SMBJ Seires
600 W Surface Mount Transient Voltage Suppressors

Revision:B

FGeneral Description

SMBJ Seires from SINO-IC is designed to protect voltage sensitive components from high voltage, high energy transients. It has excellent clamping capability, high surge capability, fast response time and cost-effectiveness.

Features

- Peak pulse power: 600 W (10/1000μs)
- Breakdown Voltage :5.0V~120V
- Bidirectional Type
- Low Clamping Factor
- Fast Response Time < 1 ns
- Glass Passivated Junction

Applications

- Communication Systems
- Power Supplies
- Medical Equipment
- Business Machines

Mechanical Data

Case: JESEC DO214AA. Molded plastic over glass passivated junction

Polarity: Color band denoted positive end (cathode) except Bidirectional

Absolute Maximum Ratings @ 25°C Unless Otherwise Specified

Parameter	Symbol	Value	Units
Peak Power Dissipation (Note 1.) @T_L = 25°C, Pulse Width = 1 ms	P_{PK}	600	W
Peak pulse current of on 10/1000μs waveform	I_{PPM}	SEE TABLE 1	A
Peak forward surge Current	I_{PSM}	100	A
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

Notes:

1. 10 X 1000 us, non–repetitive
2. 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.
3. Mounted on 5.0mm2(0.03mm thick) Copper Rads to each terminal
4. A transient suppressor is normally selected according to the working peak reverse voltage (V_{RWM}), which should be equal to or greater than the DC or continuous peak operating voltage level.
5. VBR measured at pulse test current IT at an ambient temperature of 25°C.
6. Surge current waveform per Figure 1 and derate per Figure 3.

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T

Electrical Characteristics Per Line @ 25°C Unless Otherwise Specified								
PART NUMBER		V_{RWM} (V)	$V_{(BR)}$@I_T		I_T (mA)	V_C@ I_{PP} (V)	I_{PP} (A)	I_R@ V_{RWM} (μ A)
			min (V)	max (V)				
UNI-POLAR	BI-POLAR							
SMBJ5.0A	SMBJ5.0CA	5.0	6.40	7.25	10	9.2	65.2	800
SMBJ6.0A	SMBJ6.0CA	6.0	6.67	7.67	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	7.0	7.78	8.95	10	12.0	50.0	200
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.58	1	12.9	46.5	100
SMBJ8.0A	SMBJ8.0CA	8.0	8.89	10.23	1	13.6	44.1	50
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.82	1	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	9.0	10.00	11.50	1	15.4	39.0	10
SMBJ10A	SMBJ10CA	10	11.10	12.80	1	17.0	35.3	5
SMBJ11A	SMBJ11CA	11	12.20	14.00	1	18.2	33.0	5
SMBJ12A	SMBJ12CA	12	13.30	15.30	1	19.9	30.2	5
SMBJ13A	SMBJ13CA	13	14.40	16.50	1	21.5	27.9	5
SMBJ14A	SMBJ14CA	14	15.60	17.90	1	23.2	25.8	5
SMBJ15A	SMBJ15CA	15	16.70	18.50	1.0	24.4	24.6	5
SMBJ16A	SMBJ16CA	16	17.80	19.70	1.0	26.0	23.1	5
SMBJ17A	SMBJ17CA	17	18.90	20.90	1.0	27.6	21.7	5
SMBJ18A	SMBJ18CA	18	20.00	22.10	1.0	29.2	20.5	5
SMBJ20A	SMBJ20CA	20	22.20	24.50	1.0	32.4	18.5	5
SMBJ22A	SMBJ22CA	22	24.40	26.90	1.0	35.5	16.9	5
SMBJ24A	SMBJ24CA	24	26.70	29.50	1.0	38.9	15.4	5
SMBJ26A	SMBJ26CA	26	28.90	31.90	1.0	42.1	14.3	5
SMBJ28A	SMBJ28CA	28	31.10	34.40	1.0	45.4	13.2	5
SMBJ30A	SMBJ30CA	30	33.30	36.80	1.0	48.4	12.4	5
SMBJ33A	SMBJ33CA	33	36.70	40.60	1.0	53.3	11.3	5
SMBJ36A	SMBJ36CA	36	40.00	44.20	1.0	58.1	10.3	5
SMBJ40A	SMBJ40CA	40	44.40	49.10	1.0	64.5	9.3	5
SMBJ43A	SMBJ43CA	43	47.80	52.80	1.0	69.4	8.6	5
SMBJ45A	SMBJ45CA	45	50.00	55.30	1.0	72.7	8.3	5
SMBJ48A	SMBJ48CA	48	53.30	58.90	1.0	77.4	7.8	5
SMBJ51A	SMBJ51CA	51	56.70	62.70	1.0	82.4	7.3	5
SMBJ54A	SMBJ54CA	54	60.00	66.30	1.0	87.1	6.9	5
SMBJ58A	SMBJ58CA	58	64.40	71.20	1.0	93.6	6.4	5
SMBJ60A	SMBJ60CA	60	66.70	73.70	1.0	96.8	6.2	5
SMBJ64A	SMBJ64CA	64	71.10	78.60	1.0	103	5.8	5
SMBJ70A	SMBJ70CA	70	77.80	86.00	1.0	113	5.3	5
SMBJ75A	SMBJ75CA	75	83.30	92.10	1.0	121	5.0	5
SMBJ78A	SMBJ78CA	78	86.70	95.80	1.0	126	4.7	5
SMBJ85A	SMBJ85CA	85	94	104	1.0	137	4.4	5
SMBJ90A	SMBJ90CA	90	100	111	1.0	146	4.1	5
SMBJ100A	SMBJ100CA	100	111	123	1.0	162	3.7	5
SMBJ110A	SMBJ110CA	110	122	135	1.0	177	3.4	5
SMBJ120A	SMBJ120CA	120	133	147	1.0	193	3.1	5

Rating And Characteristic Curves@ 25°C Unless Otherwise Specified

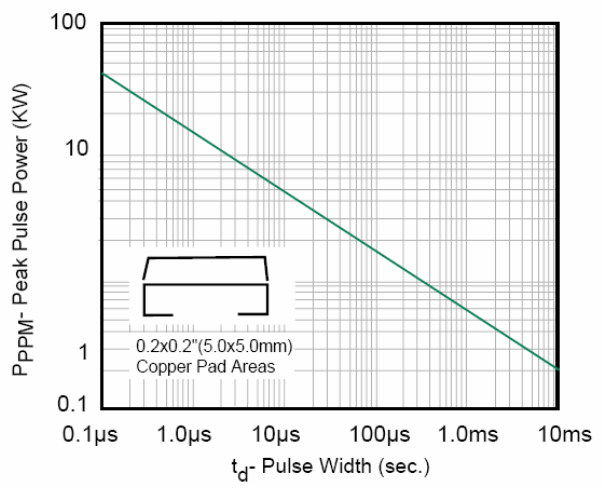


Fig1. Peak Pulse Power Rating

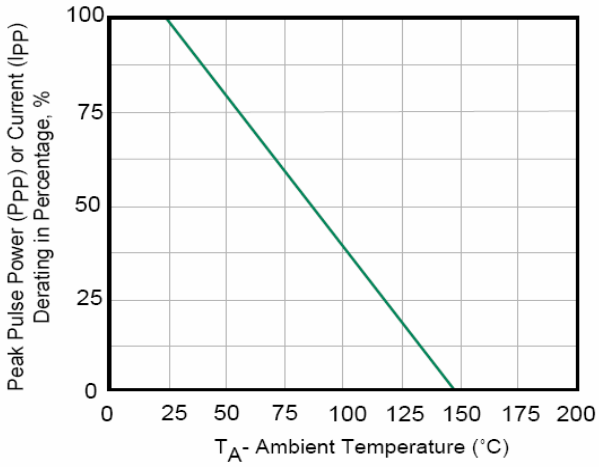


Fig2. Pulse Derating Curve

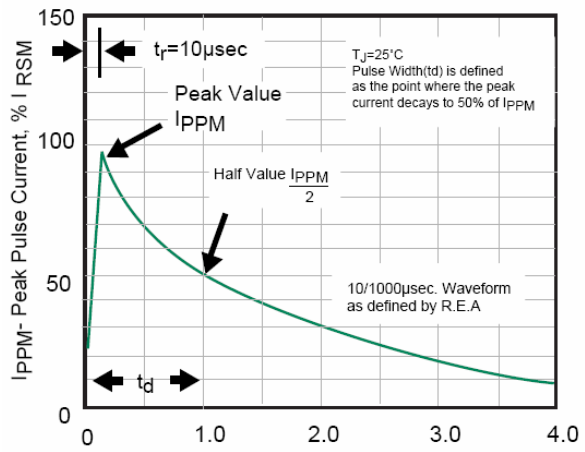


Fig3. Pulse Waveform

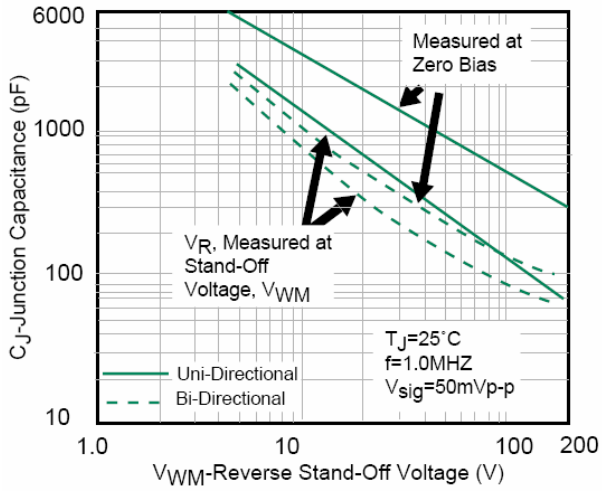


Fig4. Typical Junction

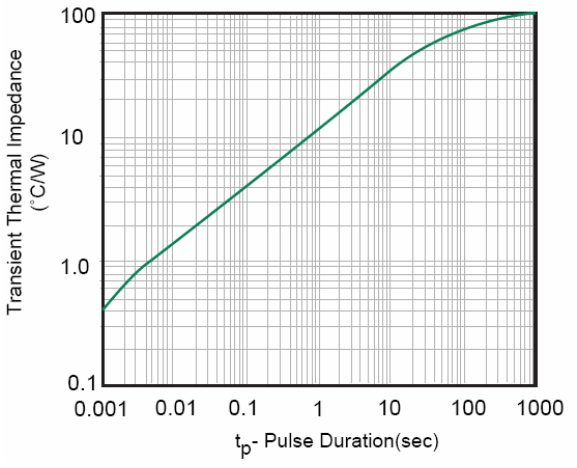


Fig5.- Typ. Transient Thermal Impedance

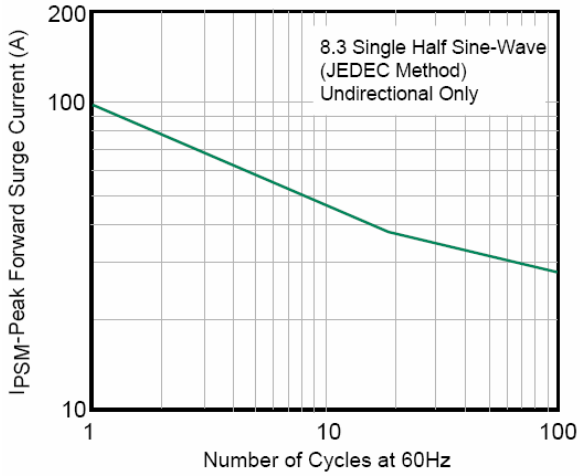
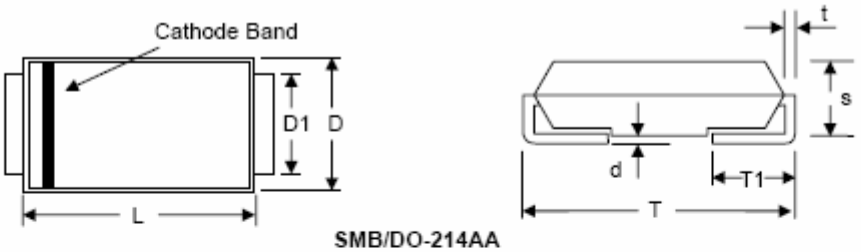


Fig6.- Maxmum Non-Repetitive Peak Forward Surge Current

PACKAGE DIMENSIONS (DO-214AA)



SMB/DO-214AA

Item	Millimeters		Inches	
	Min.	Max.	Min.	Max.
L	4.06	4.57	0.160	0.180
D	3.30	3.94	0.130	0.155
D1	1.95	2.20	0.077	0.086
T	5.21	5.59	0.205	0.220
T1	0.76	1.52	0.030	0.060
d	-	0.203	-	0.008
s	2.13	2.44	0.084	0.096
t	0.152	0.305	0.006	0.012

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SHANGHAI SINO-IC MICROELECTRONICS CO., LTD

Add: Building 3, Room 3401-03, No.200 Zhangheng Road, ZhangJiang Hi-Tech Park, Pudong, Shanghai 201203, China
Phone: +86-0755-26063310
Fax: +86-0755-26063304
Email: szrxw002@126.com
Website: http://www.sino-ic.net