

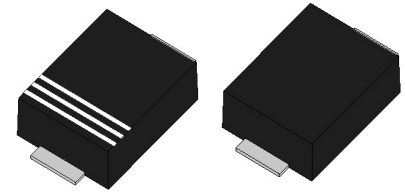


15BJxx(C)A-AU Series 1500W Transient Voltage Suppressor

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.



SMBF



Bi-directional



Uni-directional

Symbol

FEATURES

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 1500W peak pulse power capability at 10/1000 μ s waveform.
- ✧ Typical I_R less than 1 μ A above 11V.
- ✧ 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).
- ✧ UL 497B item recognized. (File No.:E480698).
- ✧ 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 and 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}	1500	W
Maximum instantaneous forward voltage at 50A for unidirectional	V _F	5.0	V
Peak forward surge current, 8.3ms single half sine wave (Note 1)	I _{FSM}	200	A
Typical thermal resistance junction to lead	R _{θJL}	15	$^{\circ}$ C/W
Typical thermal resistance junction to ambient	R _{θJA}	75	$^{\circ}$ 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



BDX : 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}°
Uni-Polar	Bi-Polar	Uni	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
15BJ10A-AU	15BJ10CA-AU	GDX	BDX	10.0	5	11.10	12.30	1	17.0	88.2
15BJ11A-AU	15BJ11CA-AU	GDZ	BDZ	11.0	2	12.20	13.50	1	18.2	82.4
15BJ12A-AU	15BJ12CA-AU	GEE	BEE	12.0	1	13.30	14.70	1	19.9	75.4
15BJ13A-AU	15BJ13CA-AU	GEG	BEG	13.0	1	14.40	15.90	1	21.5	69.8
15BJ14A-AU	15BJ14CA-AU	GEK	BEK	14.0	1	15.60	17.20	1	23.2	64.7
15BJ15A-AU	15BJ15CA-AU	GEM	BEM	15.0	1	16.70	18.50	1	24.4	61.5
15BJ16A-AU	15BJ16CA-AU	GEP	BEP	16.0	1	17.80	19.70	1	26.0	57.7
15BJ17A-AU	15BJ17CA-AU	GER	BER	17.0	1	18.90	20.90	1	27.6	54.4
15BJ18A-AU	15BJ18CA-AU	GET	BET	18.0	1	20.00	22.10	1	29.2	51.4
15BJ20A-AU	15BJ20CA-AU	GEV	BEV	20.0	1	22.20	24.50	1	32.4	46.3
15BJ22A-AU	15BJ22CA-AU	GEX	BEX	22.0	1	24.40	26.90	1	35.5	42.3
15BJ24A-AU	15BJ24CA-AU	GEZ	BEZ	24.0	1	26.70	29.50	1	38.9	38.6
15BJ26A-AU	15BJ26CA-AU	GFE	BFE	26.0	1	28.90	31.90	1	42.1	35.6
15BJ28A-AU	15BJ28CA-AU	GFG	BFG	28.0	1	31.10	34.40	1	45.4	33.1
15BJ30A-AU	15BJ30CA-AU	GFK	BFK	30.0	1	33.30	36.80	1	48.4	31.0
15BJ33A-AU	15BJ33CA-AU	GFM	BFM	33.0	1	36.70	40.60	1	53.3	28.2
15BJ36A-AU	15BJ36CA-AU	GFP	BFP	36.0	1	40.00	44.20	1	58.1	25.8
15BJ40A-AU	15BJ40CA-AU	GFR	BFR	40.0	1	44.40	49.10	1	64.5	23.3
15BJ43A-AU	15BJ43CA-AU	GFT	BFT	43.0	1	47.80	52.80	1	69.4	21.6
15BJ45A-AU	15BJ45CA-AU	GFV	BFV	45.0	1	50.00	55.30	1	72.7	20.6
15BJ48A-AU	15BJ48CA-AU	GFX	BFX	48.0	1	53.30	58.90	1	77.4	19.4
15BJ51A-AU	15BJ51CA-AU	GFZ	BFZ	51.0	1	56.70	62.70	1	82.4	18.2
15BJ54A-AU	15BJ54CA-AU	GGE	BGE	54.0	1	60.00	66.30	1	87.1	17.2
15BJ58A-AU	15BJ58CA-AU	GGG	BGG	58.0	1	64.40	71.20	1	93.6	16.1

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
15BJ60A-AU	15BJ60CA-AU	GGK	BGK	60.0	1	66.70	73.70	1	96.8	15.5
15BJ64A-AU	15BJ64CA-AU	GGM	BGM	64.0	1	71.10	78.60	1	103.0	14.6
15BJ70A-AU	15BJ70CA-AU	GGP	BGP	70.0	1	77.80	86.00	1	113.0	13.3
15BJ75A-AU	15BJ75CA-AU	GGR	BGR	75.0	1	83.30	92.10	1	121.0	12.4
15BJ78A-AU	15BJ78CA-AU	GGT	BGT	78.0	1	86.70	95.80	1	126.0	11.9
15BJ85A-AU	15BJ85CA-AU	GGV	BGV	85.0	1	94.40	104.0	1	137.0	11.0
15BJ90A-AU	15BJ90CA-AU	GGX	BGX	90.0	1	100.0	111.0	1	146.0	10.3
15BJ100A-AU	15BJ100CA-AU	GGZ	BGZ	100.0	1	111.0	123.0	1	162.0	9.3
15BJ110A-AU	15BJ110CA-AU	GHE	BHE	110.0	1	122.0	135.0	1	177.0	8.5
15BJ120A-AU	15BJ120CA-AU	GHG	BHG	120.0	1	133.0	147.0	1	193.0	7.8
15BJ130A-AU	15BJ130CA-AU	GHK	BHK	130.0	1	144.0	159.0	1	209.0	7.2
15BJ150A-AU	15BJ150CA-AU	GHM	BHM	150.0	1	167.0	185.0	1	243.0	6.2
15BJ160A-AU	15BJ160CA-AU	GHP	BHP	160.0	1	178.0	197.0	1	259.0	5.8
15BJ170A-AU	15BJ170CA-AU	GHR	BHR	170.0	1	189.0	209.0	1	275.0	5.5
15BJ180A-AU	15BJ180CA-AU	GHT	BHT	180.0	1	201.0	222.0	1	292.0	5.2
15BJ190A-AU	15BJ190CA-AU	GHU	BHU	190.0	1	211.0	234.0	1	307.0	4.9
15BJ200A-AU	15BJ200CA-AU	GHV	BHV	200.0	1	224.0	247.0	1	324.0	4.7

① Surge waveform: 10/1000μs

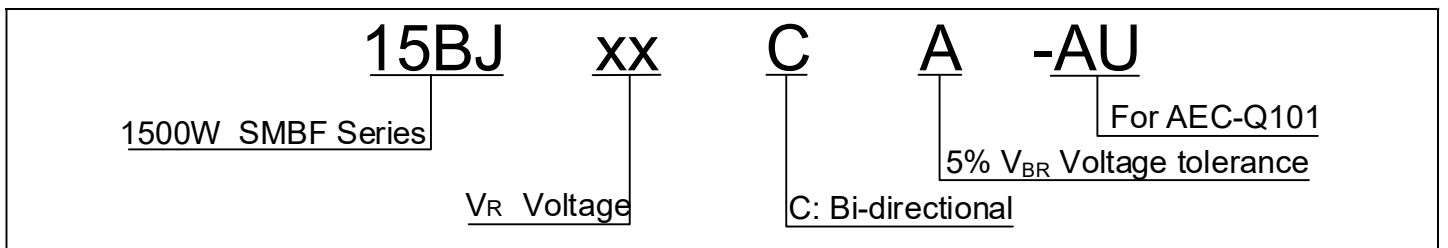
V_R: Stand-off voltage -- Maximum voltage that can be applied

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

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

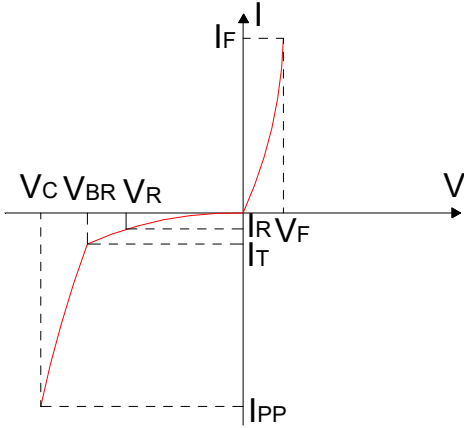


FIG.2:V- I curve characteristics (Bi-directional)

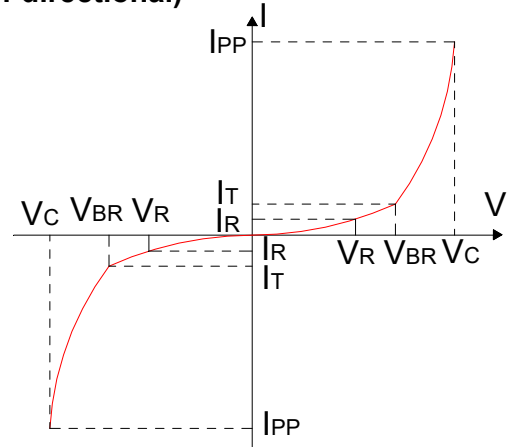


FIG.3: Pulse waveform

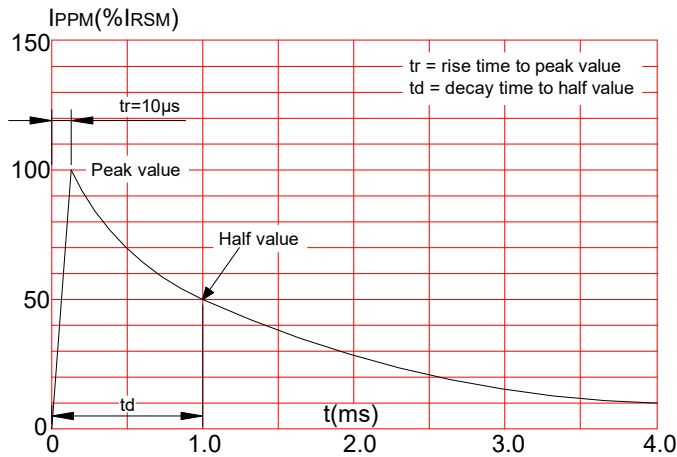


FIG.4: Pulse derating curve

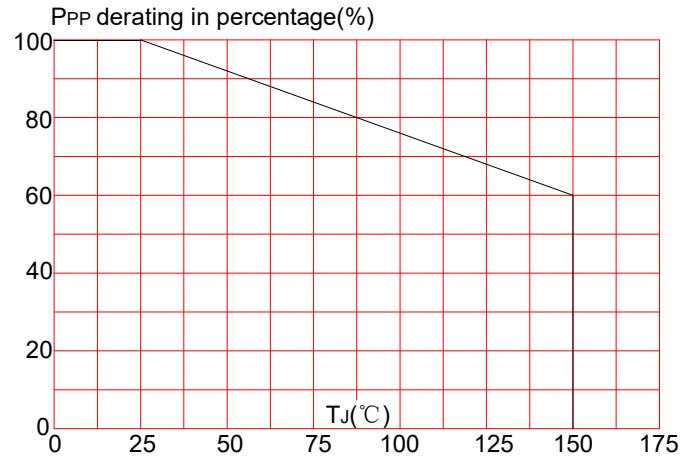
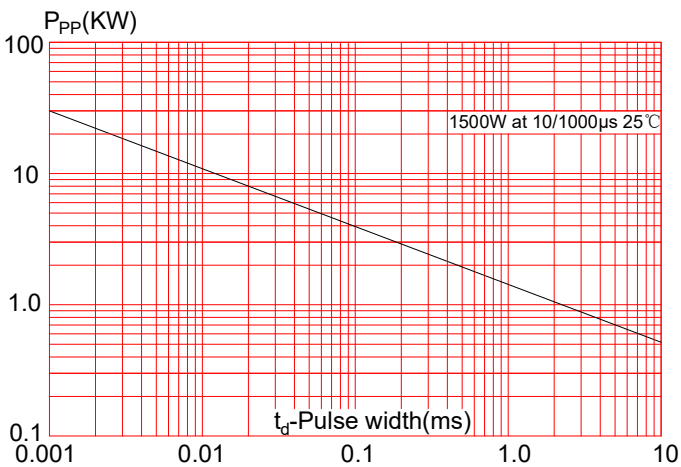
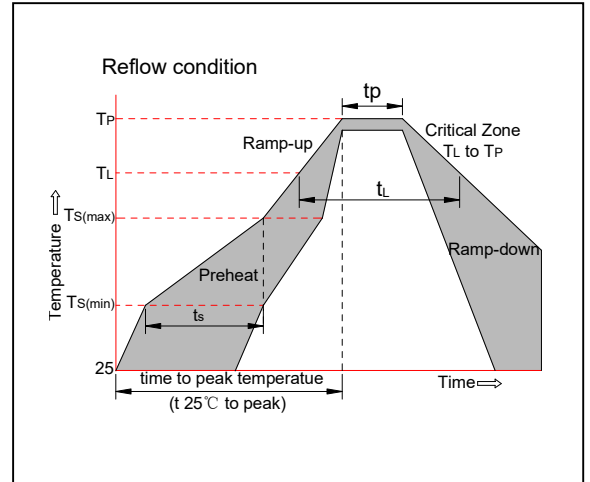


FIG.5:Peak pulse power dissipation vs. pulse width

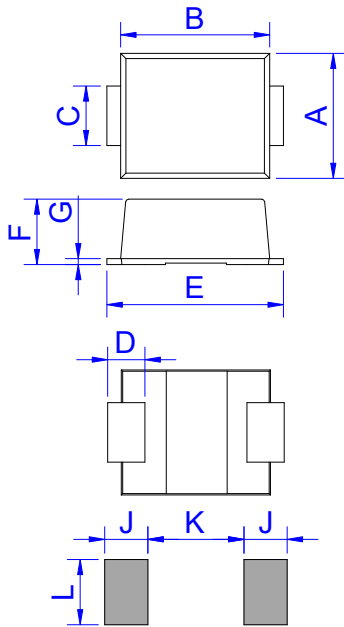


SOLDERING PARAMETERS

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



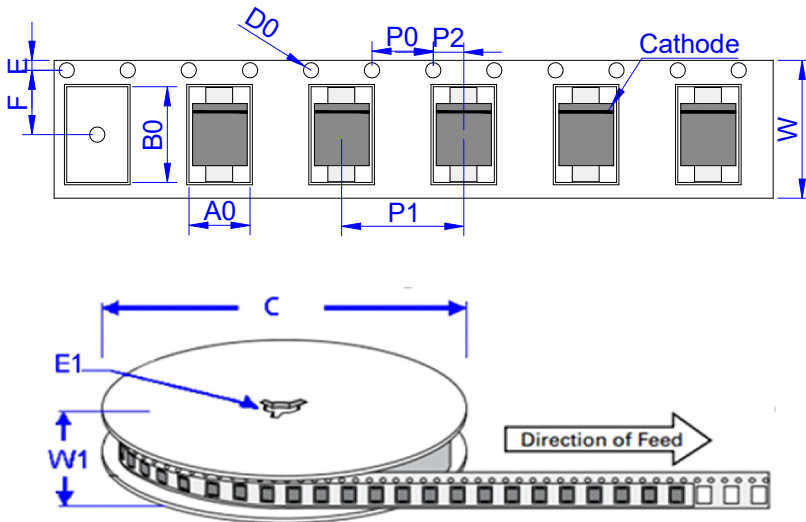
PACKAGE MECHANICAL DATA



SMBF

Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.90	4.50	0.154	0.177
B	4.65	5.15	0.183	0.203
C	1.85	2.15	0.073	0.085
D	0.60		0.024	
E	5.60	6.00	0.220	0.236
F	2.05	2.35	0.081	0.093
G	0.12	0.28	0.005	0.011
J	2.00		0.079	
K		3.20		0.126
L	2.30		0.091	

TAPE AND REEL SPECIFICATION-SMBF



Ref.	Dimensions	
	Millimeters	Inches
A0	4.50±0.3	0.177 ± 0.012
B0	6.10±0.3	0.240 ± 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	0.315 ± 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
15BJxxA/CA-AU	0.13	3,000	48,000	13 inch reel pack

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