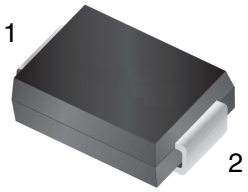
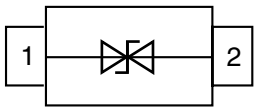
Power TVS in DO-214AB/SMC

Features

- Glass passivated chip
- 1500W peak pulse power(10/1000us)
- High accuracy, 5% tolerance
- Uni and Bidirectional unit
- Low clamping voltage
- Low Leakage current
- Very fast response time

Bidirectional

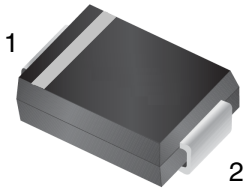


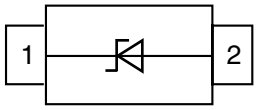


Mechanical Data

- **Case:** DO-214AB/SMC (plastic package). RoHS compliant
- **Molding Compound Flammability Rating:** UL 94 V-0
- **Terminals:** High temperature soldering guaranteed: 260 °C/10 sec. at terminals

Unidirectional





Applications

- Computers
- Telecom system
- Industrial equipments
- Consumer electronic applications
- Other VCC bus and I/O interfaces

Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with a 10/1000us waveform (1)	P_{PP}	1500	W
Maximum peak reverse pulse current a 10/1000us waveform (1)	I_{PP}	See Next Table	A
Peak forward surge current 8.3ms single half sine-wave (2)	I_{FSM}	200	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	℃

Notes:

1.Non-repetitive current pulse,per Fig.5 and detated above TA=25°C per Fig.1

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

Electrical Characteristics

(T_A = 25 °C unless otherwise specified)

Part Number	Direction	Maximum Working Voltage V_{RWM} (V)	Maximum Reverse Current@V_{RWM} I_R max(uA)	Breakdown Voltage@I_T			Peak Surge Current I_{PP} (A)	Maximum Clamping Voltage@I_{PP} V_C (V)
				V_{BR} min(V)	V_{BR} max(V)	I_T(mA)		
SMCJ5.0A	Uni-Dir	5.0	800	6.4	7.00	10	163.04	9.2
SMCJ5.0CA	Bi-Dir	5.0	1600	6.4	7.00	10	163.04	9.2
SMCJ6.0A	Uni-Dir	6.0	800	6.7	7.37	10	145.63	10.3
SMCJ6.0CA	Bi-Dir	6.0	1600	6.7	7.37	10	145.63	10.3
SMCJ6.5A	Uni-Dir	6.5	500	7.2	7.98	10	133.93	11.2
SMCJ6.5CA	Bi-Dir	6.5	1000	7.2	7.98	10	133.93	11.2
SMCJ7.0A	Uni-Dir	7.0	200	7.8	8.60	10	125.00	12.0
SMCJ7.0CA	Bi-Dir	7.0	400	7.8	8.60	10	125.00	12.0
SMCJ7.5A	Uni-Dir	7.5	100	8.3	9.21	1	116.28	12.9
SMCJ7.5CA	Bi-Dir	7.5	200	8.3	9.21	1	116.28	12.9
SMCJ8.0A	Uni-Dir	8.0	50	8.9	9.83	1	110.29	13.6
SMCJ8.0CA	Bi-Dir	8.0	100	8.9	9.83	1	110.29	13.6
SMCJ8.5A	Uni-Dir	8.5	20	9.4	10.40	1	104.17	14.4
SMCJ8.5CA	Bi-Dir	8.5	40	9.4	10.40	1	104.17	14.4
SMCJ9.0A	Uni-Dir	9.0	10	10.0	11.10	1	97.40	15.4
SMCJ9.0CA	Bi-Dir	9.0	20	10.0	11.10	1	97.40	15.4
SMCJ10A	Uni-Dir	10.0	5	11.1	12.30	1	88.24	17.0
SMCJ10CA	Bi-Dir	10.0	10	11.1	12.30	1	88.24	17.0
SMCJ11A	Uni-Dir	11.0	1	12.2	13.50	1	82.42	18.2
SMCJ11CA	Bi-Dir	11.0	1	12.2	13.50	1	82.42	18.2
SMCJ12A	Uni-Dir	12.0	1	13.3	14.70	1	75.38	19.9
SMCJ12CA	Bi-Dir	12.0	1	13.3	14.70	1	75.38	19.9
SMCJ13A	Uni-Dir	13.0	1	14.4	15.90	1	69.77	21.5
SMCJ13CA	Bi-Dir	13.0	1	14.4	15.90	1	69.77	21.5
SMCJ14A	Uni-Dir	14.0	1	15.6	17.20	1	64.66	23.2
SMCJ14CA	Bi-Dir	14.0	1	15.6	17.20	1	64.66	23.2
SMCJ15A	Uni-Dir	15.0	1	16.7	18.50	1	61.48	24.4
SMCJ15CA	Bi-Dir	15.0	1	16.7	18.50	1	61.48	24.4
SMCJ16A	Uni-Dir	16.0	1	17.8	19.70	1	57.69	26.0
SMCJ16CA	Bi-Dir	16.0	1	17.8	19.70	1	57.69	26.0
SMCJ17A	Uni-Dir	17.0	1	18.9	20.90	1	54.35	27.6
SMCJ17CA	Bi-Dir	17.0	1	18.9	20.90	1	54.35	27.6
SMCJ18A	Uni-Dir	18.0	1	20.0	22.10	1	51.37	29.2
SMCJ18CA	Bi-Dir	18.0	1	20.0	22.10	1	51.37	29.2
SMCJ19A	Uni-Dir	19.0	1	21.1	23.30	1	48.73	30.8
SMCJ19CA	Bi-Dir	19.0	1	21.1	23.30	1	48.73	30.8
SMCJ20A	Uni-Dir	20.0	1	22.2	24.50	1	46.30	32.4
SMCJ20CA	Bi-Dir	20.0	1	22.2	24.50	1	46.30	32.4

Part Number	Direction	Maximum Working Voltage V_{RWM} (V)	Maximum Reverse Current@V_{RWM} I_R max(uA)	Breakdown Voltage@I_T			Peak Surge Current I_{PP} (A)	Maximum Clamping Voltage@I_{PP} V_C (V)
				V_{BR} min(V)	V_{BR} max(V)	I_T(mA)		
SMCJ22A	Uni-Dir	22.0	1	24.4	26.90	1	42.25	35.5
SMCJ22CA	Bi-Dir	22.0	1	24.4	26.90	1	42.25	35.5
SMCJ24A	Uni-Dir	24.0	1	26.7	29.50	1	38.56	38.9
SMCJ24CA	Bi-Dir	24.0	1	26.7	29.50	1	38.56	38.9
SMCJ26A	Uni-Dir	26.0	1	28.9	31.90	1	35.63	42.1
SMCJ26CA	Bi-Dir	26.0	1	28.9	31.90	1	35.63	42.1
SMCJ28A	Uni-Dir	28.0	1	31.1	34.40	1	33.04	45.4
SMCJ28CA	Bi-Dir	28.0	1	31.1	34.40	1	33.04	45.4
SMCJ30A	Uni-Dir	30.0	1	33.3	36.80	1	30.99	48.4
SMCJ30CA	Bi-Dir	30.0	1	33.3	36.80	1	30.99	48.4
SMCJ33A	Uni-Dir	33.0	1	36.7	40.60	1	28.14	53.3
SMCJ33CA	Bi-Dir	33.0	1	36.7	40.60	1	28.14	53.3
SMCJ36A	Uni-Dir	36.0	1	40.0	44.20	1	25.82	58.1
SMCJ36CA	Bi-Dir	36.0	1	40.0	44.20	1	25.82	58.1
SMCJ40A	Uni-Dir	40.0	1	44.4	49.10	1	23.26	64.5
SMCJ40CA	Bi-Dir	40.0	1	44.4	49.10	1	23.26	64.5
SMCJ43A	Uni-Dir	43.0	1	47.8	52.80	1	21.61	69.4
SMCJ43CA	Bi-Dir	43.0	1	47.8	52.80	1	21.61	69.4
SMCJ45A	Uni-Dir	45.0	1	50.0	55.30	1	20.63	72.7
SMCJ45CA	Bi-Dir	45.0	1	50.0	55.30	1	20.63	72.7
SMCJ48A	Uni-Dir	48.0	1	53.3	58.90	1	19.38	77.4
SMCJ48CA	Bi-Dir	48.0	1	53.3	58.90	1	19.38	77.4
SMCJ51A	Uni-Dir	51.0	1	56.7	62.70	1	18.20	82.4
SMCJ51CA	Bi-Dir	51.0	1	56.7	62.70	1	18.20	82.4
SMCJ54A	Uni-Dir	54.0	1	60.0	66.30	1	17.22	87.1
SMCJ54CA	Bi-Dir	54.0	1	60.0	66.30	1	17.22	87.1
SMCJ58A	Uni-Dir	58.0	1	64.4	71.20	1	16.03	93.6
SMCJ58CA	Bi-Dir	58.0	1	64.4	71.20	1	16.03	93.6
SMCJ60A	Uni-Dir	60.0	1	66.7	73.70	1	15.50	96.8
SMCJ60CA	Bi-Dir	60.0	1	66.7	73.70	1	15.50	96.8
SMCJ64A	Uni-Dir	64.0	1	71.1	78.60	1	14.56	103.0
SMCJ64CA	Bi-Dir	64.0	1	71.1	78.60	1	14.56	103.0
SMCJ70A	Uni-Dir	70.0	1	77.8	86.00	1	13.27	113.0
SMCJ70CA	Bi-Dir	70.0	1	77.8	86.00	1	13.27	113.0
SMCJ75A	Uni-Dir	75.0	1	83.3	92.10	1	12.40	121.0
SMCJ75CA	Bi-Dir	75.0	1	83.3	92.10	1	12.40	121.0
SMCJ78A	Uni-Dir	78.0	1	86.7	95.80	1	11.90	126.0
SMCJ78CA	Bi-Dir	78.0	1	86.7	95.80	1	11.90	126.0

Part Number	Direction	Maximum Working Voltage V_{RWM} (V)	Maximum Reverse Current@V_{RWM} I_R max(uA)	Breakdown Voltage@I_T			Peak Surge Current I_{PP} (A)	Maximum Clamping Voltage@I_{PP} V_C (V)
				V_{BR} min(V)	V_{BR} max(V)	I_T(mA)		
SMCJ80A	Uni-Dir	80.0	1	88.8	97.60	1	11.57	129.6
SMCJ80CA	Bi-Dir	80.0	1	88.8	97.60	1	11.57	129.6
SMCJ85A	Uni-Dir	85.0	1	94.4	104.00	1	10.95	137.0
SMCJ85CA	Bi-Dir	85.0	1	94.4	104.00	1	10.95	137.0
SMCJ90A	Uni-Dir	90.0	1	100.0	111.00	1	10.27	146.0
SMCJ90CA	Bi-Dir	90.0	1	100.0	111.00	1	10.27	146.0
SMCJ100A	Uni-Dir	100.0	1	111.0	123.00	1	9.26	162.0
SMCJ100CA	Bi-Dir	100.0	1	111.0	123.00	1	9.26	162.0
SMCJ110A	Uni-Dir	110.0	1	122.0	135.00	1	8.47	177.0
SMCJ110CA	Bi-Dir	110.0	1	122.0	135.00	1	8.47	177.0
SMCJ120A	Uni-Dir	120.0	1	133.0	147.00	1	7.77	193.0
SMCJ120CA	Bi-Dir	120.0	1	133.0	147.00	1	7.77	193.0
SMCJ130A	Uni-Dir	130.0	1	144.0	159.00	1	7.18	209.0
SMCJ130CA	Bi-Dir	130.0	1	144.0	159.00	1	7.18	209.0
SMCJ140A	Uni-Dir	140.0	1	155.0	171.00	1	6.61	226.8
SMCJ140CA	Bi-Dir	140.0	1	155.0	171.00	1	6.61	226.8
SMCJ150A	Uni-Dir	150.0	1	167.0	185.00	1	6.17	243.0
SMCJ150CA	Bi-Dir	150.0	1	167.0	185.00	1	6.17	243.0
SMCJ160A	Uni-Dir	160.0	1	178.0	197.00	1	5.79	259.0
SMCJ160CA	Bi-Dir	160.0	1	178.0	197.00	1	5.79	259.0
SMCJ170A	Uni-Dir	170.0	1	189.0	209.00	1	5.45	275.0
SMCJ170CA	Bi-Dir	170.0	1	189.0	209.00	1	5.45	275.0
SMCJ180A	Uni-Dir	180.0	1	200.0	220.00	1	5.14	291.6
SMCJ180CA	Bi-Dir	180.0	1	200.0	220.00	1	5.14	291.6
SMCJ190A	Uni-Dir	190.0	1	211.0	232.00	1	4.87	307.8
SMCJ190CA	Bi-Dir	190.0	1	211.0	232.00	1	4.87	307.8
SMCJ200A	Uni-Dir	200.0	1	224.0	247.00	1	4.60	324.0
SMCJ200CA	Bi-Dir	200.0	1	224.0	247.00	1	4.60	324.0
SMCJ220A	Uni-Dir	220.0	1	246.0	272.00	1	4.20	356.0
SMCJ220CA	Bi-Dir	220.0	1	246.0	272.00	1	4.20	356.0
SMCJ250A	Uni-Dir	250.0	1	279.0	309.00	1	3.70	405.0
SMCJ250CA	Bi-Dir	250.0	1	279.0	309.00	1	3.70	405.0
SMCJ300A	Uni-Dir	300.0	1	335.0	371.00	1	3.10	486.0
SMCJ300CA	Bi-Dir	300.0	1	335.0	371.00	1	3.10	486.0
SMCJ350A	Uni-Dir	350.0	1	391.0	432.00	1	2.60	567.0
SMCJ350CA	Bi-Dir	350.0	1	391.0	432.00	1	2.60	567.0
SMCJ400A	Uni-Dir	400.0	1	447.0	494.00	1	2.30	648.0
SMCJ400CA	Bi-Dir	400.0	1	447.0	494.00	1	2.30	648.0
SMCJ440A	Uni-Dir	440.0	1	492.0	543.00	1	2.10	713.0
SMCJ440CA	Bi-Dir	440.0	1	492.0	543.00	1	2.10	713.0

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

Fig. 1 - Pulse Derating Curve

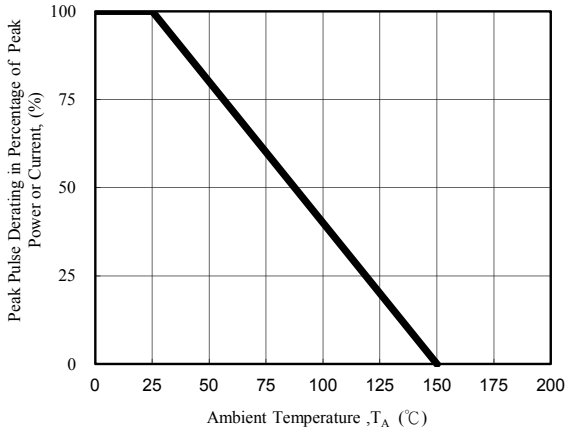


Fig. 2 - Maximum Non-Repetitive Surge Current

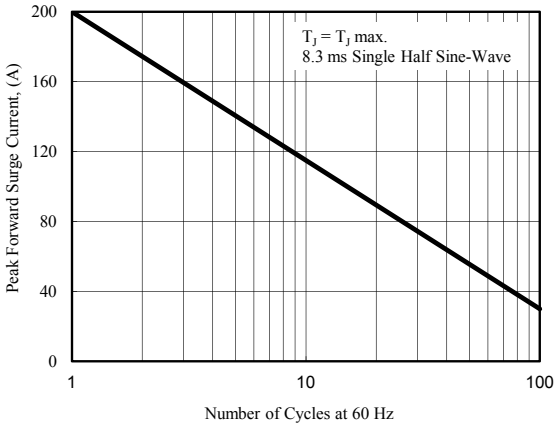


Fig. 3 - Steady State Power Derating Curve

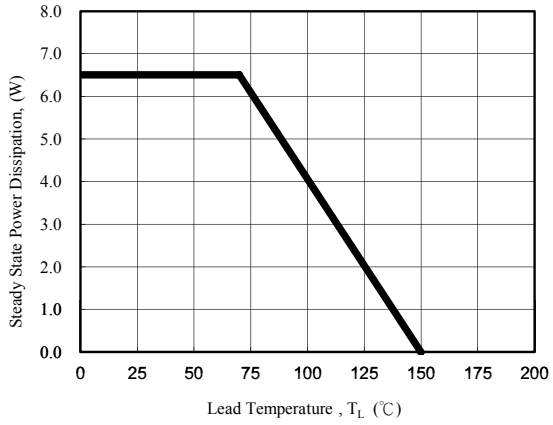


Fig. 4 - Peak Pulse Power Rating Curve

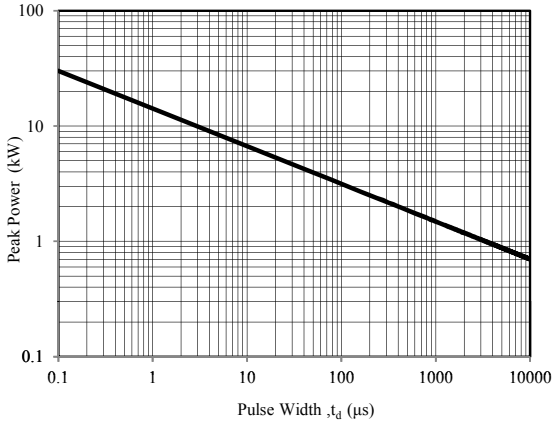


Fig. 5 - Pulse Waveform

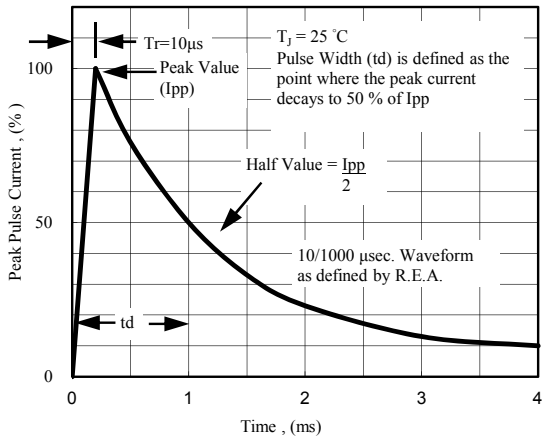
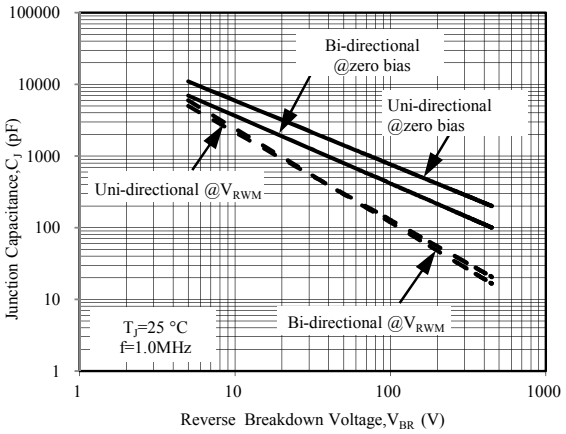
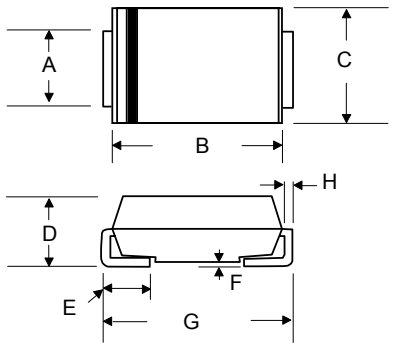


Fig. 6 - Typical Junction Capacitance



Package Dimensions



Symbol	Dimensions in millimeters	
	Min	Max
A	2.92	3.07
B	6.60	7.11
C	5.59	6.22
D	2.00	2.62
E	0.76	1.52
F	0.10	0.20
G	7.75	8.13
H	0.15	0.31

Ordering inormation

Order code	Package	Packaging option	Base quantity	Packaging specification
SMCJ Series	DO-214AB/SMC	Tape and reel	3000pcs / reel	EIA STD RS-481

Reision history

Date	Revision	Changes
23-May-2012	1.0	Initial release

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