

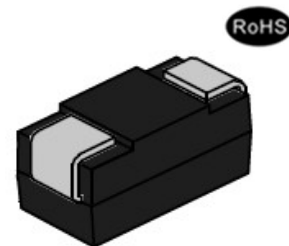


10BJxx(C)A-AU Series 1000W Transient Voltage Suppressor

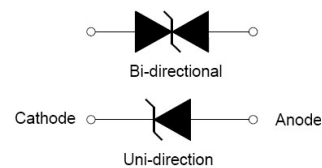
Rev.1.0

DESCRIPTION

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



SMB



Symbol

FEATURES

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 1000W peak pulse power capability at 10/1000 μ s waveform.
- ✧ Typical I_R less than 1 μ A above 10V.
- ✧ Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- ✧ High temperature to reflow soldering: 260 $^{\circ}$ C/40s at terminals.
- ✧ Plastic package has underwriters laboratory flammability 94V-0.
- ✧ Meets MSL level 1, per J-STD-020, LF maximum peak of 260 $^{\circ}$ C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ IEC61000-4-2 (ESD) \pm 30kV (air), \pm 30kV (contact).
- ✧ For surface mounted applications in order to optimize board space.
- ✧ High reliability application and automotive grade (AEC-Q101 qualified).

ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}$ C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage operating junction temperature range	T_{STG}/T_J	-55 to +150	$^{\circ}$ C
Steady state power dissipation at $T_L=75^{\circ}$ C	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation at 10/1000 μ s 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	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	$^{\circ}$ C/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



C10: Device Marking Code
2236: the 36th week, 2022

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Part Number		Marking		V_R	$I_R@V_R$	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	$I_{PP}^{\textcircled{1}}$
Uni-Polar	Bi-Polar	Uni	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
10BJ10A-AU	10BJ10CA-AU	A10	C10	10.0	2	11.10	12.30	1	17.0	58.9
10BJ11A-AU	10BJ11CA-AU	A11	C11	11.0	1	12.20	13.50	1	18.2	55.0
10BJ12A-AU	10BJ12CA-AU	A12	C12	12.0	1	13.30	14.70	1	19.9	50.3
10BJ13A-AU	10BJ13CA-AU	A13	C13	13.0	1	14.40	15.90	1	21.5	46.6
10BJ14A-AU	10BJ14CA-AU	A14	C14	14.0	1	15.60	17.20	1	23.2	43.1
10BJ15A-AU	10BJ15CA-AU	A15	C15	15.0	1	16.70	18.50	1	24.4	41.0
10BJ16A-AU	10BJ16CA-AU	A16	C16	16.0	1	17.80	19.70	1	26.0	38.5
10BJ17A-AU	10BJ17CA-AU	A17	C17	17.0	1	18.90	20.90	1	27.6	36.3
10BJ18A-AU	10BJ18CA-AU	A18	C18	18.0	1	20.00	22.10	1	29.2	34.3
10BJ20A-AU	10BJ20CA-AU	A20	C20	20.0	1	22.20	24.50	1	32.4	30.9
10BJ22A-AU	10BJ22CA-AU	A22	C22	22.0	1	24.40	26.90	1	35.5	28.2
10BJ24A-AU	10BJ24CA-AU	A24	C24	24.0	1	26.70	29.50	1	38.9	25.7
10BJ26A-AU	10BJ26CA-AU	A26	C26	26.0	1	28.90	31.90	1	42.1	23.8
10BJ28A-AU	10BJ28CA-AU	A28	C28	28.0	1	31.10	34.40	1	45.4	22.1
10BJ30A-AU	10BJ30CA-AU	A30	C30	30.0	1	33.30	36.80	1	48.4	20.7
10BJ33A-AU	10BJ33CA-AU	A33	C33	33.0	1	36.70	40.60	1	53.3	18.8
10BJ36A-AU	10BJ36CA-AU	A36	C36	36.0	1	40.00	44.20	1	58.1	17.2
10BJ40A-AU	10BJ40CA-AU	A40	C40	40.0	1	44.40	49.10	1	64.5	15.5
10BJ43A-AU	10BJ43CA-AU	A43	C43	43.0	1	47.80	52.80	1	69.4	14.4
10BJ45A-AU	10BJ45CA-AU	A45	C45	45.0	1	50.00	55.30	1	72.7	13.8
10BJ48A-AU	10BJ48CA-AU	A48	C48	48.0	1	53.30	58.90	1	77.4	13.0
10BJ51A-AU	10BJ51CA-AU	A51	C51	51.0	1	56.70	62.70	1	82.4	12.2
10BJ54A-AU	10BJ54CA-AU	A54	C54	54.0	1	60.00	66.30	1	87.1	11.5

ELECTRICAL CHARACTERISTICS (T_A=25°C, 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
10BJ58A-AU	10BJ58CA-AU	A58	C58	58.0	1	64.40	71.20	1	93.6	10.7
10BJ60A-AU	10BJ60CA-AU	A60	C60	60.0	1	66.70	73.70	1	96.8	10.3
10BJ64A-AU	10BJ64CA-AU	A64	C64	64.0	1	71.10	78.60	1	103.0	9.7
10BJ70A-AU	10BJ70CA-AU	A70	C70	70.0	1	77.80	86.00	1	113.0	8.9
10BJ75A-AU	10BJ75CA-AU	A75	C75	75.0	1	83.30	92.10	1	121.0	8.3
10BJ78A-AU	10BJ78CA-AU	A78	C78	78.0	1	86.70	95.80	1	126.0	7.9
10BJ85A-AU	10BJ85CA-AU	A85	C85	85.0	1	94.40	104.0	1	137.0	7.3
10BJ90A-AU	10BJ90CA-AU	A90	C90	90.0	1	100.0	111.0	1	146.0	6.9
10BJ100A-AU	10BJ100CA-AU	A100	C100	100.0	1	111.0	123.0	1	162.0	6.2
10BJ110A-AU	10BJ110CA-AU	A110	C100	110.0	1	122.0	135.0	1	177.0	5.6
10BJ120A-AU	10BJ120CA-AU	A120	C120	120.0	1	133.0	147.0	1	193.0	5.2
10BJ130A-AU	10BJ130CA-AU	A130	C130	130.0	1	144.0	159.0	1	209.0	4.8
10BJ150A-AU	10BJ150CA-AU	A150	C150	150.0	1	167.0	185.0	1	243.0	4.2
10BJ160A-AU	10BJ160CA-AU	A160	C160	160.0	1	178.0	197.0	1	259.0	3.9
10BJ170A-AU	10BJ170CA-AU	A170	C170	170.0	1	189.0	209.0	1	275.0	3.7
10BJ180A-AU	10BJ180CA-AU	A180	C180	180.0	1	201.0	222.0	1	292.0	3.5
10BJ190A-AU	10BJ190CA-AU	A190	C190	190.0	1	211.0	234.0	1	307.0	3.3
10BJ200A-AU	10BJ200CA-AU	A200	C200	200.0	1	224.0	247.0	1	324.0	3.1

① Surge waveform: 10/1000μs

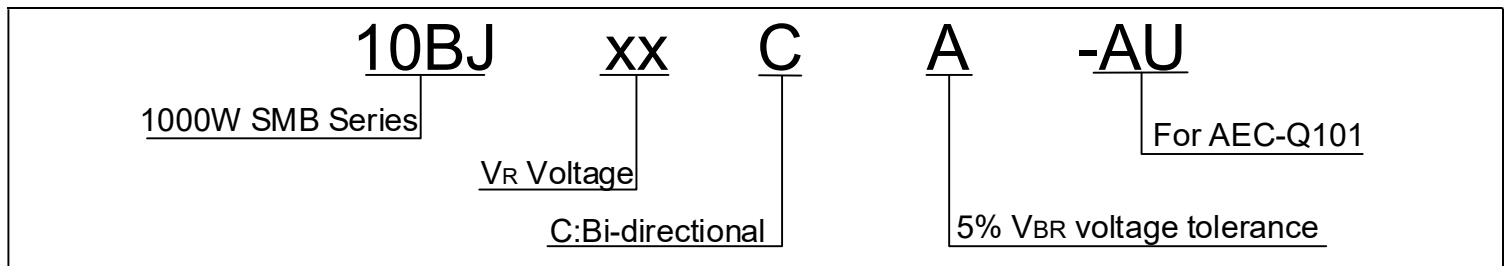
V_R: Stand-off voltage -- Maximum voltage that can be applied

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°C, unless otherwise noted)

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

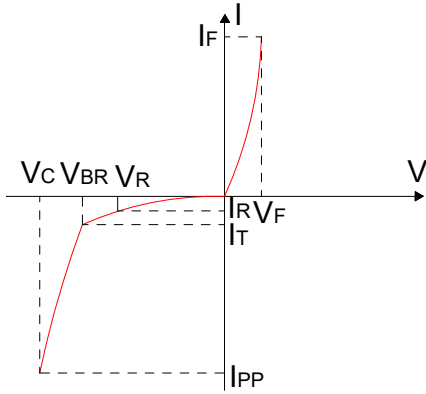


FIG.2:V- I curve characteristics (Bi-directional)

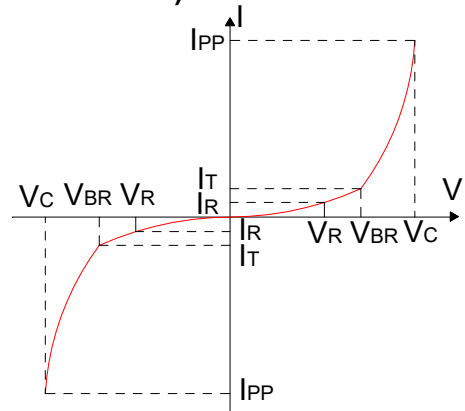


FIG.3: Pulse waveform

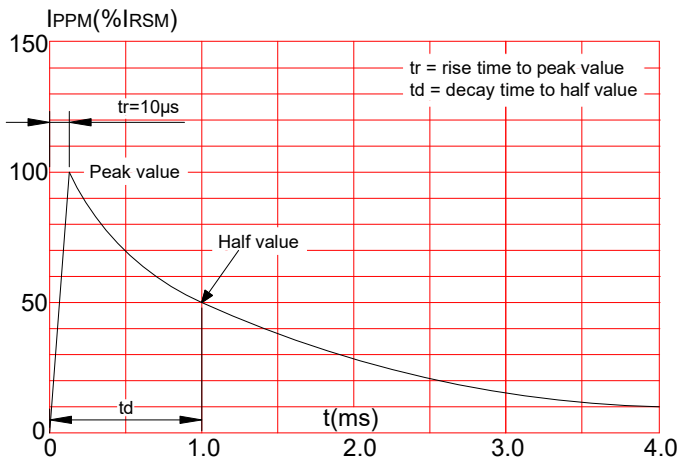


FIG.4: Pulse derating curve

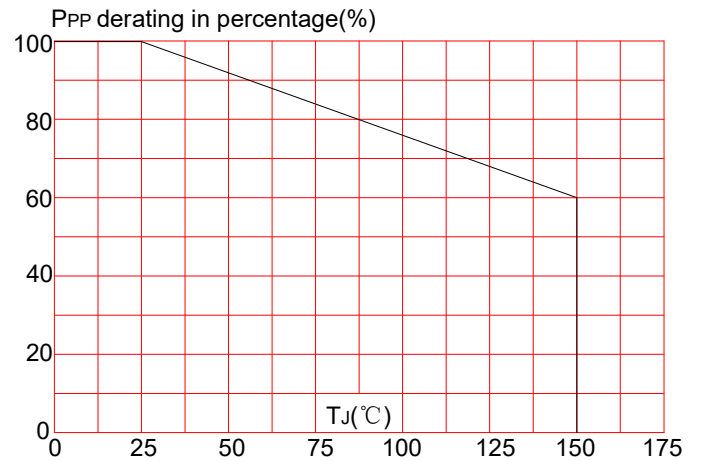
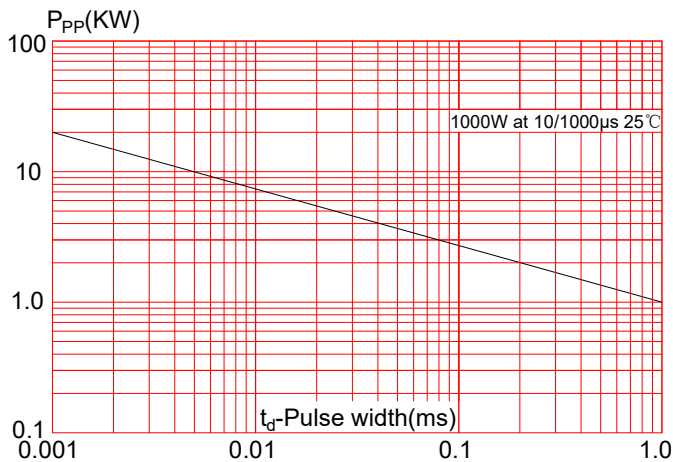
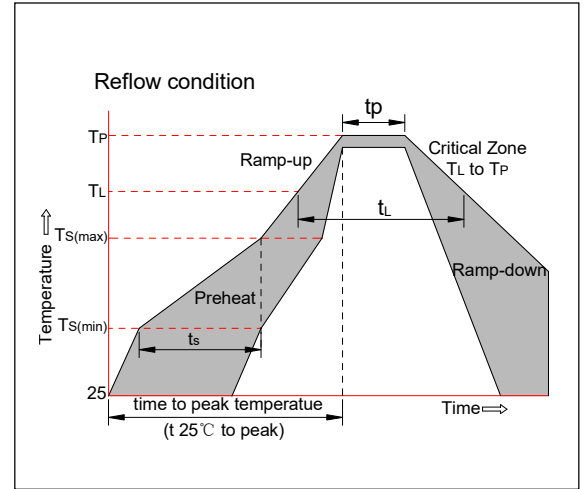


FIG.5:Peak pulse power dissipation vs. pulse width

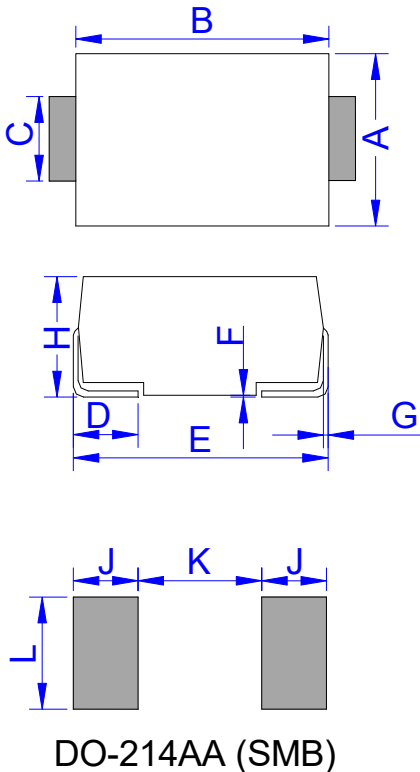


SOLDERING PARAMETERS

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

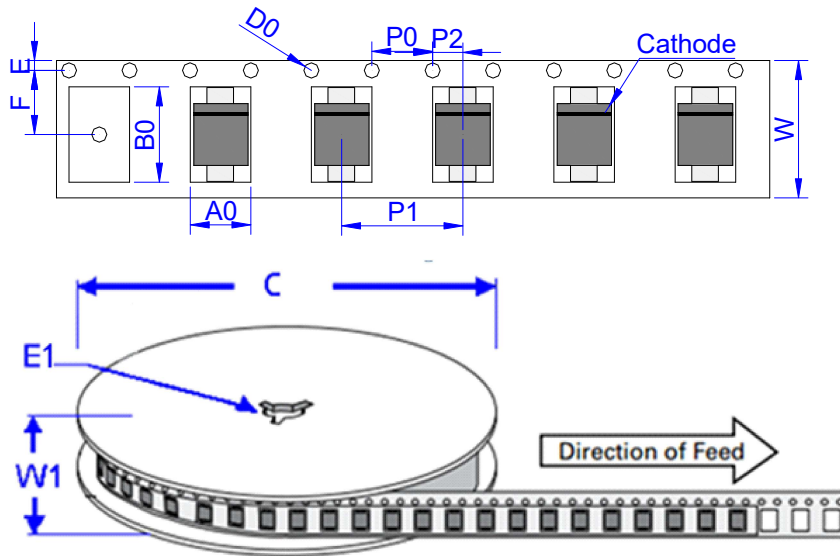


PACKAGE MECHANICAL DATA



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
10BJxxA/CA-AU	0.098	3,000	48,000	13 inch reel pack

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