



## SMBJxx(C)A-AU Series 600W Transient Voltage Suppressor

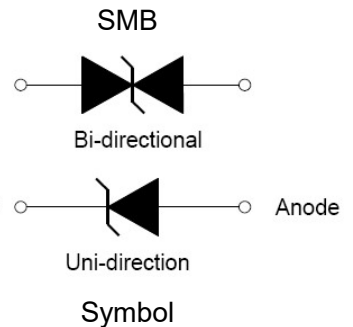
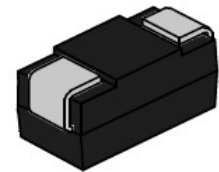
Rev.1.0

### DESCRIPTION

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

### FEATURES

- ✧ Low profile package.
- ✧ Low inductance.
- ✧ Excellent clamping capability.
- ✧ 600W 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°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°C.
- ✧ Terminal: solder plated, solderable per J-STD-002.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±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 ( $T_A=25^\circ\text{C}$ , RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	$T_{STG}/T_J$	-55 to +150	°C
Steady state power dissipation at $T_L=75^\circ\text{C}$	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation at 10/1000μs waveform	$P_{PP}$	600	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)	$I_{FSM}$	100	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	°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



AX: Device Marking Code  
2221: the 21st week, 2022

ELECTRICAL CHARACTERISTICS(T<sub>A</sub>=25°C)

Part Number		Marking		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub> <sup>®</sup>
Uni-Polar	Bi-Polar	Uni	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
SMBJ10A-AU	SMBJ10CA-AU	KX	AX	10.0	2	11.10	12.30	1	17.0	35.3
SMBJ11A-AU	SMBJ11CA-AU	KZ	AZ	11.0	1	12.20	13.50	1	18.2	33.0
SMBJ12A-AU	SMBJ12CA-AU	LE	BE	12.0	1	13.30	14.70	1	19.9	30.2
SMBJ13A-AU	SMBJ13CA-AU	LG	BG	13.0	1	14.40	15.90	1	21.5	27.9
SMBJ14A-AU	SMBJ14CA-AU	LK	BK	14.0	1	15.60	17.20	1	23.2	25.9
SMBJ15A-AU	SMBJ15CA-AU	LM	BM	15.0	1	16.70	18.50	1	24.4	24.6
SMBJ16A-AU	SMBJ16CA-AU	LP	BP	16.0	1	17.80	19.70	1	26.0	23.1
SMBJ17A-AU	SMBJ17CA-AU	LR	BR	17.0	1	18.90	20.90	1	27.6	21.8
SMBJ18A-AU	SMBJ18CA-AU	LT	BT	18.0	1	20.00	22.10	1	29.2	20.6
SMBJ20A-AU	SMBJ20CA-AU	LV	BV	20.0	1	22.20	24.50	1	32.4	18.6
SMBJ22A-AU	SMBJ22CA-AU	LX	BX	22.0	1	24.40	26.90	1	35.5	16.9
SMBJ24A-AU	SMBJ24CA-AU	LZ	BZ	24.0	1	26.70	29.50	1	38.9	15.4
SMBJ26A-AU	SMBJ26CA-AU	ME	CE	26.0	1	28.90	31.90	1	42.1	14.3
SMBJ28A-AU	SMBJ28CA-AU	MG	CG	28.0	1	31.10	34.40	1	45.4	13.2
SMBJ30A-AU	SMBJ30CA-AU	MK	CK	30.0	1	33.30	36.80	1	48.4	12.4
SMBJ33A-AU	SMBJ33CA-AU	MM	CM	33.0	1	36.70	40.60	1	53.3	11.3
SMBJ36A-AU	SMBJ36CA-AU	MP	CP	36.0	1	40.00	44.20	1	58.1	10.4
SMBJ40A-AU	SMBJ40CA-AU	MR	CR	40.0	1	44.40	49.10	1	64.5	9.3
SMBJ43A-AU	SMBJ43CA-AU	MT	CT	43.0	1	47.80	52.80	1	69.4	8.7
SMBJ45A-AU	SMBJ45CA-AU	MV	CV	45.0	1	50.00	55.30	1	72.7	8.3
SMBJ48A-AU	SMBJ48CA-AU	MX	CX	48.0	1	53.30	58.90	1	77.4	7.8
SMBJ51A-AU	SMBJ51CA-AU	MZ	CZ	51.0	1	56.70	62.70	1	82.4	7.3
SMBJ54A-AU	SMBJ54CA-AU	NE	DE	54.0	1	60.00	66.30	1	87.1	6.9
SMBJ58A-AU	SMBJ58CA-AU	NG	DG	58.0	1	64.40	71.20	1	93.6	6.4

ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, continued)

Part Number		Marking		V <sub>R</sub>	I <sub>R</sub> @V <sub>R</sub>	V <sub>BR</sub> @I <sub>T</sub>		I <sub>T</sub>	V <sub>C</sub> @I <sub>PP</sub>	I <sub>PP</sub> <sup>Ⓞ</sup>
Uni-Polar	Bi-Polar	Uni	Bi	V	max(μA)	min(V)	max(V)	mA	max(V)	A
SMBJ60A-AU	SMBJ60CA-AU	NK	DK	60.0	1	66.70	73.70	1	96.8	6.2
SMBJ64A-AU	SMBJ64CA-AU	NM	DM	64.0	1	71.10	78.60	1	103.0	5.8
SMBJ70A-AU	SMBJ70CA-AU	NP	DP	70.0	1	77.80	86.00	1	113.0	5.3
SMBJ75A-AU	SMBJ75CA-AU	NR	DR	75.0	1	83.30	92.10	1	121.0	5.0
SMBJ78A-AU	SMBJ78CA-AU	NT	DT	78.0	1	86.70	95.80	1	126.0	4.8
SMBJ85A-AU	SMBJ85CA-AU	NV	DV	85.0	1	94.40	104.0	1	137.0	4.4
SMBJ90A-AU	SMBJ90CA-AU	NX	DX	90.0	1	100.0	111.0	1	146.0	4.1
SMBJ100A-AU	SMBJ100CA-AU	NZ	DZ	100.0	1	111.0	123.0	1	162.0	3.7
SMBJ110A-AU	SMBJ110CA-AU	PE	EE	110.0	1	122.0	135.0	1	177.0	3.4
SMBJ120A-AU	SMBJ120CA-AU	PG	EG	120.0	1	133.0	147.0	1	193.0	3.1
SMBJ130A-AU	SMBJ130CA-AU	PK	EK	130.0	1	144.0	159.0	1	209.0	2.9
SMBJ150A-AU	SMBJ150CA-AU	PM	EM	150.0	1	167.0	185.0	1	243.0	2.5
SMBJ160A-AU	SMBJ160CA-AU	PP	EP	160.0	1	178.0	197.0	1	259.0	2.3
SMBJ170A-AU	SMBJ170CA-AU	PR	ER	170.0	1	189.0	209.0	1	275.0	2.2
SMBJ180A-AU	SMBJ180CA-AU	PT	ET	180.0	1	201.0	222.0	1	292.0	2.1
SMBJ190A-AU	SMBJ190CA-AU	PV	EV	190.0	1	211.0	234.0	1	307.0	2.0
SMBJ200A-AU	SMBJ200CA-AU	PX	EX	200.0	1	224.0	247.0	1	324.0	1.9
SMBJ210A-AU	SMBJ210CA-AU	PZ	EZ	210.0	1	233.0	258.0	1	337.0	1.8
SMBJ220A-AU	SMBJ220CA-AU	QE	FE	220.0	1	246.0	272.0	1	356.0	1.7
SMBJ250A-AU	SMBJ250CA-AU	QG	FG	250.0	1	279.0	309.0	1	405.0	1.5
SMBJ300A-AU	SMBJ300CA-AU	QK	FK	300.0	1	335.0	371.0	1	486.0	1.3
SMBJ350A-AU	SMBJ350CA-AU	QM	FM	350.0	1	391.0	432.0	1	567.0	1.1
SMBJ400A-AU	SMBJ400CA-AU	QP	FP	400.0	1	447.0	494.0	1	648.0	0.9
SMBJ440A-AU	SMBJ440CA-AU	QR	FR	440.0	1	492.0	543.0	1	713.0	0.8

Ⓞ Surge waveform: 10/1000μs

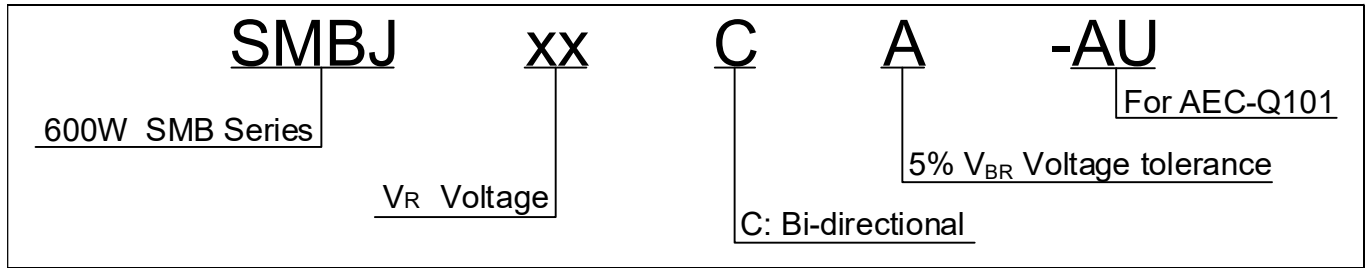
V<sub>R</sub>: Stand-off voltage -- Maximum voltage that can be applied

V<sub>BR</sub>: Breakdown voltage

V<sub>C</sub>: Clamping voltage -- Peak voltage measured across the suppressor at a specified I<sub>PP</sub>

I<sub>R</sub>: Reverse leakage current

ORDERING INFORMATION



RATINGS AND V-I CHARACTERISTICS CURVES ( $T_A=25^\circ C$ , unless otherwise noted)

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

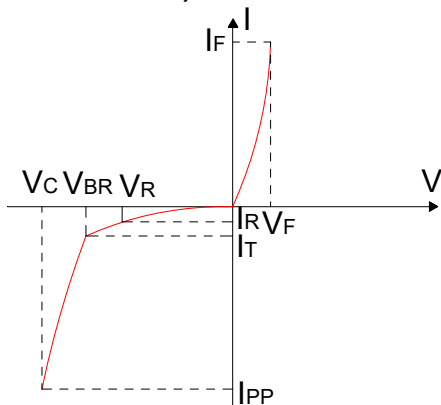


FIG.2: V- I curve characteristics (Bi-directional)

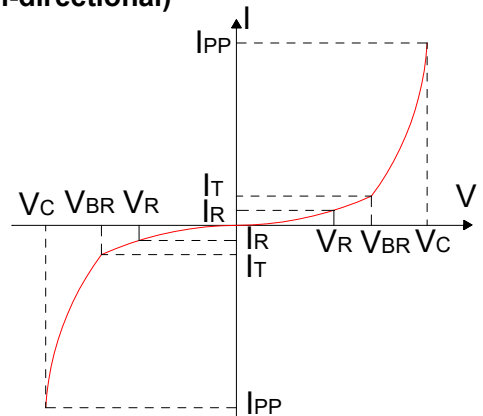


FIG.3: Pulse waveform

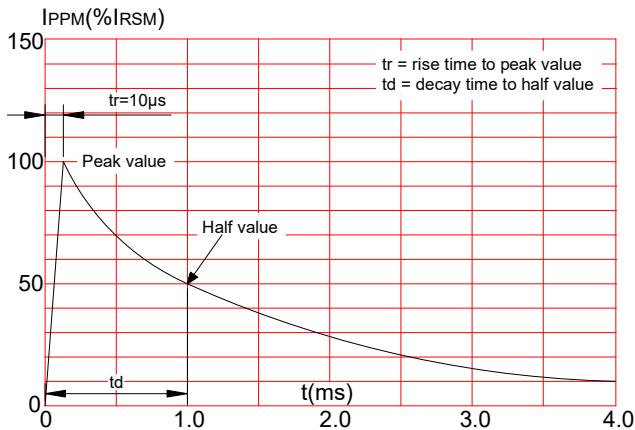


FIG.4: Pulse derating curve

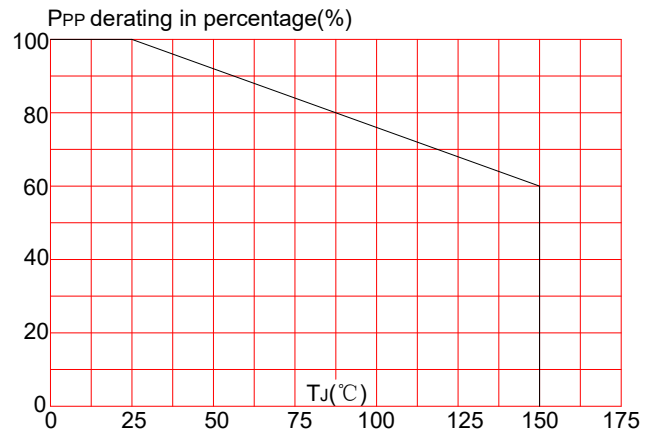
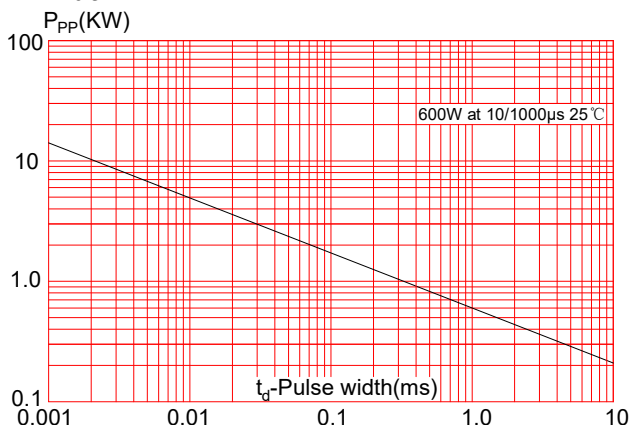
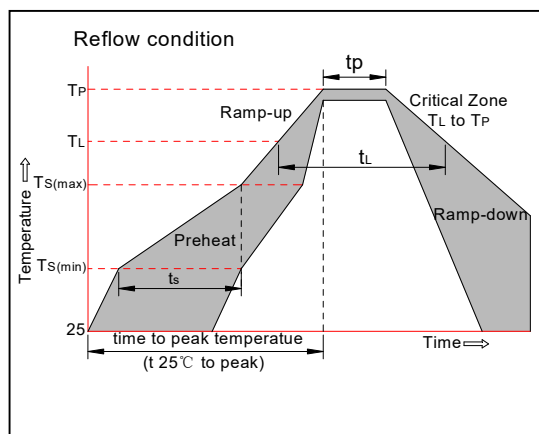


FIG.5: Peak pulse power dissipation vs. pulse width

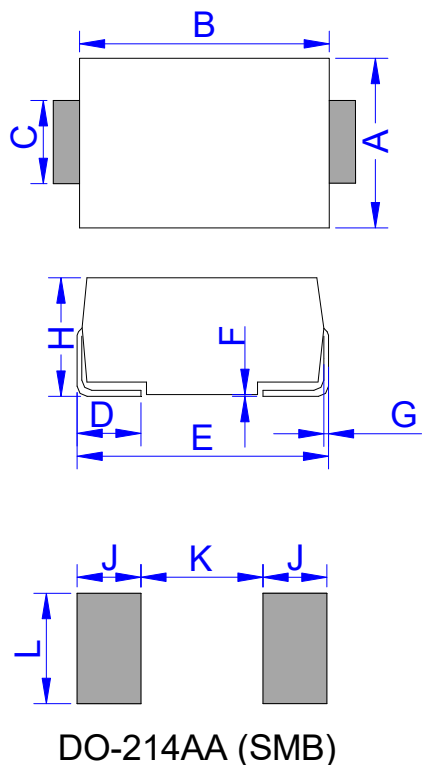


**SOLDERING PARAMETERS**

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

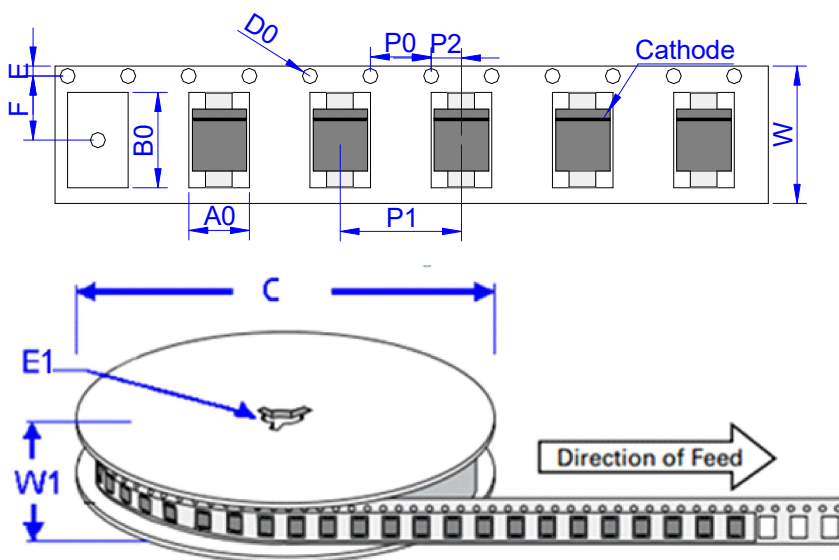


PACKAGE MECHANICAL DATA



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


JieJie products are not designed for, and shall not be used for, any purpose (including, without limitation, automotive, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable JieJie product documentation. Warranties granted by JieJie shall be deemed void for products used for any purpose not expressly set forth in applicable JieJie documentation. JieJie shall not be liable for any claims or damages arising out of products used in applications not expressly intended by JieJie as set forth in applicable JieJie documentation. The sale and use of JieJie products is subject to JieJie terms and conditions of sale, unless otherwise agreed by JieJie.

Information furnished in this document is believed to be accurate and reliable. However, Jiangsu JieJie Microelectronics Co., Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it.

Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Jiangsu JieJie complies with the agreement.

Products and information provided in this document have no infringement of patents. Jiangsu JieJie assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information.

This document is the first version which is made in 22-Sept.-2022. This document supersedes and replaces all information previously supplied.

 is a registered trademark of Jiangsu JieJie Microelectronics Co., Ltd.

Copyright ©2022 Jiangsu JieJie Microelectronics Co., Ltd. Printed All rights reserved.

单击下面可查看定价，库存，交付和生命周期等信息

[>>JW\(捷捷微\)](#)