu$ s		$\alpha T$ max (Note 2)	C typ (Note 3)
		$V_{BR}$	@	$I_R$	$I_{RM}$	@	$V_{RM}$	$V_{CL}$		
Unidirectional	Bidirectional	min (V)	max (V)	(mA)	( $\mu$ A)	(V)	max (V)	(A)	$10^{-4}/^{\circ}C$	(pF)
BZW50-10	BZW50-10B	11.1	13.6	1.0	5.0	10	18.8	266	7.8	24000
BZW50-12	BZW50-12B	13.3	16.3	1.0	5.0	12	22.0	227	8.4	18500
BZW50-15	BZW50-15B	16.6	20.4	1.0	5.0	15	26.9	186	8.8	13500
BZW50-18	BZW50-18B	20.0	24.4	1.0	5.0	18	32.2	155	9.2	1150
BZW50-22	BZW50-22B	24.4	29.8	1.0	5.0	22	39.4	127	9.6	8500
BZW50-27	BZW50-27B	30.0	36.6	1.0	5.0	27	48.3	103	9.8	7000
BZW50-33	BZW50-33B	36.6	44.7	1.0	5.0	33	59.0	85	10	5750
BZW50-39	BZW50-39B	43.3	53.0	1.0	5.0	39	69.4	72	10.1	4800
BZW50-47	BZW50-47B	52.0	63.6	1.0	5.0	47	83.2	60.1	10.3	4100
BZW50-56	BZW50-56B	62.2	76.0	1.0	5.0	56	99.6	50	10.4	3400
BZW50-68	BZW50-68B	75.6	92.4	1.0	5.0	68	121	41	10.5	3000
BZW50-82	BZW50-82B	91.0	111	1.0	5.0	82	145	34	10.6	2600
BZW50-100	BZW50-100B	111	136	1.0	5.0	100	179	28	10.7	2300
BZW50-120	BZW50-120B	133	163	1.0	5.0	120	215	23	10.8	1900
BZW50-150	BZW50-150B	166	204	1.0	5.0	150	269	19	10.8	1700
BZW50-180	BZW50-180B	200	244	1.0	5.0	180	322	16	10.8	1500

### Notes:

- (1) Pulse test :  $t_p < 50$  ms.
- (2)  $\Delta V_{BR} = \alpha T * (T_a - 25) * V_{BR} (25^{\circ}C)$
- (3)  $V_R = 0V$ ,  $f = 1MHz$ . For Bidirectional types, capacitance value is divided by 2.

## RATING AND CHARACTERISTIC CURVES ( BZW50 SERIES )

FIG.1 - PULSE DERATING CURVE

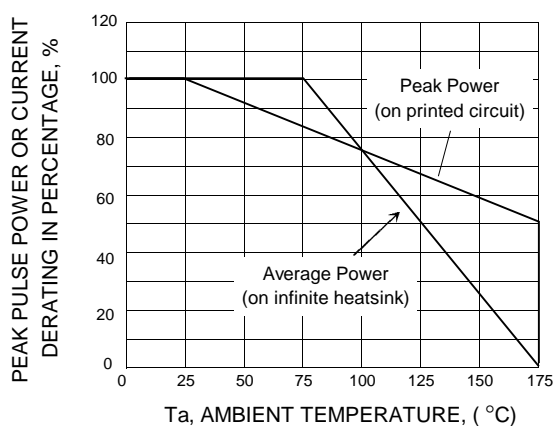


FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

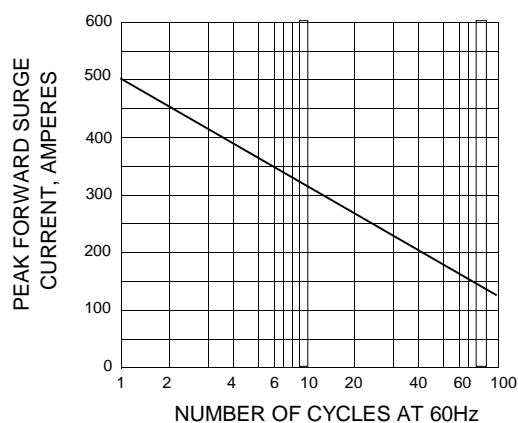


FIG.3 - STEADY STATE POWER DERATING

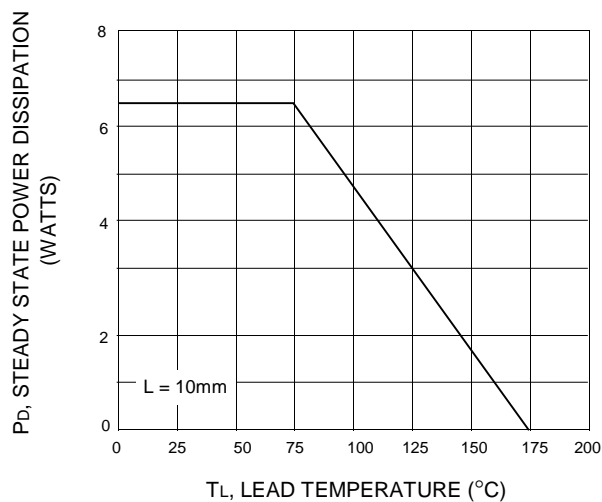


FIG.4 - PEAK PULSE POWER RATING CURVE

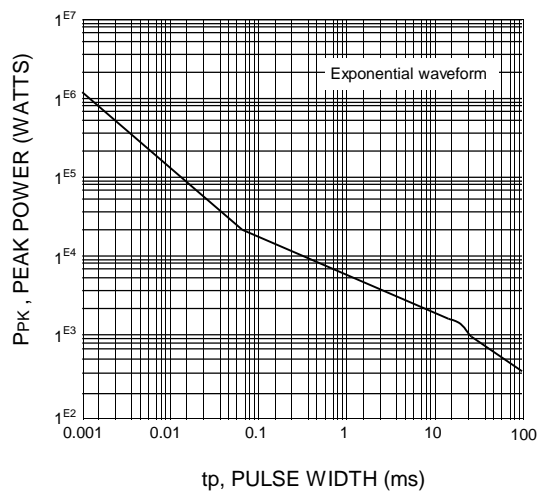


FIG.5 - PULSE WAVEFORM

