

**SMBJ Seires**  
**600 W Surface Mount Transient Voltage Suppressors**

Revision:B

**General 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.

**Applications**

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

**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

**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.) @ $T_L = 25^\circ\text{C}$ , 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

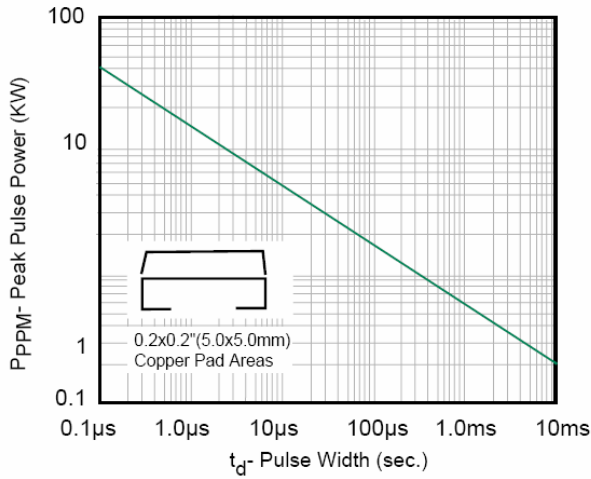
Notes:

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 5.0mm<sup>2</sup>(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  $I_T$  at an ambient temperature of 25°C.
6. Surge current waveform per Figure 1 and derate per Figure 3.

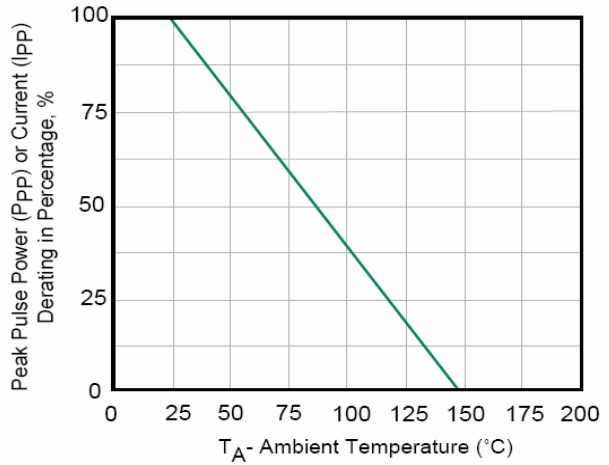
Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$I_T$	Test Current
$V_{BR}$	Breakdown Voltage @ $I_T$

<b>Electrical Characteristics Per Line @ 25°C Unless Otherwise Specified</b>								
PART NUMBER		V <sub>RWM</sub> (V)	V <sub>(BR)</sub> @I <sub>T</sub>		I <sub>T</sub> (mA)	V <sub>C</sub> @ I <sub>PP</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> @ V <sub>RWM</sub> (μA)
			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

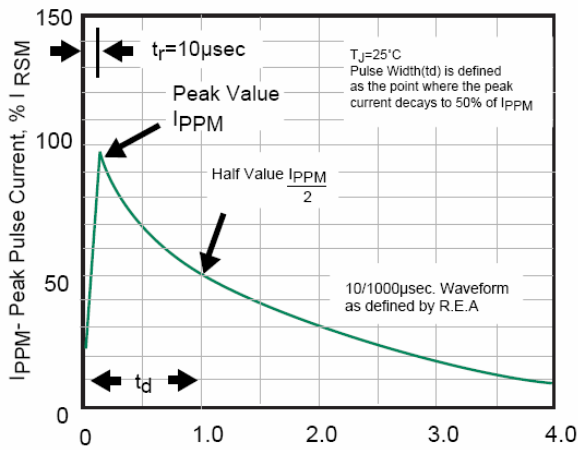
# Rating And Characteristic Curves @ 25°C Unless Otherwise Specified



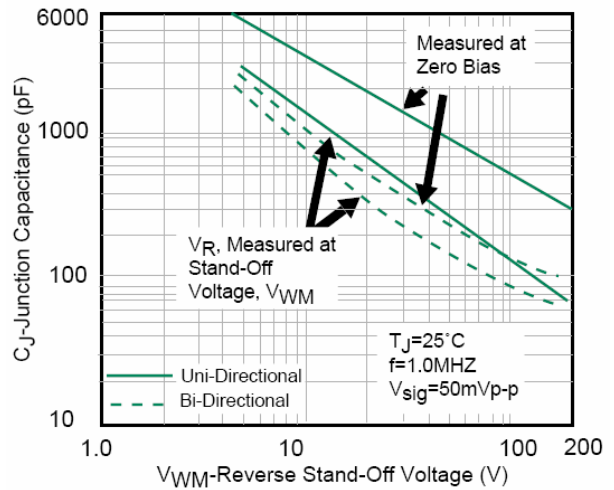
**Fig1. Peak Pulse Power Rating**



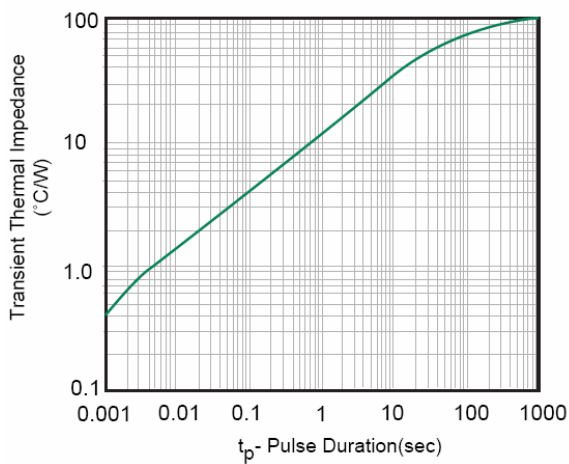
**Fig2. Pulse Derating Curve**



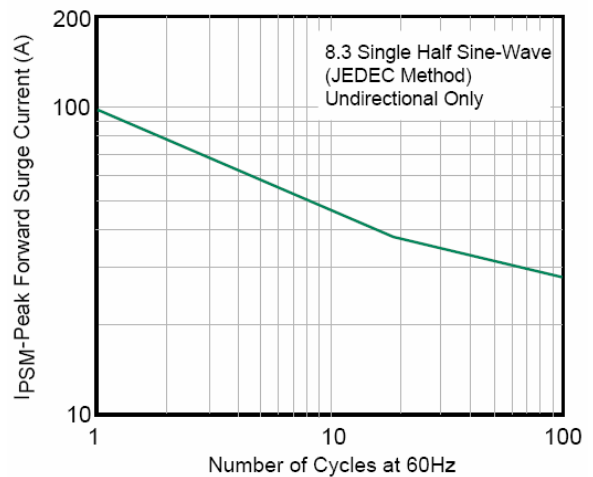
**Fig3. Pulse Waveform**



**Fig4. Typical Junction**

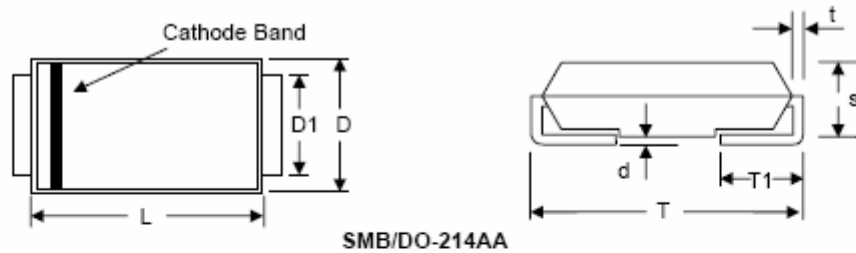


**Fig5.- Typ. Transient Thermal Impedance**



**Fig6.- Maximum Non-Repetitive Peak Forward Surge Current**

## PACKAGE DIMENSIONS (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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