JIEJIE MICROELECTRONICS CO., LTD.

SMDJxx(C)A-AU Series 3000W 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.
- ♦ 3000W peak pulse power capability at 10/1000µs waveform.
- → Typical IR less than 5µA.
- → Fast response time: typically less than 1.0ps from 0V to VBR 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).

SMC Bi-directional Cathode Anode

Uni-directional

Symbol

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

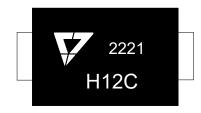
Parameter	Symbol	Value	Unit
Storage and operating junction temperature range	T _{STG} /T _J	-55 to +150	$^{\circ}$ C
Steady state power dissipation at T∟=75°C	P _{M(AV)}	6.5	W
Peak pulse power dissipation at 10/1000µs waveform	P _{PP}	3000	W
Maximum instantaneous forward voltage at 100A for unidirectional only	VF	5.0	٧
Peak forward surge current, 8.3ms single half sine wave(Note 1)	IFSM	300	Α
Typical thermal resistance junction to lead	Rejl	15	°C/W
Typical thermal resistance junction to ambient	R _{0JA}	75	°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



H12C: Device Marking Code 2221: the 21th week, 2022

ELECTRICAL CHARACTERISTICS(T_A=25°C)

Part N	Number	Mar	king	V_R	I _R @V _R	V _{BR} @I _T		Ι _Τ	V _C @I _{PP}	I _{PP} [⊕]
Uni-Polar	Bi-Polar	Uni	Bi	V	max(µA)	min(V)	max(V)	mA	max(V)	Α
SMDJ12A-AU	SMDJ12CA-AU	H12A	H12C	12.0	5	13.30	14.70	1	19.9	150.8
SMDJ13A-AU	SMDJ13CA-AU	H13A	H13C	13.0	5	14.40	15.90	1	21.5	139.5
SMDJ14A-AU	SMDJ14CA-AU	H14A	H14C	14.0	5	15.60	17.20	1	23.2	129.3
SMDJ15A-AU	SMDJ15CA-AU	H15A	H15C	15.0	5	16.70	18.50	1	24.4	123.0
SMDJ16A-AU	SMDJ16CA-AU	H16A	H16C	16.0	5	17.80	19.70	1	26.0	115.4
SMDJ17A-AU	SMDJ17CA-AU	H17A	H17C	17.0	5	18.90	20.90	1	27.6	108.7
SMDJ18A-AU	SMDJ18CA-AU	H18A	H18C	18.0	5	20.00	22.20	1	29.2	102.7
SMDJ20A-AU	SMDJ20CA-AU	H20A	H20C	20.0	5	22.20	24.50	1	32.4	92.6
SMDJ22A-AU	SMDJ22CA-AU	H22A	H22C	22.0	5	24.40	26.90	1	35.5	84.5
SMDJ24A-AU	SMDJ24CA-AU	H24A	H24C	24.0	5	26.70	29.50	1	38.9	77.1
SMDJ26A-AU	SMDJ26CA-AU	H26A	H26C	26.0	5	28.90	31.90	1	42.1	71.3
SMDJ28A-AU	SMDJ28CA-AU	H28A	H28C	28.0	5	31.10	34.40	1	45.4	66.1
SMDJ30A-AU	SMDJ30CA-AU	H30A	H30C	30.0	5	33.30	36.80	1	48.4	62.0
SMDJ33A-AU	SMDJ33CA-AU	НЗЗА	H33C	33.0	5	36.70	40.60	1	53.3	56.3
SMDJ36A-AU	SMDJ36CA-AU	H36A	H36C	36.0	5	40.00	44.20	1	58.1	51.6
SMDJ40A-AU	SMDJ40CA-AU	H40A	H40C	40.0	5	44.40	49.10	1	64.5	46.5
SMDJ43A-AU	SMDJ43CA-AU	H43A	H43C	43.0	5	47.80	52.80	1	69.4	43.2
SMDJ45A-AU	SMDJ45CA-AU	H45A	H45C	45.0	5	50.00	55.30	1	72.7	41.3
SMDJ48A-AU	SMDJ48CA-AU	H48A	H48C	48.0	5	53.30	58.90	1	77.4	38.8
SMDJ51A-AU	SMDJ51CA-AU	H51A	H51C	51.0	5	56.70	62.70	1	82.4	36.4



ELECTRICAL CHARACTERISTICS(T_A=25°C,continued)

Part N	Number	Mar	king	V_{R}	I _R @V _R	V_{BR}	@I _T	Ι _Τ	Vc@I _{PP}	l _{PP} [⊕]
Uni-Polar	Bi-Polar	Uni	Bi	V	max(µA)	min(V)	max(V)	mA	max(V)	Α
SMDJ54A-AU	SMDJ54CA-AU	H54A	H54C	54.0	5	60.00	66.30	1	87.1	34.4
SMDJ58A-AU	SMDJ58CA-AU	H58A	H58C	58.0	5	64.40	71.20	1	93.6	32.1

[⊕] Surge waveform: 10/1000µs

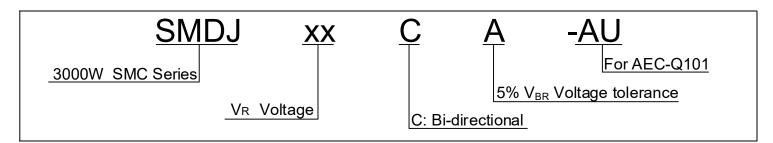
 $\ensuremath{V_{R}}\xspace$: Stand-off voltage -- Maximum voltage that can be applied

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)

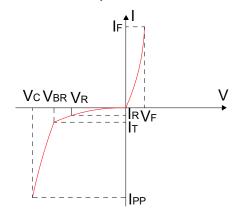
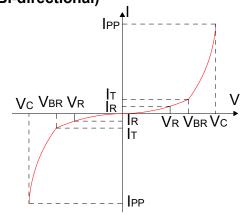


FIG.2:V- I curve characteristics (Bi-directional)



3000W SMDJxx(C)A-AU Series

JieJie Microelectronics CO., Ltd.

FIG.3: Pulse waveform

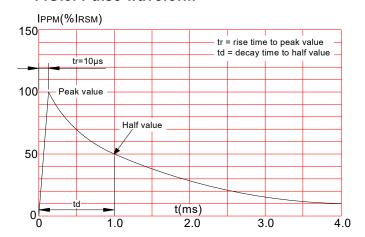


FIG.5:Peak pulse power dissipation vs. pulse width

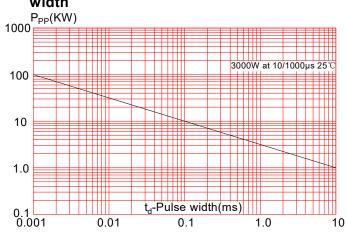
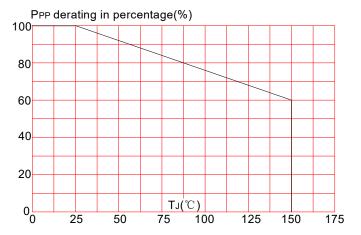


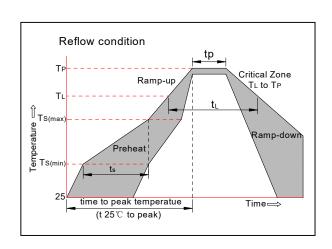
FIG.4: Pulse derating curve



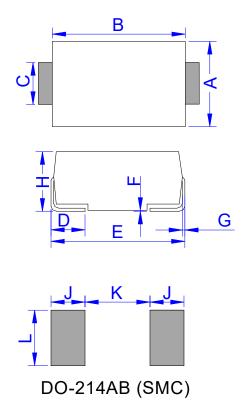


SOLDERING PARAMETERS

Reflow (Condition	Pb-Free assembly (see figure at right)		
	-Temperature Min (T _{s(min)})	+150°C		
Pre Heat	-Temperature Max(T _{s(max)})	+200 ℃		
ricat	-Time (Min to Max) (ts)	60-180 secs.		
Average (T _L)to p	ramp up rate (Liquidus Temp peak)	3°C/sec. Max		
T _{s(max)} to	T _L - Ramp-up Rate	3℃/sec. Max		
D (1	-Temperature(T _L)(Liquidus)	+217℃		
Reflow	-Temperature(t _L)	60-150 secs.		
Peak Te	mp (T _p)	+260(+0/-5)°C		
Time wit	hin 5℃of actual Peak Temp (t _p)	20-40secs.		
Ramp-d	own Rate	6℃/sec. Max		
Time 25	$^{\circ}\!$	8 min. Max		
Do not e	exceed	+260℃		



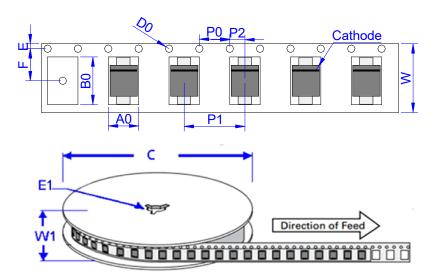
PACKAGE MECHANICAL DATA



	Dimensions						
Ref.	Millimeters		Inc	hes			
	Min.	Max.	Min.	Max.			
Α	5.75	6.25	0.226	0.246			
В	6.90	7.40	0.272	0.291			
С	2.75	3.25	0.108	0.128			
D	0.95	1.52	0.037	0.060			
E	7.70	8.20	0.303	0.323			
F	0.051	0.203	0.002	0.008			
G	0.15	0.31	0.006	0.012			
Н	2.15	2.62	0.085	0.103			
J	2.40		0.094				
K		4.20		0.165			
L	3.30		0.130				



TAPE AND REEL SPECIFICATION-SMC



D (Dimensions				
Ref.	Millimeters	Inches			
A0	6.05 ± 0.3	0.238 ± 0.012			
В0	8.31 ± 0.3	0.327 ± 0.012			
С	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	7.50 ± 0.2	0.295 ± 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	16.0 ± 0.2	0.630 ± 0.008			
W1	19.7 ± 2.0	0.776 ± 0.079			

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
SMDJxxA/CA-AU	0.31	3,000	48,000	13 inch reel pack

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