

SMDJ10A thru SMDJ170A
Surface Mount Automotive Transient Voltage Suppressors

Revision:A

Features

- * Patented PAR® construction
- * Available in uni-directional polarity only
- * 3000 W peak pulse power capability with a 10/1000 μ s waveform
- * Excellent clamping capability
- * Very fast response time
- * Low incremental surge resistance
- * Meets MSL level 1, per J-STD-020, LF maximum
- * Solder dip 260 °C, 40 s
- * Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Functional diagram



Mechanical Data

Case: DO-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating

Base P/NHE3 - RoHS compliant, high reliability/ automotive grade (AEC Q101 qualified)

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

APPLICATIONS

Use in 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, automotive and telecommunication.

Absolute Ratings (T_{amb}=25°C)

Symbol	Paramet	Value	Unit
I _{FSM}	Peak Forward Surge Current, 8.3ms single half sine-wave ⁽²⁾ superimposed on rated load (JEDEC method)	200.0	A
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-65 to +185	°
P _D	Power Dissipation at 75°C(Fig. 6)	6	W
V _F	Maximum instantaneous forward voltage at 100 A ⁽²⁾	3.5	V
P _{PPM}	Peak pulse power dissipation with a 10/1000 μ s waveform ⁽¹⁾ (Fig. 6)	3000	W
I _{PPM}	Peak power pulse current with a 10/1000 μ s waveform ⁽¹⁾ (Fig. 1)	See next table	A

Notes:

(1) Non-repetitive current pulse, per Fig. 3 and derated above TA = 25 °C per Fig. 2

(2) Measured on 8.3 ms single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minute

SMDJ10A thru SMDJ170A

Part Number		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_{RWM} (μ A)
Uni	Bi		MIN	MAX				
SMDJ5.0	SMDJ5.0C	5	6.40	7.30	1	9	312.50	1000
SMDJ5.0A	SMDJ5.0CA	5	6.40	7.00	1	9	326.09	1000
SMDJ6.0	SMDJ6.0C	6	6.67	8.15	1	11	263.16	1000
SMDJ6.0A	SMDJ6.0CA	6	6.67	7.37	1	10	291.26	1000
SMDJ6.5	SMDJ6.5C	6	7.22	8.82	1	12	243.90	500
SMDJ6.5A	SMDJ6.5CA	6	7.22	7.98	1	11	267.86	500
SMDJ7.0	SMDJ7.0C	7	7.78	9.51	1	13	225.56	200
SMDJ7.0A	SMDJ7.0CA	7	7.78	8.60	1	12	250.00	200
SMDJ7.5	SMDJ7.5C	7	8.33	10.20	1	14	209.79	100
SMDJ7.5A	SMDJ7.5CA	7	8.33	9.21	1	12	232.56	100
SMDJ8.0	SMDJ8.0C	8	8.89	10.90	1	15	200.00	50
SMDJ8.0A	SMDJ8.0CA	8	8.89	9.83	1	13	220.59	50
SMDJ8.5	SMDJ8.5C	8	9.44	11.50	1	15	188.68	25
SMDJ8.5A	SMDJ8.5CA	8	9.44	10.40	1	14	208.33	25
SMDJ9.0	SMDJ9.0C	9	10.00	12.20	1	16	177.51	10
SMDJ9.0A	SMDJ9.0CA	9	10.00	11.10	1	15	194.81	10
SMDJ10	SMDJ10C	10	11.10	13.60	1	18	159.57	5
SMDJ10A	SMDJ10CA	10	11.10	12.30	1	17	176.47	5
SMDJ11	SMDJ11C	11	12.20	14.90	1	20	149.25	5
SMDJ11A	SMDJ11CA	11	12.20	13.50	1	18	164.84	5
SMDJ12	SMDJ12C	12	13.30	16.30	1	22	136.36	5
SMDJ12A	SMDJ12CA	12	13.30	14.70	1	19	150.75	5
SMDJ13	SMDJ13C	13	14.40	17.60	1	23	126.05	5
SMDJ13A	SMDJ13CA	13	14.40	15.90	1	21	139.53	5
SMDJ14	SMDJ14C	14	15.60	19.10	1	25	116.28	5
SMDJ14A	SMDJ14CA	14	15.60	17.20	1	23	129.31	5
SMDJ15	SMDJ15C	15	16.70	20.40	1	26	111.52	5
SMDJ15A	SMDJ15CA	15	16.70	18.50	1	24	122.95	5
SMDJ16	SMDJ16C	16	17.80	21.80	1	28	104.17	5
SMDJ16A	SMDJ16CA	16	17.80	19.70	1	26	115.38	5
SMDJ17	SMDJ17C	17	18.90	23.10	1	30	98.36	5
SMDJ17A	SMDJ17CA	17	18.90	20.90	1	27	108.70	5
SMDJ18	SMDJ18C	18	20.00	24.40	1	32	93.17	5
SMDJ18A	SMDJ18CA	18	20.00	22.10	1	29	102.74	5
SMDJ19	SMDJ19C	19	21.13	25.76	1	34	88.21	5
SMDJ19A	SMDJ19CA	19	21.10	23.30	1	30	97.47	5
SMDJ20	SMDJ20C	20	22.20	27.10	1	35	83.80	5
SMDJ20A	SMDJ20CA	20	22.20	24.50	1	32	92.59	5
SMDJ22	SMDJ22C	22	24.40	29.80	1	39	76.14	5
SMDJ22A	SMDJ22CA	22	24.40	26.90	1	35	84.51	5
SMDJ24	SMDJ24C	24	26.70	32.60	1	43	69.77	5
SMDJ24A	SMDJ24CA	24	26.70	29.50	1	38	77.12	5
SMDJ26	SMDJ26C	26	28.90	35.30	1	46	64.38	5
SMDJ26A	SMDJ26CA	26	28.90	31.90	1	42	71.26	5
SMDJ28	SMDJ28C	28	31.10	38.00	1	50	60.00	5
SMDJ28A	SMDJ28CA	28	31.10	34.40	1	45	66.08	5
SMDJ30	SMDJ30C	30	33.30	40.70	1	53	56.07	5
SMDJ30A	SMDJ30CA	30	33.30	36.80	1	48	61.98	5
SMDJ33	SMDJ33C	33	36.70	44.90	1	59	50.85	5
SMDJ33A	SMDJ33CA	33	36.70	40.60	1	53	56.29	5
SMDJ36	SMDJ36C	36	40.00	48.90	1	64	46.66	5
SMDJ36A	SMDJ36CA	36	40.00	44.20	1	58	51.64	5
SMDJ40	SMDJ40C	40	44.40	54.30	1	71	42.02	5
SMDJ40A	SMDJ40CA	40	44.40	49.10	1	64	46.51	5
SMDJ43	SMDJ43C	43	47.80	58.40	1	76	39.11	5
SMDJ43A	SMDJ43CA	43	47.80	52.80	1	69	43.23	5
SMDJ45	SMDJ45C	45	50.00	61.10	1	80	37.36	5
SMDJ45A	SMDJ45CA	45	50.00	55.30	1	72	41.27	5
SMDJ48	SMDJ48C	48	53.30	65.10	1	85	35.09	5
SMDJ48A	SMDJ48CA	48	53.30	58.90	1	77	38.76	5
SMDJ51	SMDJ51C	51	56.70	69.30	1	91	32.93	5
SMDJ51A	SMDJ51CA	51	56.70	62.70	1	82	36.41	5

SMDJ10 thru SMDJ190A

Part Number		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_{RWM} (μ A)
Uni	Bi		MIN	MAX				
SMDJ54	SMDJ54C	54	60.00	73.30	1	96	31.15	5
SMDJ54A	SMDJ54CA	54	60.00	66.30	1	87	34.44	5
SMDJ58	SMDJ58C	58	64.40	78.70	1	103.0	29.13	5
SMDJ58A	SMDJ58CA	58	64.40	71.20	1	93	32.05	5
SMDJ60	SMDJ60C	60	66.70	81.50	1	107.0	28.04	5
SMDJ60A	SMDJ60CA	60	66.70	73.70	1	96	30.99	5
SMDJ64	SMDJ64C	64	71.10	86.90	1	114.0	26.32	5
SMDJ64A	SMDJ64CA	64	71.10	78.60	1	103.0	29.13	5
SMDJ70	SMDJ70C	70	77.80	95.10	1	125.0	24.00	5
SMDJ70A	SMDJ70CA	70	77.80	86.00	1	113.0	26.55	5
SMDJ75	SMDJ75C	75	83.30	102.0	1	134.0	22.39	5
SMDJ75A	SMDJ75CA	75	83.30	92.10	1	121.0	24.79	5
SMDJ78	SMDJ78C	78	86.70	106.0	1	139.0	21.58	5
SMDJ78A	SMDJ78CA	78	86.70	95.80	1	126.0	23.81	5
SMDJ80	SMDJ80C	80	88.96	108.8	1	143.2	20.95	5
SMDJ80A	SMDJ80CA	80	88.80	97.60	1	129.6	23.15	5
SMDJ85	SMDJ85C	85	94.40	115.00	1	151.0	19.87	5
SMDJ85A	SMDJ85CA	85	94.40	104.0	1	137.0	21.90	5
SMDJ90	SMDJ90C	90	100.0	122.0	1	160.0	18.75	5
SMDJ90A	SMDJ90CA	90	100.0	111.00	1	146.0	20.55	5
SMDJ100	SMDJ100C	100.0	111.00	136.00	1	179.0	16.76	5
SMDJ100A	SMDJ100CA	100.0	111.00	123.00	1	162.0	18.52	5
SMDJ110	SMDJ110C	110.0	122.00	149.00	1	196.0	15.31	5
SMDJ110A	SMDJ110CA	110.0	122.00	135.00	1	177.0	16.95	5
SMDJ120	SMDJ120C	120.0	133.00	163.00	1	214.0	14.02	5
SMDJ120A	SMDJ120CA	120.0	133.00	147.00	1	193.0	15.54	5
SMDJ130	SMDJ130C	130.0	144.00	176.00	1	231.0	12.99	5
SMDJ130A	SMDJ130CA	130.0	144.00	159.00	1	209.0	14.35	5
SMDJ140	SMDJ140C	140.0	155.68	190.40	1	250.6	11.97	5
SMDJ140A	SMDJ140CA	140.0	155.00	171.00	1	226.8	13.23	5
SMDJ150	SMDJ150C	150.0	167.00	204.00	1	268.0	11.19	5
SMDJ150A	SMDJ150CA	150.0	167.00	185.00	1	243.0	12.35	5
SMDJ160	SMDJ160C	160.0	178.00	218.00	1	287.0	10.45	5
SMDJ160A	SMDJ160CA	160.0	178.00	197.00	1	259.0	11.58	5
SMDJ170	SMDJ170C	170.0	189.00	231.00	1	304.0	9.87	5
SMDJ170A	SMDJ170CA	170.0	189.00	209.00	1	275.0	10.91	5
SMDJ180	SMDJ180C	180.0	201.00	244.80	1	322.2	9.31	5
SMDJ180A	SMDJ180CA	180.0	201.00	220.00	1	291.6	10.29	5
SMDJ190	SMDJ190C	190.0	211.21	258.40	1	340.1	8.82	5
SMDJ190A	SMDJ190CA	190.0	211.00	232.00	1	307.8	9.75	5

RATINGS AND CHARACTERISTICS CURVES($T_a = 25\text{ }^\circ\text{C}$ unless otherwise noted)

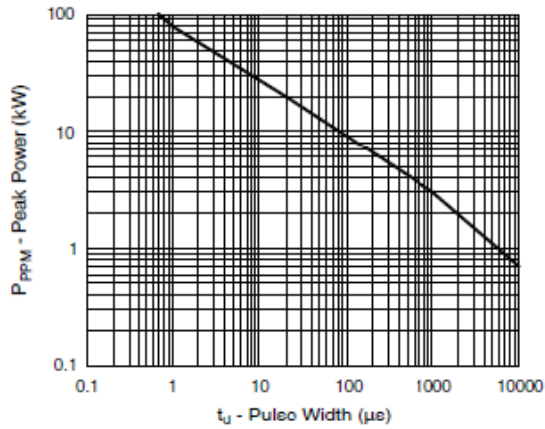


Figure 1. Peak Pulse Power Rating Curve

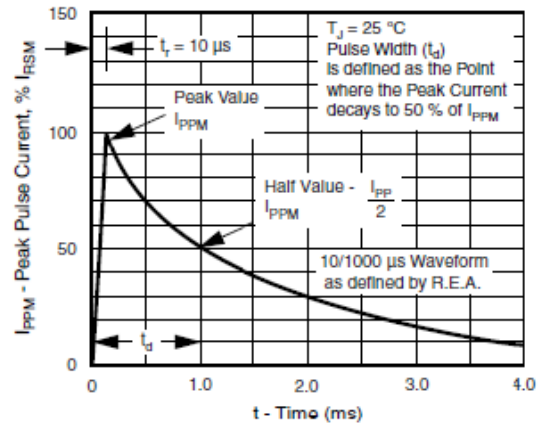


Figure 3. Pulse Waveform

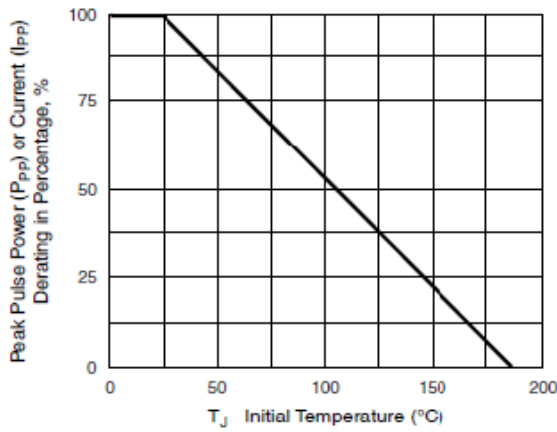


Figure 2. Pulse Power or Current vs. Initial Junction Temperature

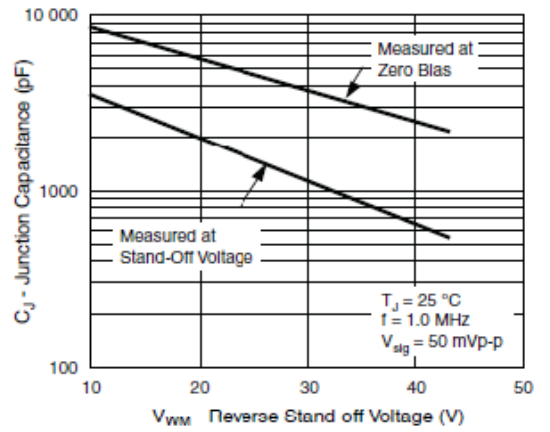


Figure 4. Typical Junction Capacitance

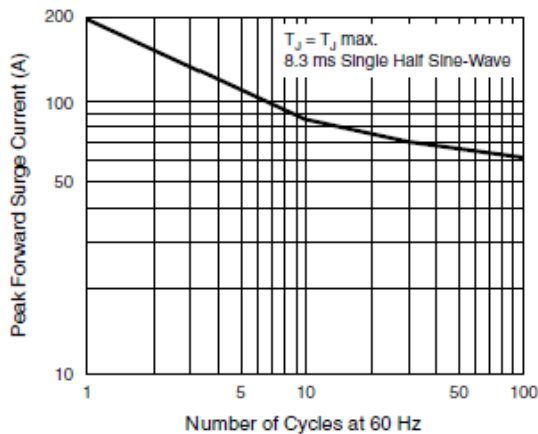


Figure 5. Maximum Non-Repetitive/Peak Forward Surge Current

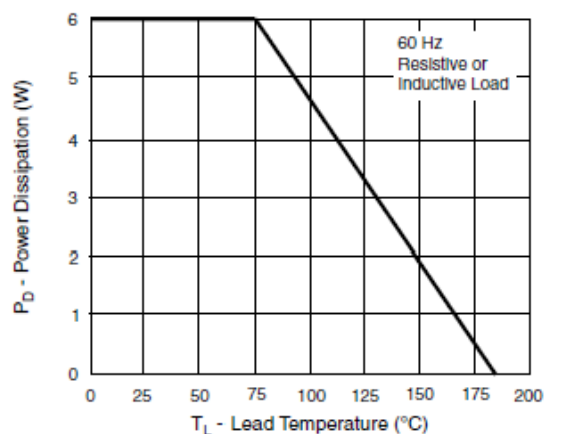
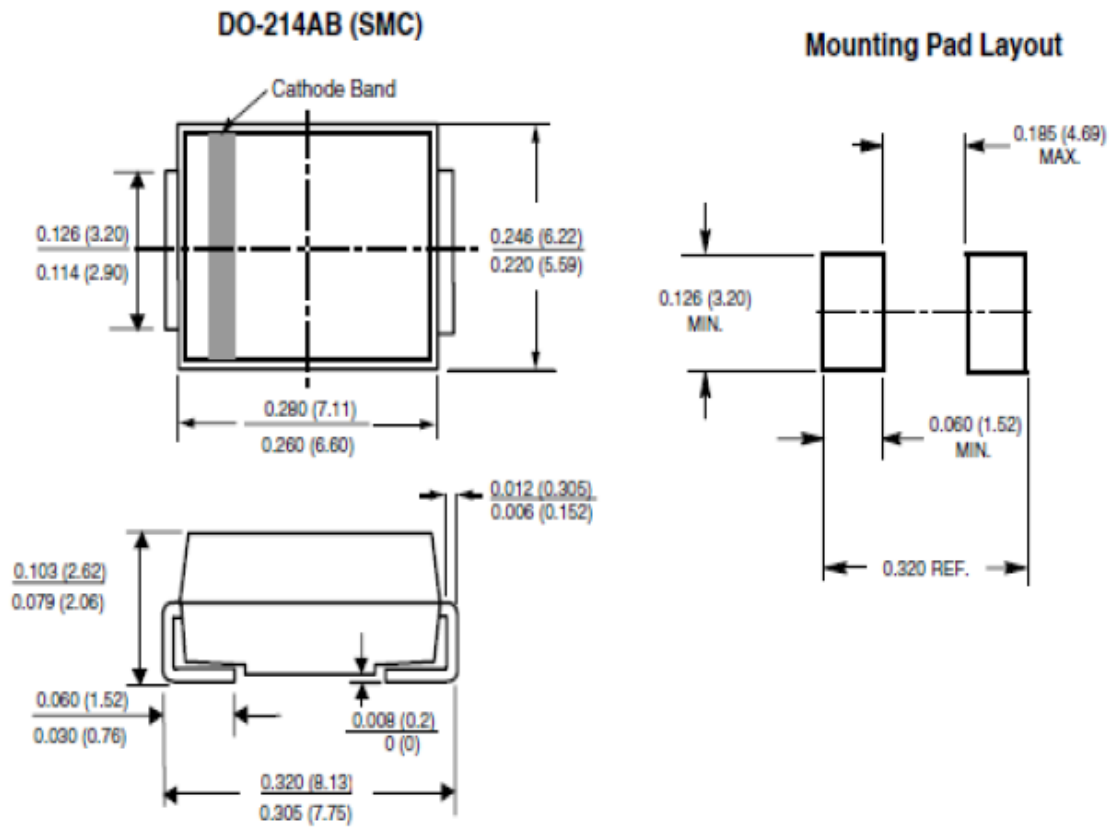


Figure 6. Power Derating Curve

PACKAGE OUTLINE DIMENSIONS in inches(millimeters)



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