

## 400W, 5.8V - 376V Transient Voltage Suppressor

### FEATURES

- Excellent clamping capability
- Low impedance surge resistance
- 400W surge capability at 10 / 1000  $\mu$ s waveform
- Very fast response time
- Typical  $I_R$  less than 1 $\mu$ A above 10V
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21



### MECHANICAL DATA

**Case:** DO-204AL (DO-41)

Molding compound, UL flammability classification rating 94V-0

Part no. with suffix "H" means AEC-Q101 qualified

Packing code with suffix "G" means green compound (halogen-free)

**Terminal:** Pure tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

**Weight:** 0.3g (approximately)

**DO-204AL (DO-41)**

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation at $T_A=25^\circ\text{C}$ , $T_p=1\text{ms}$ (Note 1)	$P_{PK}$	400	Watts
Steady state power dissipation at $T_L=75^\circ\text{C}$ lead lengths .375", 9.5mm (Note 2)	$P_D$	1	Watts
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load (Note 3)	$I_{FSM}$	40	A
Junction to leads	$R_{\theta JL}$	60	$^\circ\text{C/W}$
Junction to ambient on printed circuit L lead=10mm	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Operating junction temperature range	$T_J$	- 55 to +175	$^\circ\text{C}$
Storage temperature range	$T_{STG}$	- 55 to +175	$^\circ\text{C}$

Note 1: Non-repetitive Current Pulse Per Fig. 3 and Derated above  $T_A=25^\circ\text{C}$  Per Fig. 2

Note 2: Mounted on 5 x 5 mm Copper Pads to Each Terminal

Note 3: 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minute Maximum

ORDERING INFORMATION					
PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX (*)	PACKAGE	PACKING
BZW04-xxx (Note 1)	H	A0	G	DO-41	3,000 / Ammo box (52mm taping)
		R0		DO-41	5,000 / 13" Paper reel
		R1		DO-41	5,000 / 13" Paper reel (Reverse)
		B0		DO-41	1,000 / Bulk packing

Note 1: "xxx" defines voltage from 5.8V (BZW04-5V8) to 376V (BZW04-376)

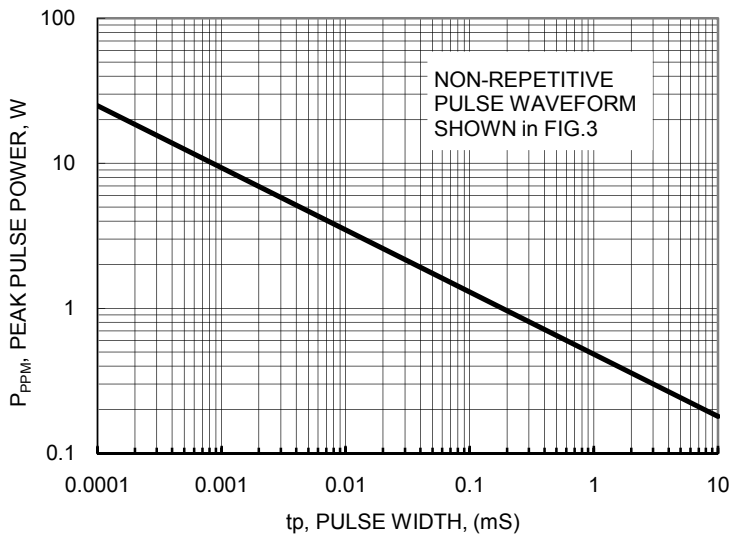
\*: Optional available

EXAMPLE					
PREFERRED P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
BZW04-94HA0G	BZW04-94	H	A0	G	AEC-Q101 qualified Green compound

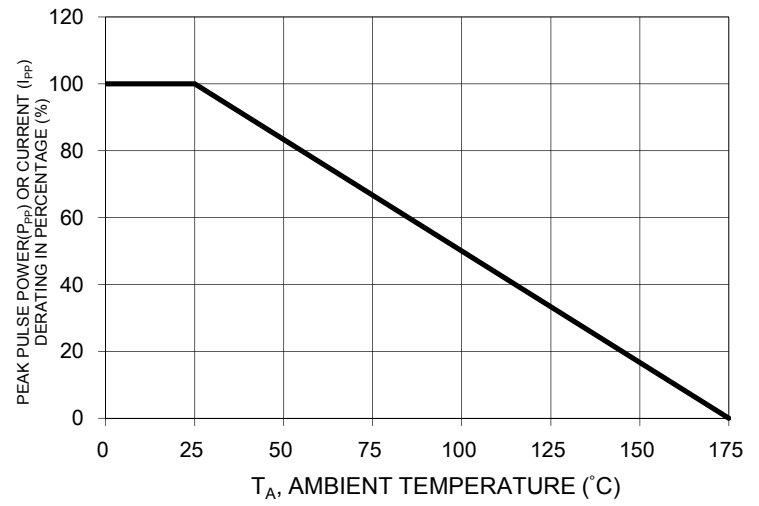
**RATINGS AND CHARACTERISTICS CURVES**

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

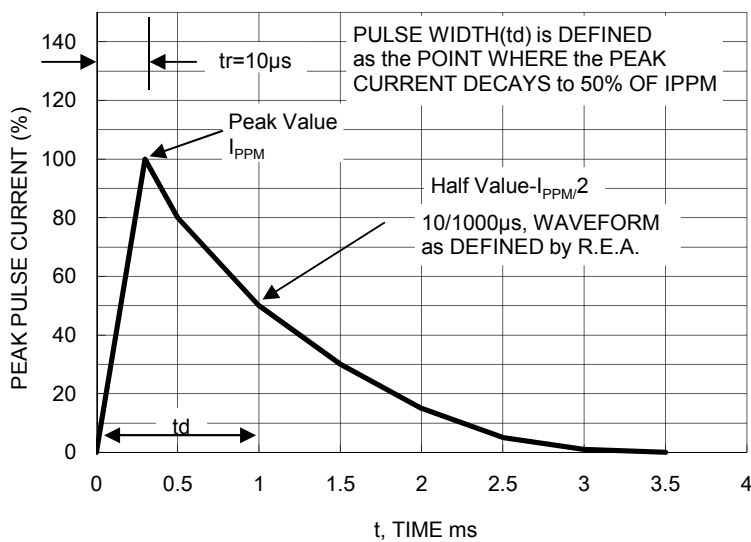
**FIG. 1 PEAK PULSE POWER RATING CURVE**



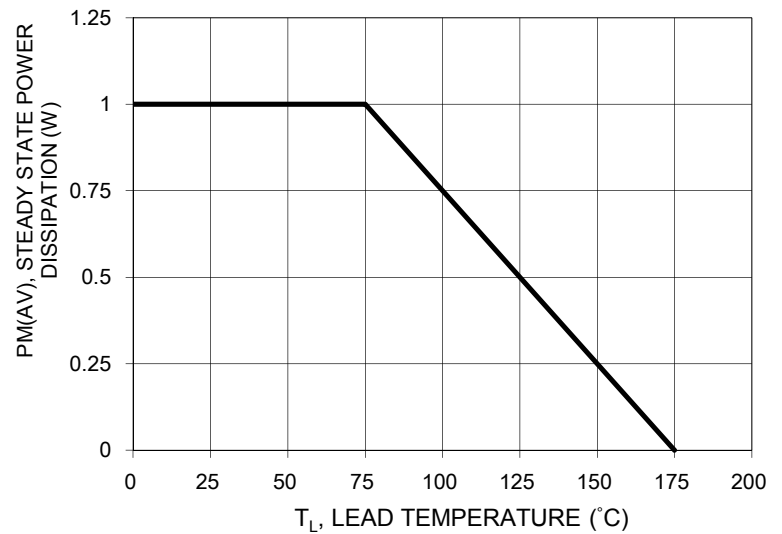
**FIG.2 PULSE DERATING CURVE**



**FIG. 3 CLAMPING POWER PULSE WAVEFORM**



**FIG.4 STEADY STATE POWER DERATING CURVE**



**FIG. 5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY**

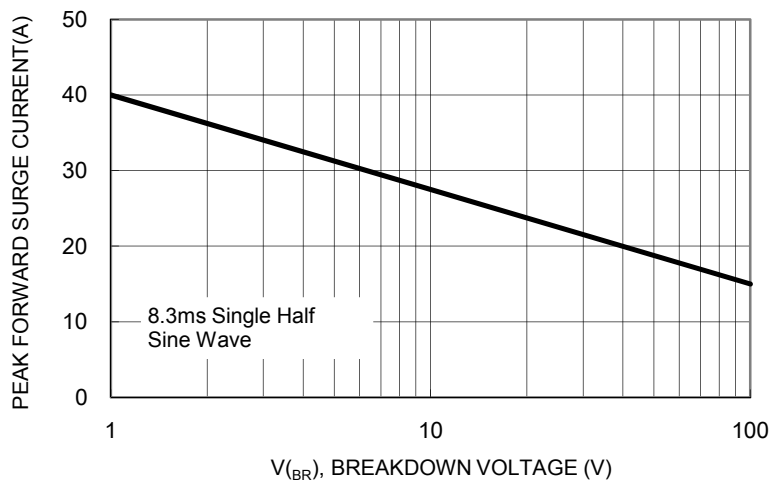


FIG. 6 TYPICAL REVERSE CHARACTERISTICS

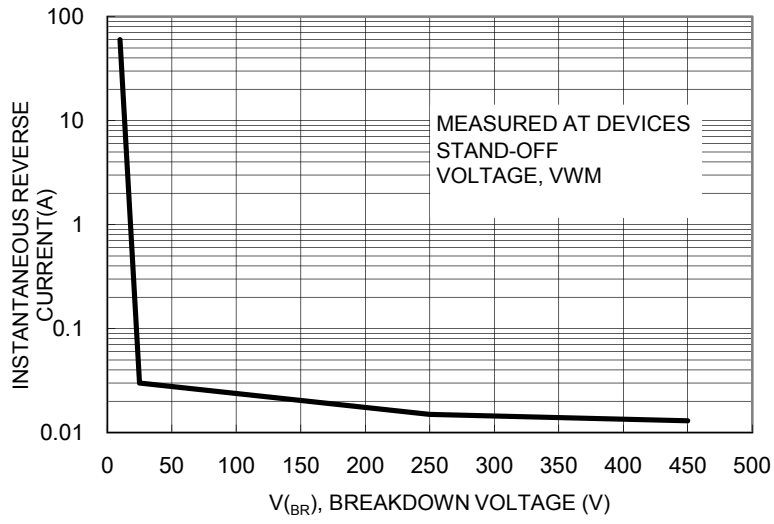
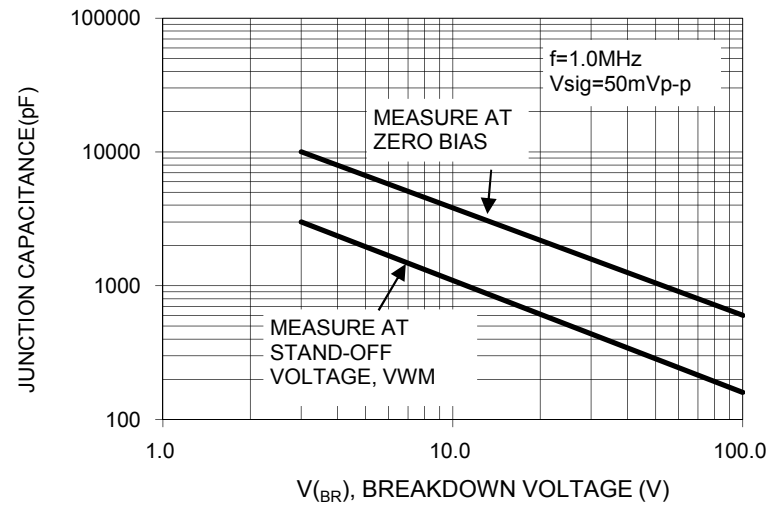


FIG.7 TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL



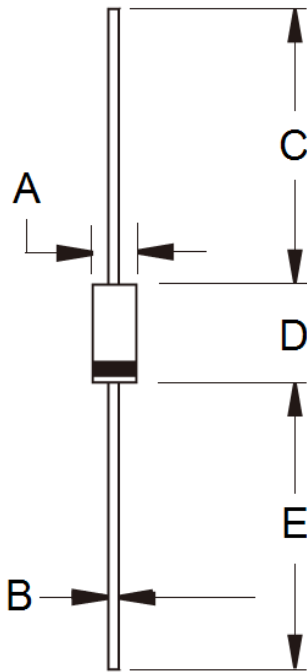
Device		Breakdown Voltage @ I <sub>T</sub> (Note 1)		Test Current	Stand-Off Voltage	Reverse Leakage @ V <sub>WM</sub>	Maximum Peak Pulse Current	Maximum Clamping Voltage @ I <sub>PPM</sub>	Maximum Temperature Coefficient
		V <sub>BR</sub>							
		Unidirectional	Bidirectional	Min	Max	mA	V	μA	A
BZW04-5V8	BZW04-5V8B	6.45	7.14	10	5.80	1000	38.0	10.5	0.057
BZW04-6V4	BZW04-6V4B	7.13	7.88	10	6.40	500	35.4	11.3	0.061
BZW04-7V0	BZW04-7V0B	7.79	8.61	10	7.02	200	33.0	12.1	0.065
BZW04-7V8	BZW04-7V8B	8.65	9.55	1	7.78	50	30.0	13.4	0.068
BZW04-8V5	BZW04-8V5B	9.50	10.5	1	8.55	10	27.6	14.5	0.073
BZW04-9V4	BZW04-9V4B	10.5	11.6	1	9.40	5	25.7	15.6	0.075
BZW04-10	BZW04-10B	11.4	12.6	1	10.2	5	24.0	16.7	0.078
BZW04-11	BZW04-11B	12.4	13.7	1	11.1	5	22.0	18.2	0.081
BZW04-13	BZW04-13B	14.3	15.8	1	12.8	5	19.0	21.2	0.084
BZW04-14	BZW04-14B	15.2	16.8	1	13.6	1	17.8	22.5	0.083
BZW04-15	BZW04-15B	17.1	18.9	1	15.3	1	16.0	25.2	0.088
BZW04-17	BZW04-17B	19.0	21.0	1	17.1	1	14.5	27.7	0.090
BZW04-19	BZW04-19B	20.9	23.1	1	18.8	1	13.0	30.6	0.092
BZW04-20	BZW04-20B	22.8	25.2	1	20.5	1	12.0	33.2	0.094
BZW04-23	BZW04-23B	25.7	28.4	1	23.1	1	10.7	37.5	0.096
BZW04-26	BZW04-26B	28.5	31.5	1	25.6	1	9.6	41.5	0.097
BZW04-28	BZW04-28B	31.4	34.7	1	28.2	1	8.8	45.7	0.098
BZW04-31	BZW04-31B	34.2	37.8	1	30.8	1	8.0	49.9	0.099
BZW04-33	BZW04-33B	37.1	41.0	1	33.3	1	7.4	53.9	0.100
BZW04-37	BZW04-37B	40.9	45.2	1	36.8	1	6.7	59.3	0.101
BZW04-40	BZW04-40B	44.7	49.4	1	40.2	1	6.2	64.8	0.101
BZW04-44	BZW04-44B	48.5	53.6	1	43.6	1	5.7	70.1	0.102
BZW04-48	BZW04-48B	53.2	58.8	1	47.8	1	5.2	77.0	0.103
BZW04-53	BZW04-53B	58.9	65.1	1	53.0	1	4.7	85.0	0.104
BZW04-58	BZW04-58B	64.6	71.4	1	58.1	1	4.3	92.0	0.104
BZW04-64	BZW04-64B	71.3	78.8	1	64.1	1	3.9	103	0.105
BZW04-70	BZW04-70B	77.9	86.1	1	70.1	1	3.5	113	0.105
BZW04-78	BZW04-78B	86.5	95.5	1	78.0	1	3.2	125	0.105
BZW04-85	BZW04-85B	95	105	1	85.5	1	2.9	137	0.106
BZW04-94	BZW04-94B	105	116	1	94.0	1	2.6	152	0.107
BZW04-102	BZW04-102B	114	126	1	102	1	2.4	165	0.107
BZW04-110	BZW04-110B	124	137	1	111	1	2.2	179	0.107
BZW04-128	BZW04-128B	143	158	1	128	1	2.0	207	0.108
BZW04-136	BZW04-136B	152	168	1	136	1	1.8	219	0.108
BZW04-145	BZW04-145B	161	179	1	145	1	1.7	234	0.108
BZW04-154	BZW04-154B	171	189	1	154	1	1.6	246	0.108
BZW04-171	BZW04-171B	190	210	1	171	1	1.5	274	0.108
BZW04-188	BZW04-188B	209	231	1	188	1	1.4	301	0.108
BZW04-213	BZW04-213B	237	263	1	213	1	1.2	344	0.110
BZW04-239	BZW04-239B	266	294	1	239	1	1.1	384	0.110
BZW04-256	BZW04-256B	285	315	1	256	1	1.0	414	0.110
BZW04-273	BZW04-273B	304	336	1	273	1	0.9	438	0.110
BZW04-299	BZW04-299B	332	368	1	299	1	0.8	482	0.110
BZW04-342	BZW04-342B	380	420	1	342	1	0.75	548	0.110
BZW04-376	BZW04-376B	418	462	1	376	1	0.67	603	0.110

Notes:

1. Pulse test : tp<50ms
2. All terms and symbols are consistent with ANSI/IEEE C62.35
3. For bipolar types having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled.

PACKAGE OUTLINE DIMENSIONS

DO-204AL (DO-41)



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.00	2.70	0.079	0.106
B	0.71	0.86	0.028	0.034
C	25.40	-	1.000	-
D	4.20	5.20	0.165	0.205
E	25.40	-	1.000	-

MARKING DIAGRAM



P/N = Specific Device Code  
 G = Green Compound  
 YWW = Date Code  
 F = Factory Code

Note: Cathode band for uni-directional products only

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