600W, 12.8V - 376V Transient Voltage Suppressor

FEATURES

- AEC-Q101 qualified available
- Excellent clamping capability
- Low dynamic impedance
- 600W surge capability at 10/1000μs waveform
- Fast response time: Typically less than 1.0ps from 0 volt to V_{BR} for unidirectional and 5.0ns for bidirectional
- Typical I_R less than 1μA above 10V
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Protect sensitive circuit from damage by high voltage transients
- Lighting, ESD transient voltage protection of IC, system
- Inductive switching load protection of IC, system
- Electrical Fast Transient Immunity protection of IC, system

MECHANICAL DATA

- Case: DO-204AC (DO-15)
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.400g (approximately)

KEY PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{WM}	12.8 - 376	V
V_{BR} (uni - directional)	14.3 - 462	V
V_{BR} (bi - directional)	14.3 - 462	V
P_{PK}	600	W
$T_{J\ MAX}$	175	°C
Package	DO-204AC (DO-15)	

Pb-Free RoHS COMPLIANT HALOGEN FREE

DO-204AC (DO-15)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Peak power dissipation at T_A = 25°C, Tp = 1ms[(1)]	P_{PK}	600	W
Steady state power dissipation at T_L = 75°C lead lengths .375", 9.5mm[(2)]	P_D	1.7	W
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load[(3)]	I_{FSM}	100	A
Operating junction temperature range	T_J	-55 to +175	°C
Storage temperature range	T_{STG}	-55 to +175	°C

Note:

1. Non-repetitive current pulse per Fig.3

THERMAL PERFORMANCE			
PARAMETER	**SYMBOL**	**TYP**	**UNIT**
Junction-to-lead thermal resistance	$R_{\Theta JL}$	60	°C/W
Junction-to-ambient thermal resistance, L lead = 10mm	$R_{\Theta JA}$	100	°C/W

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)												
Part Number		**Breakdown voltage V_{BR}@I_T (V)(1)**			**Test current I_T (mA)**	**Working stand-off voltage V_{WM} (V)**	**Reverse leakage @ V_{WM} I_D (uA)**	**Clamping Voltage @I_{PPM} (10/1000us)**		**Clamping Voltage @I_{PPM} (8/20us)**		**Maximum temperature coefficient(2)**
		V_{BR}			I_T	V_{WM}	I_R	V_C	I_{PPM}	V_C	I_{PPM}	V_{BR}
		V			mA	V	μA	V	A	V	A	%/°C
Uni	Bi	Min	Nom	Max			Max					
BZW06-13	BZW06-13B	14.3	15	15.8	1	12.8	5	21.2	28.0	27.2	147	0.084
BZW06-15	BZW06-15B	17.1	18	18.9	1	15.3	1	25.2	24.0	32.5	123	0.088
BZW06-19	BZW06-19B	20.9	22	23.1	1	18.8	1	30.6	19.6	39.3	102	0.092
BZW06-20	BZW06-20B	22.8	24	25.2	1	20.5	1	33.2	28.0	42.8	93	0.094
BZW06-23	BZW06-23B	25.7	27	28.4	1	23.1	1	37.5	16.0	48.3	83	0.096
BZW06-26	BZW06-26B	28.5	30	31.5	1	25.6	1	41.5	14.5	53.5	75	0.097
BZW06-28	BZW06-28B	31.4	33	34.7	1	28.2	1	45.7	13.1	59.0	68	0.098
BZW06-31	BZW06-31B	34.2	36	37.8	1	30.8	1	49.9	12.0	64.3	62	0.099
BZW06-33	BZW06-33B	37.1	39	47.0	1	33.3	1	53.9	11.1	69.7	57	0.100
BZW06-37	BZW06-37B	40.9	43	45.2	1	36.8	1	59.3	10.1	75.0	52	0.101
BZW06-40	BZW06-40B	44.7	47	49.4	1	40.2	1	64.8	9.3	84.0	48	0.101
BZW06-48	BZW06-48B	53.2	56	58.8	1	47.8	1	77.0	7.8	100	40	0.103
BZW06-58	BZW06-58B	64.6	68	71.4	1	58.1	1	92.0	6.5	121	33	0.104
BZW06-70	BZW06-70B	77.9	82	86.1	1	70.1	1	113	5.3	146	27	0.105
BZW06-85	BZW06-85B	95	100	105	1	85.5	1	137	4.4	178	23	0.106
BZW06-102	BZW06-102B	114	120	126	1	102	1	165	3.6	212	19	0.107
BZW06-128	BZW06-128B	143	150	158	1	128	1	207	2.9	265	15	0.108
BZW06-154	BZW06-154B	171	180	189	1	154	1	246	2.4	317	13	0.108
BZW06-171	BZW06-171B	190	200	210	1	171	1	274	2.2	353	11	0.108
BZW06-188	BZW06-188B	209	220	231	1	188	1	301	2.0	388	10.3	0.108
BZW06-213	BZW06-213B	237	250	263	1	213	1	344	2.0	442	9.0	0.110
BZW06-256	BZW06-256B	285	300	315	1	256	1	414	1.6	529	7.6	0.110
BZW06-273	BZW06-273B	304	320.0	336	1	273	1	438	1.6	564	7.1	0.110
BZW06-299	BZW06-299B	332	350.0	368	1	299	1	482	1.6	618	6.5	0.110
BZW06-342	BZW06-342B	380	400	420	1	342	1	548	1.3	706	5.7	0.110
BZW06-376	BZW06-376B	418	440	462	1	376	1	603	1.3	776	5.7	0.110

Notes:

1. Pulse test：tp < 50ms
2. $\triangle V_{BR} = \alpha T * (Tamb - 25) * V_{BR}(25°C)$
3. V_R = 0V, F = 1MHz, For bidirectional types, capacitance value is divided by 2.

ORDERING INFORMATION

ORDERING CODE[1][2]	PACKAGE	PACKING
BZW06-x	DO-204AC (DO-15)	3,500 / Tape & Reel
BZW06-x A0G	DO-204AC (DO-15)	1,500 / Ammo box
BZW06-xH	DO-204AC (DO-15)	3,500 / Tape & Reel
BZW06-xHA0G	DO-204AC (DO-15)	1,500 / Ammo box

Notes:

1. “x” defines voltage from 12.8V (BZW06-13) to 376V (BZW06-376)
2. “H” means AEC-Q101 qualified

CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.1 Peak Pulse Power Rating Curve

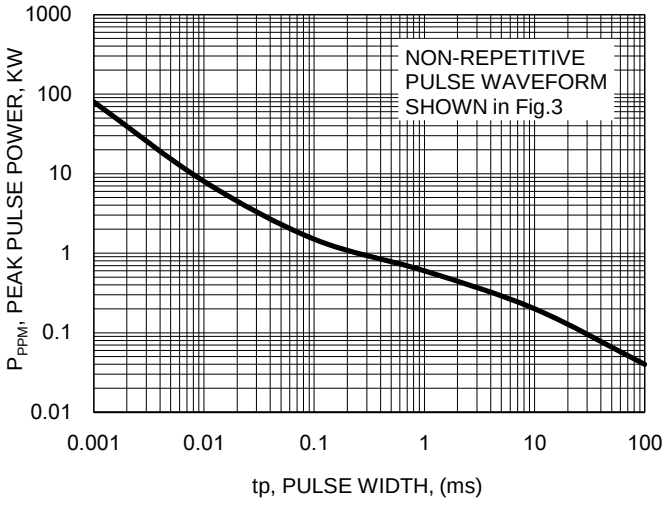


Fig.2 Pulse Derating Curve

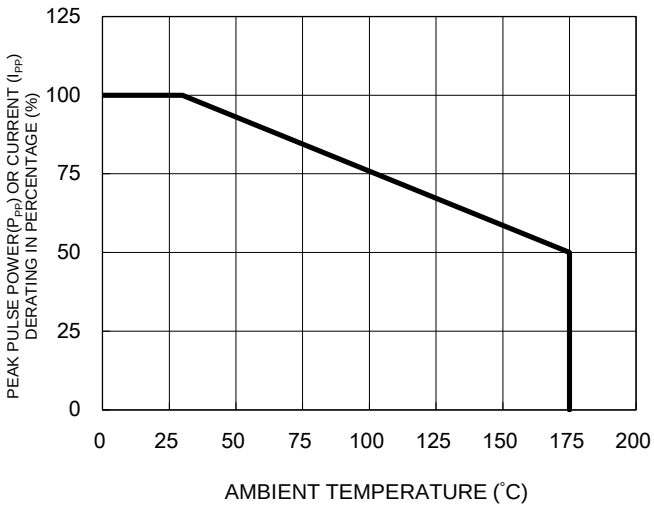


Fig.3 Clamping Power Pulse Waveform

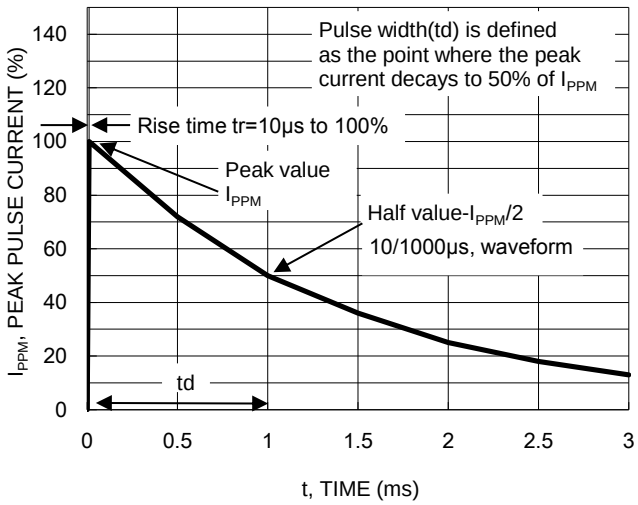
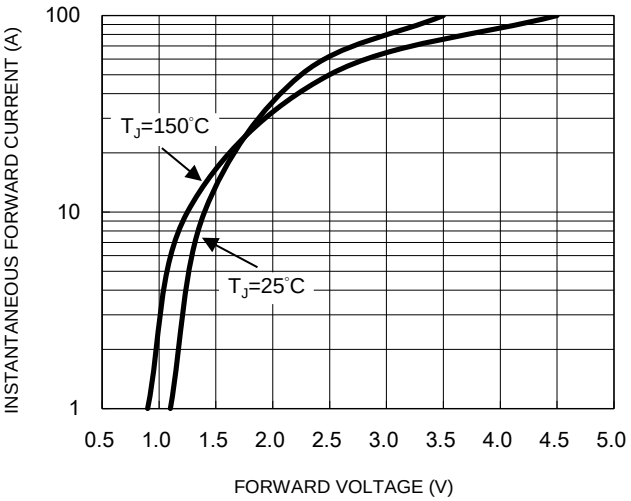


Fig.4 Typical Junction Capacitance



CHARACTERISTICS CURVES

(T_A = 25°C unless otherwise noted)

Fig.5 Typical Junction Capacitance

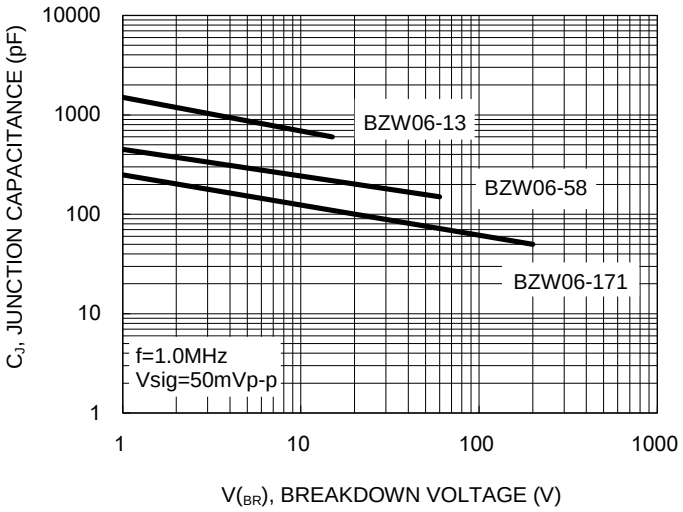


Fig.6 Typical Junction Capacitance

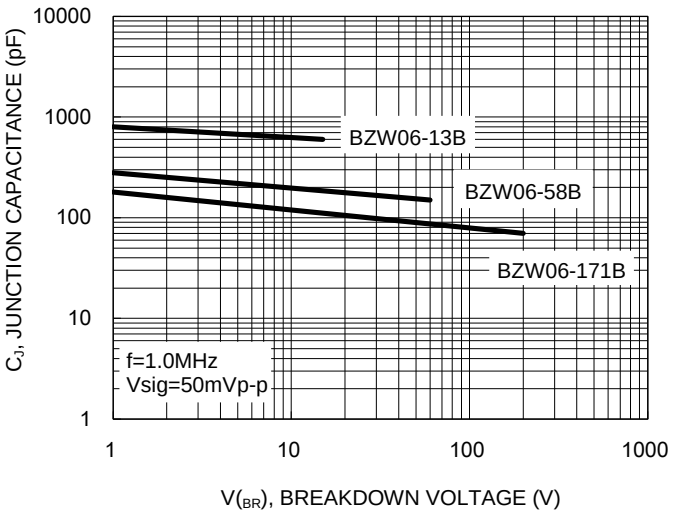


Fig.7 Typical Transient Thermal Impedance

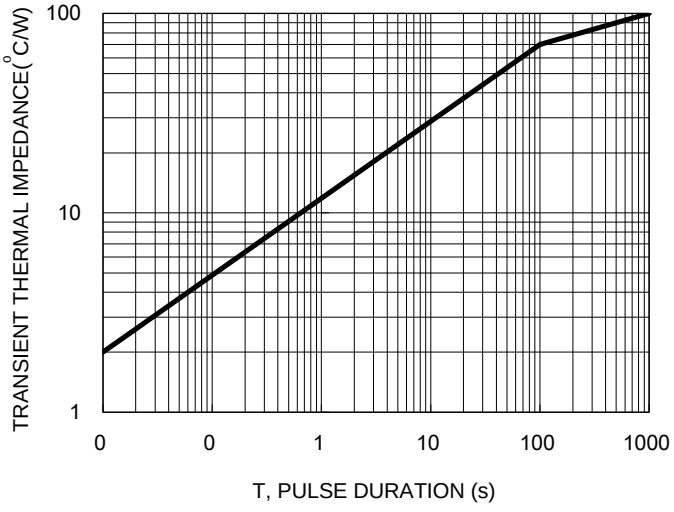
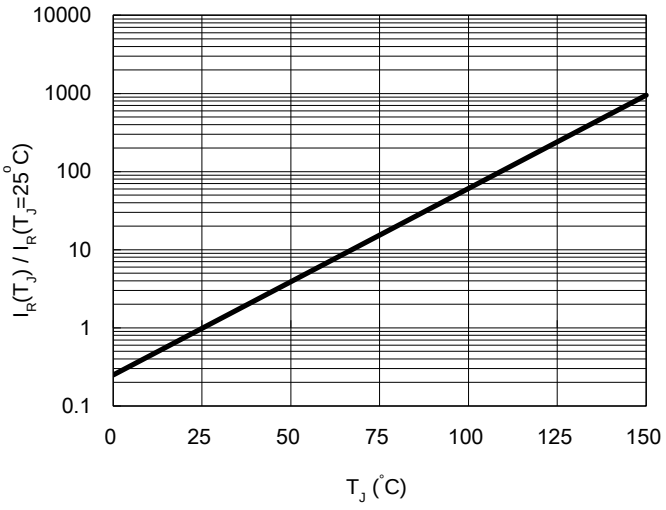


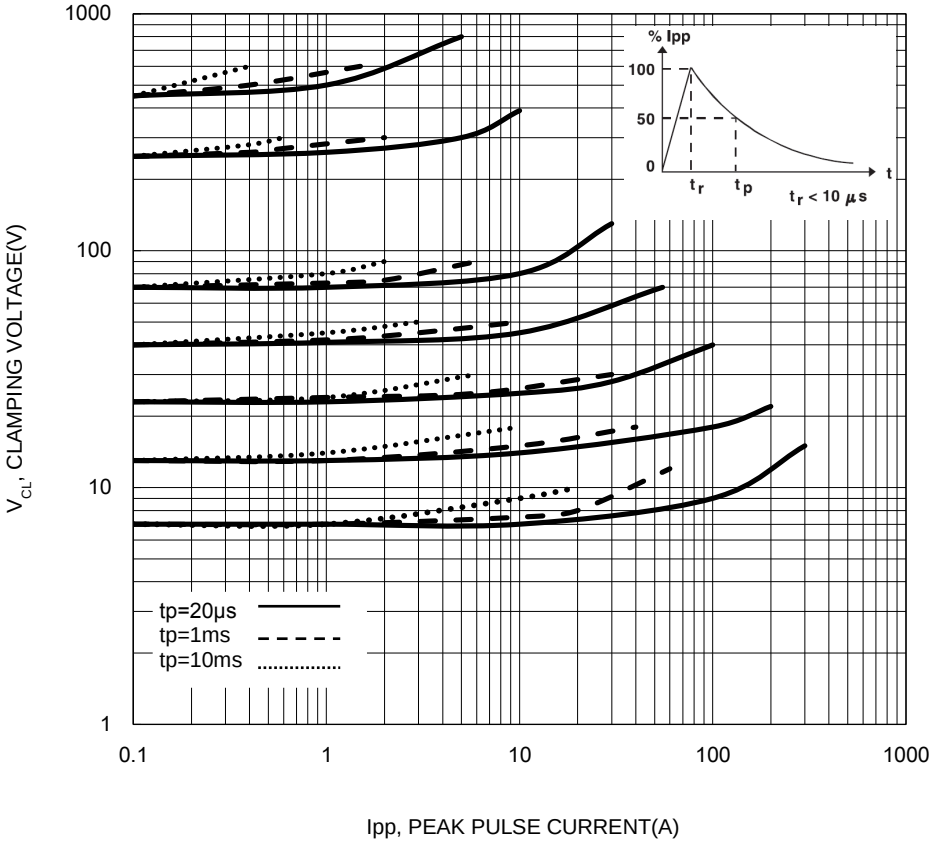
Fig.8 Typical Junction Capacitance



CHARACTERISTICS CURVES

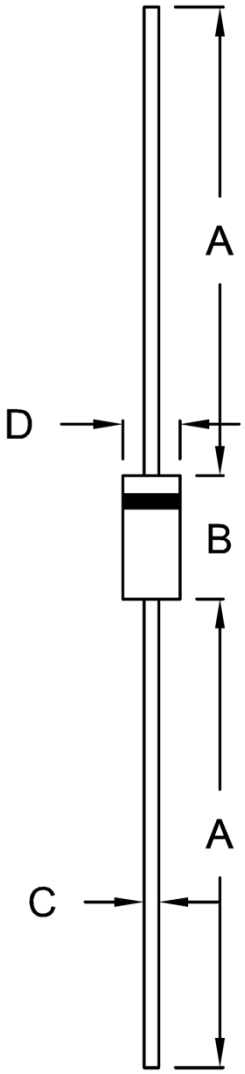
(T_A = 25°C unless otherwise noted)

Fig.9 Clamping Voltage Curve



PACKAGE OUTLINE DIMENSIONS

DO-204AC (DO-15)



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	25.40	-	1.000	-
B	5.80	7.60	0.228	0.299
C	0.70	0.90	0.028	0.035
D	2.60	3.60	0.102	0.142

MARKING DIAGRAM

Cathode band for uni-directional products only

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

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