3.0SMBJ11A~3.0SMBJ220CA

Design Viitor into your FUTURE

300W Surface Mount Transient Voltage Suppressors

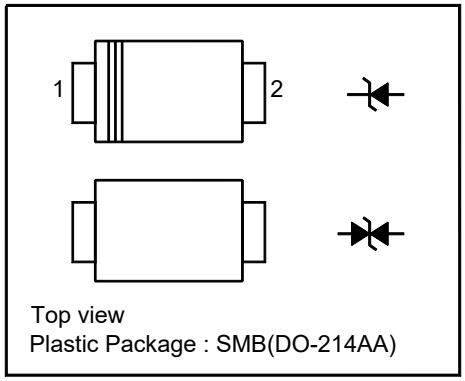
SMB (DO-214AA)

Features

- AEC-Q101 Qualified
- 300W peak pulse power capability at 10/1000μs waveform,
- For surface mounted applications
- Low-profile package
- Ideal for automated placement
- Low incremental surge resistance, excellent clamping capability
- Very fast response time
- Component in accordance to RoHS
- Solder dip 265℃ max. 10s, per JESD 22-B106

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



Top view
Plastic Package : SMB(DO-214AA)

PRIMARY CHARACTERISTICS	
V_{BR}	6.4V to 543V
P_{DPM} (10 x 1000 us)	3000W
P_D	5.0W
T_J max.	150 °C
Polarity	Uni & bidirectional
Package	SMB (DO-214AA)

Typical Applications

Use is sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, telecommunication and automotive.

Mechanical Data

- Case: DO-214AA(SMB)
- Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, Halogen-free
- Terminals: Matte tin plated leads, solderable per J-STD-002 and
- JESD 22-B102
- Polarity: Cathode line denotes the cathode end

Absolute Maximum Ratings (T_a = 25℃ unless otherwise specified)

		Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000 μs Waveform (1)(2),		P_{PPM}	3000	W
Power dissipation on infinite heatsink at TL = 75℃ (2)		P_D	5.0	W
Peak Pulse Current with a 10/1000 μs Waveform (1)		I_{PPM}	See Table	A
Instantaneous forward voltage @25A (4)		V_F	3.5/5.0(Uni)	V
Peak forward surge current, 8.3ms single half sine-wave (3)		I_{FSM}	100(Uni)	A
Electrostatic Discharge	IEC61000-4-2 air discharge	ESD	±30	kV
	IEC61000-4-2 contact discharge		±30	
Thermal Resistance Junction to Lead		$R_{\theta JL}$	20	°C/W
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	60	℃/W
Operating Junction and Storage Temperature Range		T_j, T_{stg}	- 55 to + 150	℃

1) Non-repetitive current pulse, per Fig.3 and derated above TA=25℃ per Fig.2.
2) Mounted on 5.0mm×5.0mm copper pads to each terminal
3) 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Electrical Characteristics (T_a = 25℃ unless otherwise specified)

Uni-directional / Bi-directional Type	Marking		Stand-off Voltage VWM	Breakdown Voltage 1)		Test Current IT	Maximum Clamping Voltage	Maximum Peak Pulse Current I_{PPM}	Maximum Reverse Leakage IR at VR
	UNI	BI	(V)	Min. (V)	Max. (V)	(mA)	V_C (V) at I_{PPM}	(A)	(μA)
3.0SMBJ11A/CA	3.0PGDZ	3.0PBDZ	11	12.2	13.5	1	18.2	164.83	1
3.0SMBJ12A/CA	3.0PGEE	3.0PBEE	12	13.3	14.7	1	19.9	150.75	1
3.0SMBJ13A/CA	3.0PGEG	3.0PBEG	13	14.4	15.9	1	21.5	139.53	1
3.0SMBJ14A/CA	3.0PGEK	3.0PBEK	14	15.6	17.2	1	23.2	129.31	1
3.0SMBJ15A/CA	3.0PGEM	3.0PBEM	15	16.7	18.5	1	24.4	122.95	1
3.0SMBJ16A/CA	3.0PGEP	3.0PBEP	16	17.8	19.7	1	26	115.38	1
3.0SMBJ17A/CA	3.0PGER	3.0PBER	17	18.9	20.9	1	27.6	108.69	1
3.0SMBJ18A/CA	3.0PGET	3.0PBET	18	20	22.1	1	29.2	102.73	1
3.0SMBJ20A/CA	3.0PGEV	3.0PBEV	20	22.2	24.5	1	32.4	92.59	1
3.0SMBJ22A/CA	3.0PGEX	3.0PBEX	22	24.4	26.9	1	35.5	84.5	1
3.0SMBJ24A/CA	3.0PGEZ	3.0PBEZ	24	26.7	29.5	1	38.9	77.12	1
3.0SMBJ26A/CA	3.0PGFE	3.0PBFE	26	28.9	31.9	1	42.1	71.25	1
3.0SMBJ28A/CA	3.0PGFG	3.0PBFG	28	31.1	34.4	1	45.4	66.07	1
3.0SMBJ30A/CA	3.0PGFK	3.0PBFK	30	33.3	36.8	1	48.4	61.98	1
3.0SMBJ33A/CA	3.0PGFM	3.0PBFM	33	36.7	40.6	1	53.3	56.28	1
3.0SMBJ36A/CA	3.0PGFP	3.0PBFP	36	40	44.2	1	58.1	51.63	1
3.0SMBJ40A/CA	3.0PGFR	3.0PBFR	40	44.4	49.1	1	64.5	46.51	1
3.0SMBJ43A/CA	3.0PGFT	3.0PBFT	43	47.8	52.8	1	69.4	43.22	1
3.0SMBJ45A/CA	3.0PGFV	3.0PBFV	45	50	55.3	1	72.7	41.26	1
3.0SMBJ48A/CA	3.0PGFX	3.0PBFX	48	53.3	58.9	1	77.4	38.75	1
3.0SMBJ51A/CA	3.0PGFZ	3.0PBFZ	51	56.7	62.7	1	82.4	36.4	1
3.0SMBJ54A/CA	3.0PGGE	3.0PBGE	54	60	66.3	1	87.1	34.44	1
3.0SMBJ58A/CA	3.0PGGG	3.0PBGG	58	64.4	71.2	1	93.6	32.05	1
3.0SMBJ60A/CA	3.0PGGK	3.0PBGK	60	66.7	73.7	1	96.8	30.99	1
3.0SMBJ64A/CA	3.0PGGM	3.0PBGM	64	71.1	78.6	1	103	29.12	1
3.0SMBJ70A/CA	3.0PGGP	3.0PBGP	70	77.8	86	1	113	26.54	1
3.0SMBJ75A/CA	3.0PGGR	3.0PBGR	75	83.3	92.1	1	121	24.79	1
3.0SMBJ78A/CA	3.0PGGT	3.0PBGT	78	86.7	95.8	1	126	23.8	1
3.0SMBJ85A/CA	3.0PGGV	3.0PBGV	85	94.4	104	1	137	21.89	1
3.0SMBJ90A/CA	3.0PGGX	3.0PBGX	90	100	111	1	146	20.54	1
3.0SMBJ100A/CA	3.0PGGZ	3.0PBGZ	100	111	123	1	162	18.51	1
3.0SMBJ110A/CA	3.0PGHE	3.0PBHE	110	122	135	1	177	16.94	1
3.0SMBJ120A/CA	3.0PGHG	3.0PBHG	120	133	147	1	193	15.54	1
3.0SMBJ130A/CA	3.0PGHK	3.0PBHK	130	144	159	1	209	14.35	1
3.0SMBJ150A/CA	3.0PGHM	3.0PBHM	150	167	185	1	243	12.34	1
3.0SMBJ160A/CA	3.0PGHP	3.0PBHP	160	178	197	1	259	11.58	1
3.0SMBJ170A/CA	3.0PGHR	3.0PBHR	170	189	209	1	275	10.9	1

Electrical Characteristics (Ta = 25℃ unless otherwise specified)

Uni-directional / Bi-directional Type	Marking		Stand-off Voltage VWM	Breakdown Voltage 1)		Test Current IT	Maximum Clamping Voltage	Maximum Peak Pulse Current I_{PPM}	Maximum Reverse Leakage IR at VR
	UNI	BI	(V)	Min. (V)	Max. (V)	(mA)	V_C (V) at I_{PPM}	(A)	(μA)
3.0SMBJ180A/CA	3.0PGHT	3.0PBHT	180	201	222	1	292	10.27	1
3.0SMBJ200A/CA	3.0PGHV	3.0PBHV	200	224	247	1	324	9.25	1
3.0SMBJ220A/CA	3.0PGHX	3.0PBHX	220	246	272	1	356	8.42	1

1) Pulse Test: tp≤50ms

2) Surge current waveform per Fig. 3 and derated per Fig.2

Electrical Characteristics Curves

Fig. 1 - Power Derating Curve

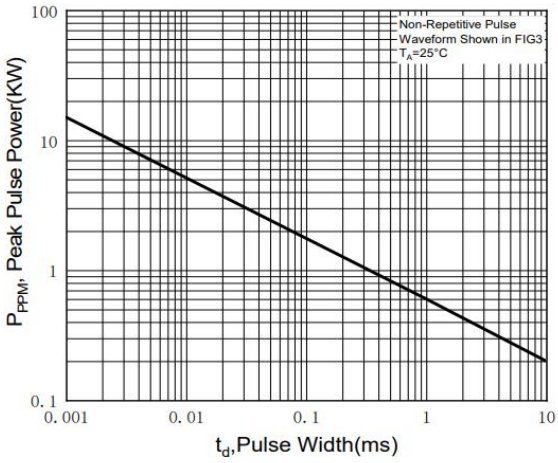


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

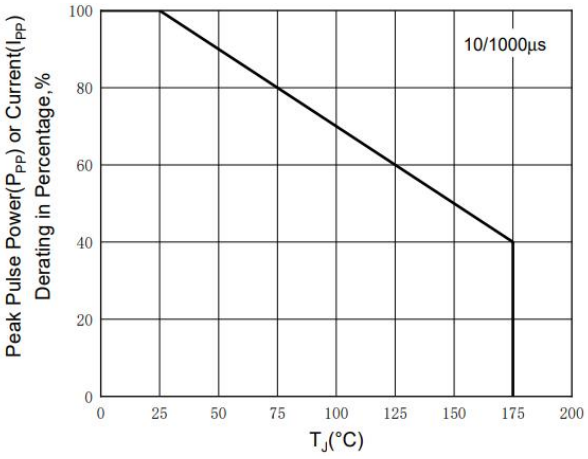


Fig. 3 - Pulse Waveform

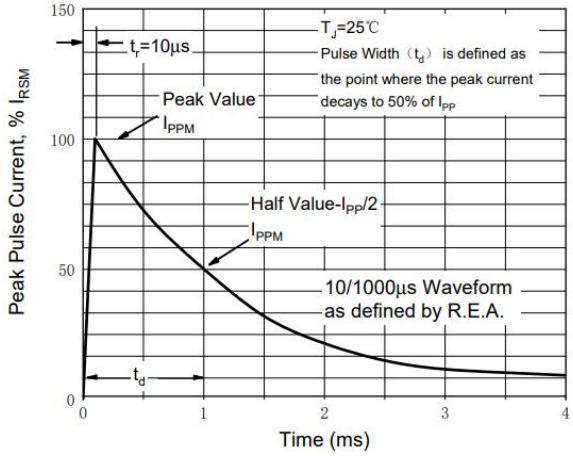


Fig. 4 - Typical Transient Thermal Impedance

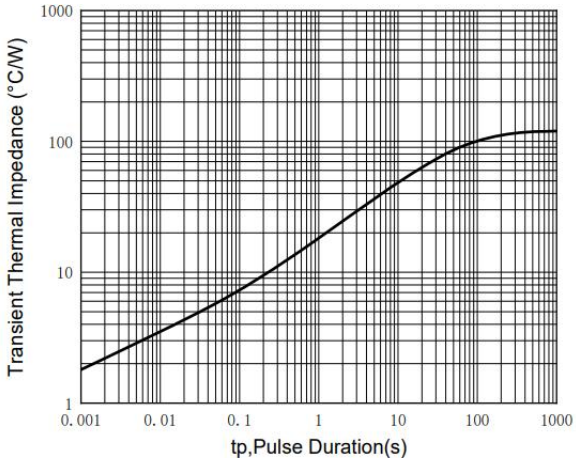


Fig. 5 - Maximum Non-Repetitive Surge Current

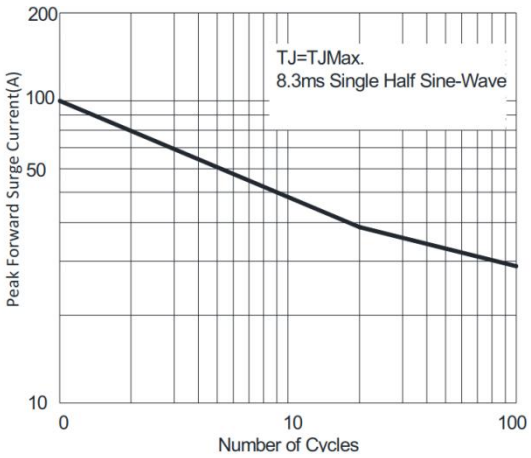
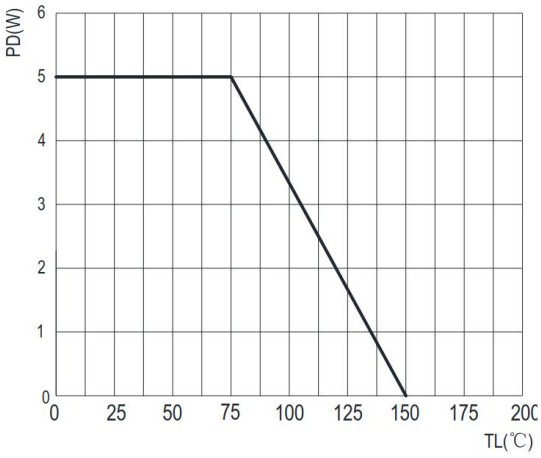
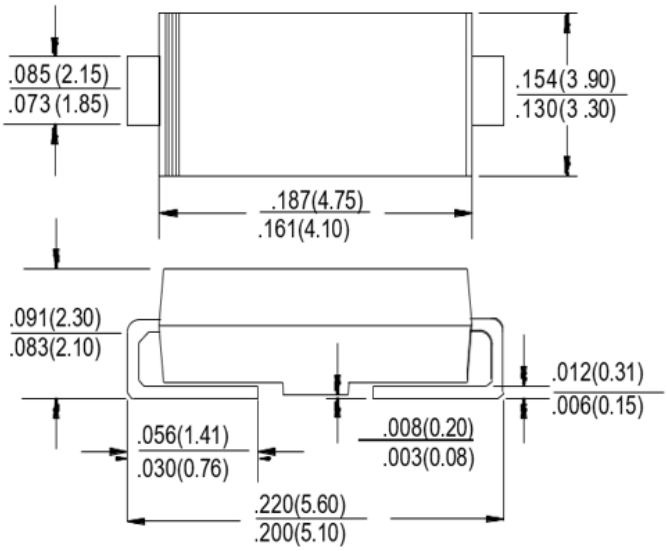


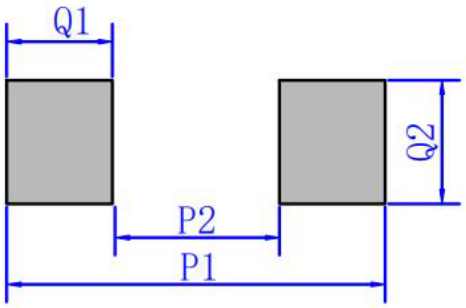
Fig. 6 - Steady State Power Dissipation



Package Outline Dimensions in inches (millimeters) SMB(DO-214AA)



Mounting Pad Layout



UNIT	P1	P2	Q1	Q2
mm	6.80	1.80	2.50	2.30

Packing Information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SMB	12	8±0.1	0.315±0.004	330	13	3000

Marking information

" 3.0PGFG " = Part No.

" YWW " = Date Code Marking

" Y " = Last digit of year (ex: 2 = 2022)

" WW " = Week Code (ex: 24 = the 24th week of the year)

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