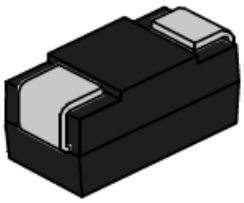
10BJxxAH、10BJxxCAH 1000W Transient Voltage Suppressor

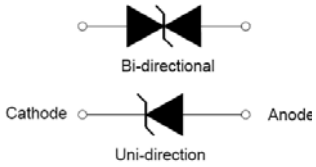
Rev.1.1

DESCRIPTION:

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.



SMB



Symbol

FEATURES:

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 1000W peak pulse power capability at 10/1000μs waveform.
- ✧ Typical I_R less than 1μA above 10V.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature to reflow soldering: 260℃/40s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260℃.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ For surface mounted applications in order to optimize board space.
- ✧ High reliability application and automotive grade (AEC-Q101 qualified).

ABSOLUTE MAXIMUM RATINGS(T_A=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage operating junction temperature range	T_{STG}/T_J	-55 to +150	℃
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation at 10/1000μs waveform	P_{PP}	1000	W
Maximum instantaneous forward voltage at 50A for unidirectional	V_F	3.5	V
Peak forward surge current, 8.3ms single half sine wave(Note 1)	I_{FSM}	120	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	℃/W

Notes:

1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

MARKING

C5: Device Marking Code
1409: In ninth week, 2014

ELECTRICAL CHARACTERISTICS (T_A=25℃)

Part Number		Marking		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	Uni	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
10BJ5.0AH	10BJ5.0CAH	A5	C5	5.0	200	6.40	7.00	10	9.2	108.7
10BJ6.0AH	10BJ6.0CAH	A6	C6	6.0	200	6.67	7.37	10	10.3	97.1
10BJ6.5AH	10BJ6.5CAH	A6V	C6V	6.5	120	7.22	7.98	10	11.2	89.3
10BJ7.0AH	10BJ7.0CAH	A7	C7	7.0	80	7.78	8.60	10	12.0	83.4
10BJ7.5AH	10BJ7.5CAH	A7V	C7V	7.5	50	8.33	9.21	1	12.9	77.6
10BJ8.0AH	10BJ8.0CAH	A8	C8	8.0	20	8.89	9.83	1	13.6	73.6
10BJ8.5AH	10BJ8.5CAH	A8V	C8V	8.5	10	9.44	10.40	1	14.4	69.5
10BJ9.0AH	10BJ9.0CAH	A9	C9	9.0	5	10.00	11.10	1	15.4	65.0
10BJ10AH	10BJ10CAH	A10	C10	10	2	11.10	12.30	1	17.0	58.9
10BJ11AH	10BJ11CAH	A11	C11	11	1	12.20	13.50	1	18.2	55.0
10BJ12AH	10BJ12CAH	A12	C12	12	1	13.30	14.70	1	19.9	50.3
10BJ13AH	10BJ13CAH	A13	C13	13	1	14.40	15.90	1	21.5	46.6
10BJ14AH	10BJ14CAH	A14	C14	14	1	15.60	17.20	1	23.2	43.1
10BJ15AH	10BJ15CAH	A15	C15	15	1	16.70	18.50	1	24.4	41.0
10BJ16AH	10BJ16CAH	A16	C16	16	1	17.80	19.70	1	26.0	38.5
10BJ17AH	10BJ17CAH	A17	C17	17	1	18.90	20.90	1	27.6	36.3
10BJ18AH	10BJ18CAH	A18	C18	18	1	20.00	22.10	1	29.2	34.3
10BJ20AH	10BJ20CAH	A20	C20	20	1	22.20	24.50	1	32.4	30.9
10BJ22AH	10BJ22CAH	A22	C22	22	1	24.40	26.90	1	35.5	28.2
10BJ24AH	10BJ24CAH	A24	C24	24	1	26.70	29.50	1	38.9	25.7
10BJ26AH	10BJ26CAH	A26	C26	26	1	28.90	31.90	1	42.1	23.8
10BJ28AH	10BJ28CAH	A28	C28	28	1	31.10	34.40	1	45.4	22.1
10BJ30AH	10BJ30CAH	A30	C30	30	1	33.30	36.80	1	48.4	20.7

ELECTRICAL CHARACTERISTICS (T_A=25℃, continued)

Part Number		Marking		V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Uni-Polar	Bi-Polar	Uni	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
10BJ33AH	10BJ33CAH	A33	C33	33	1	36.70	40.60	1	53.3	18.8
10BJ36AH	10BJ36CAH	A36	C36	36	1	40.00	44.20	1	58.1	17.2
10BJ40AH	10BJ40CAH	A40	C40	40	1	44.40	49.10	1	64.5	15.5
10BJ43AH	10BJ43CAH	A43	C43	43	1	47.80	52.80	1	69.4	14.4
10BJ45AH	10BJ45CAH	A45	C45	45	1	50.00	55.30	1	72.7	13.8
10BJ48AH	10BJ48CAH	A48	C48	48	1	53.30	58.90	1	77.4	13.0
10BJ51AH	10BJ51CAH	A51	C51	51	1	56.70	62.70	1	82.4	12.2
10BJ54AH	10BJ54CAH	A54	C54	54	1	60.00	66.30	1	87.1	11.5
10BJ58AH	10BJ58CAH	A58	C58	58	1	64.40	71.20	1	93.6	10.7
10BJ60AH	10BJ60CAH	A60	C60	60	1	66.70	73.70	1	96.8	10.3
10BJ64AH	10BJ64CAH	A64	C64	64	1	71.10	78.60	1	103.0	9.7
10BJ70AH	10BJ70CAH	A70	C70	70	1	77.80	86.00	1	113.0	8.9
10BJ75AH	10BJ75CAH	A75	C75	75	1	83.30	92.10	1	121.0	8.3
10BJ78AH	10BJ78CAH	A78	C78	78	1	86.70	95.80	1	126.0	7.9
10BJ85AH	10BJ85CAH	A85	C85	85	1	94.40	104.0	1	137.0	7.3
10BJ90AH	10BJ90CAH	A90	C90	90	1	100.0	111.0	1	146.0	6.9
10BJ100AH	10BJ100CAH	A100	C100	100	1	111.0	123.0	1	162.0	6.2
10BJ110AH	10BJ110CAH	A110	C100	110	1	122.0	135.0	1	177.0	5.6
10BJ120AH	10BJ120CAH	A120	C120	120	1	133.0	147.0	1	193.0	5.2
10BJ130AH	10BJ130CAH	A130	C130	130	1	144.0	159.0	1	209.0	4.8
10BJ150AH	10BJ150CAH	A150	C150	150	1	167.0	185.0	1	243.0	4.2
10BJ160AH	10BJ160CAH	A160	C160	160	1	178.0	197.0	1	259.0	3.9
10BJ170AH	10BJ170CAH	A170	C170	170	1	189.0	209.0	1	275.0	3.7
10BJ180AH	10BJ180CAH	A180	C180	180	1	201.0	222.0	1	292.0	3.5
10BJ190AH	10BJ190CAH	A190	C190	190	1	211.0	234.0	1	307.0	3.3
10BJ200AH	10BJ200CAH	A200	C200	200	1	224.0	247.0	1	324.0	3.1

①Surge waveform: 10/1000μs

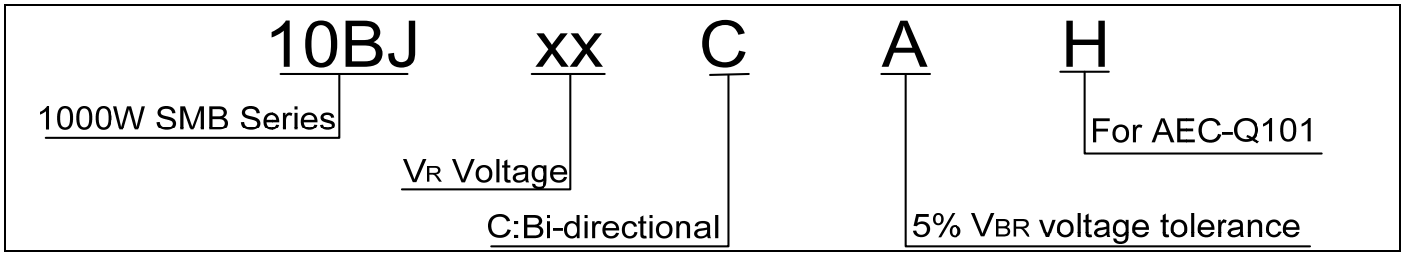
V_R: Stand-off voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

I_R: Reverse leakage current

ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES (T_A=25℃, unless otherwise noted)

FIG.1:V- I curve characteristics (Uni-directional)

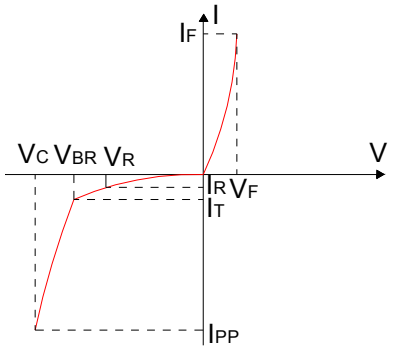


FIG.2:V- I curve characteristics (Bi-directional)

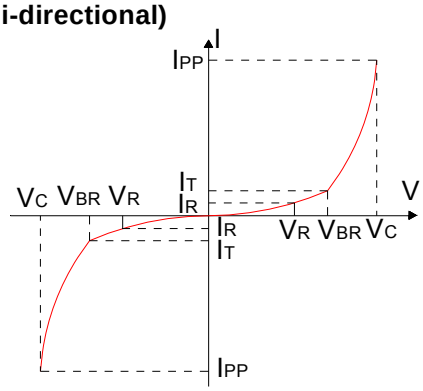


FIG.3: Pulse waveform

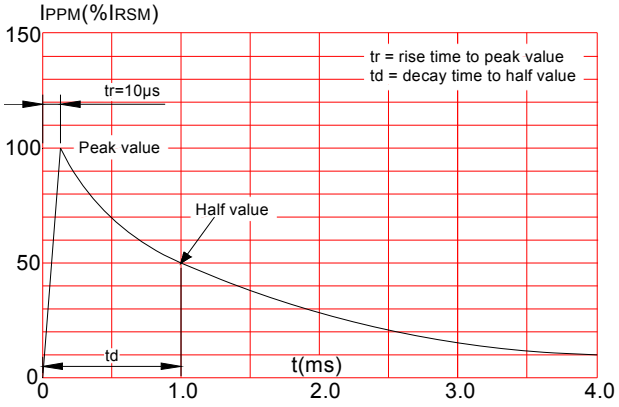


FIG.4: Pulse derating curve

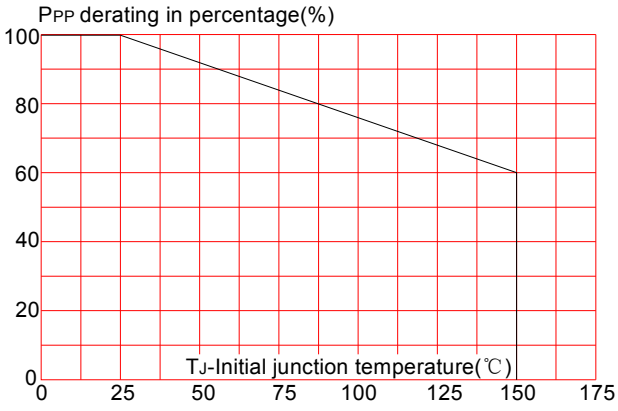
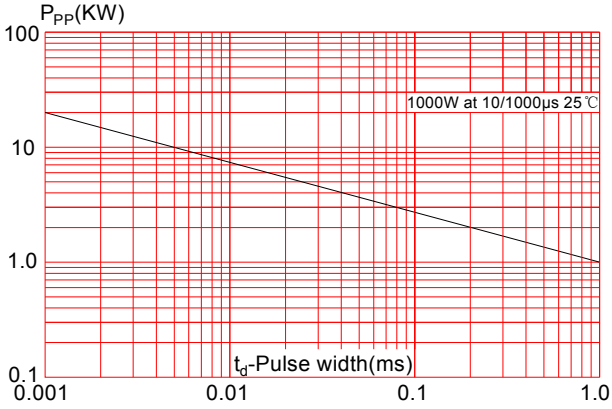
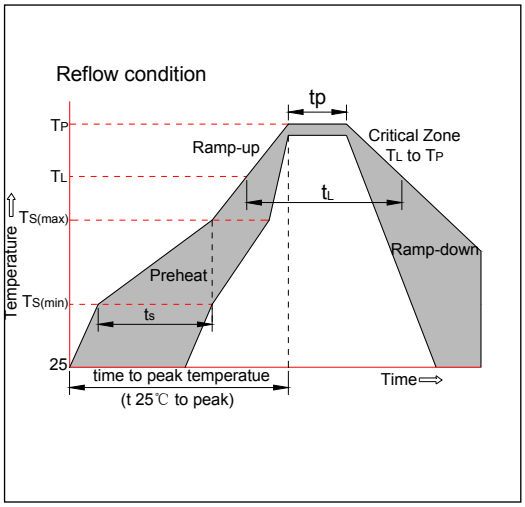


FIG.5:Peak pulse power dissipation vs. pulse width

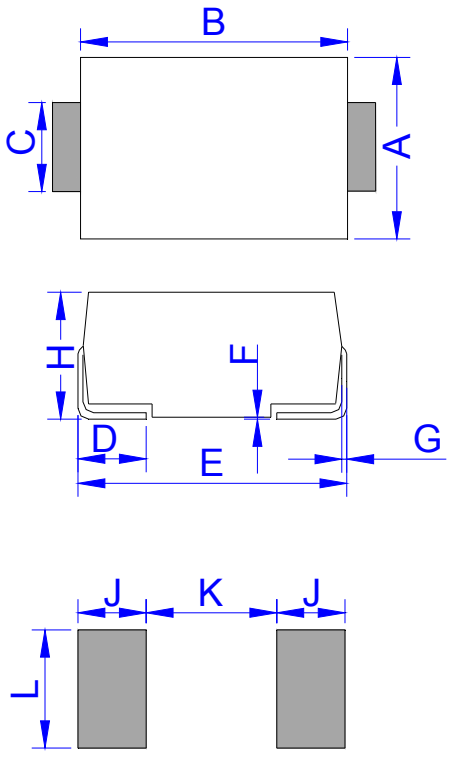


SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquidus)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃



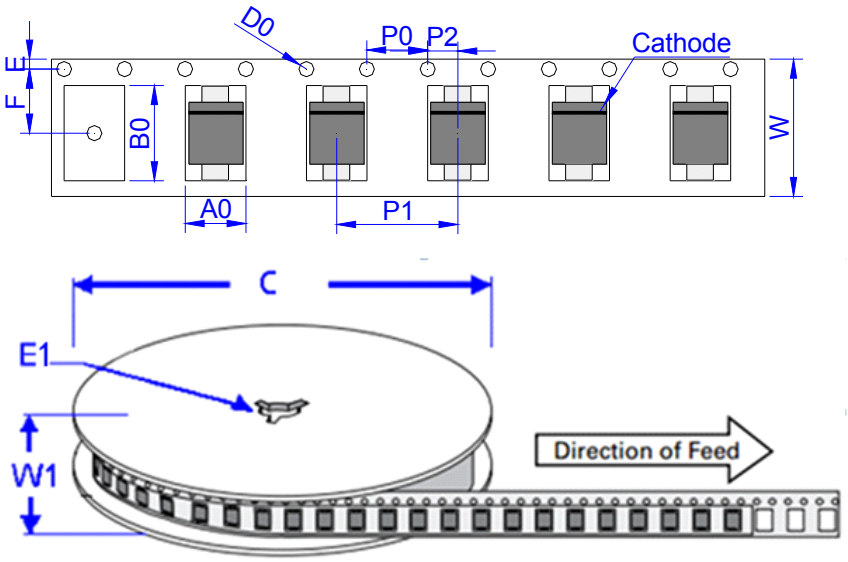
PACKAGE MECHANICAL DATA



DO-214AA (SMB)

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.30	3.94	0.130	0.155
B	4.30	4.80	0.169	0.189
C	1.90	2.20	0.075	0.087
D	0.95	1.52	0.037	0.060
E	5.20	5.60	0.205	0.220
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.10	2.40	0.083	0.094
J	2.20		0.087	
K		2.60		0.102
L	2.30		0.091	

TAPE AND REEL SPECIFICATION-SMB



Ref.	Dimensions	
	Millimeters	Inches
A0	3.76 ± 0.3	0.148 ± 0.012
B0	5.69± 0.3	0.224 ± 0.012
C	330.0	13.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524± 0.012
F	5.5 ± 0.2	0.217 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	8.00 ± 0.2	0.3145 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	12.0± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
10BJxxAH/CAH	0.098	3,000	48,000	13 inch reel pack

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