

Transient Voltage Suppressor

Working Peak Reverse Voltage: 5.0 to 440 Volts

Power Dissipation: 1500Watts

RoHS Device

Halogen Free

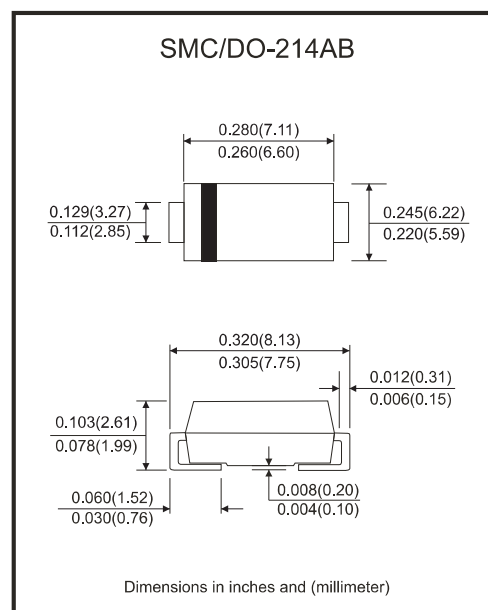


Features

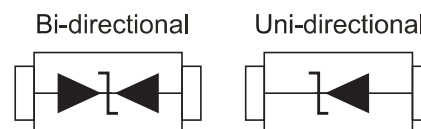
- 1500W peak pulse power capability with a 10/1000us waveform, repetitive rate (duty cycle):0.01%
- For surface mounted applications to optimize board space
- Low incremental surge impedance
- Excellent clamping capability
- Very fast response time
- Uni and Bidirectional unit
- Plastic package has underwriters laboratory flammability 94V-0
- Meet Halogen free and RoHS compliant

Mechanical data

- Case: SMC/DO-214AB, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes positive end (cathode) except bi-directional models.



Circuit Diagram



Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz resistive or inductive load. For capacitive load, derate current by 20%.

Characteristics	Symbol	Value	Units
Peak power dissipation on a 10/1000μs waveform (Note 1)	P _{PP}	1500	W
Peak pulse current on a 10/1000μs waveform (Note 1)	I _{PP}	See Next Table	A
Steady state power dissipation at T _L =50°C	P _D	6.5	W
Peak forward surge current, 8.3ms single half sine-wave uni-directional only (Note 2)	I _{FSM}	200	A
Maximum instantaneous forward voltage at 100A for uni-directional only	V _F	3.5/5.0	V
Operation junction and storage temperature range	T _J , T _{STG}	-55 to +150	°C

Notes: 1. Non-repetitive current pulse, and derated above T_A=25°C

2. Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

3. V_F<3.5V for devices of VBR<200V and V_F<5.0V for devices of VBR>201V

Company reserves the right to improve product design , functions and reliability without notice.

Rev:1.0

Electrical Characteristics (at TA=25°C, unless otherwise specified)

Part No.	Breakdown voltage VBR @ IT			Maximum Reverse Leakage @VRWM IR (μA)	Working Peak Reverse Voltage VRWM (V)	Maximum Reverse Surge Current IPP (A)	Maximum Clamping Voltage @IPP VC (V)	Marking Code	
	Min. (V)	Max. (V)	IT (mA)					UNI	BI
SMCJ5.0(C)A	6.40	7.25	10	1000	5.0	163.0	9.2	GDE	BDE
SMCJ6.0(C)A	6.67	7.37	10	1000	6.0	145.6	10.3	GDG	BDG
SMCJ6.5(C)A	7.22	7.98	10	500	6.5	133.9	11.2	GDK	BDK
SMCJ7.0(C)A	7.78	8.60	10	200	7.0	125.0	12.0	GDM	BDM
SMCJ7.5(C)A	8.33	9.21	1	100	7.5	116.3	12.9	GDP	BDP
SMCJ8.0(C)A	8.89	9.83	1	50	8.0	110.3	13.6	GDR	BDR
SMCJ8.5(C)A	9.44	10.40	1	20	8.5	104.2	14.4	GDT	BDT
SMCJ9.0(C)A	10.00	11.10	1	10	9.0	97.4	15.4	GDV	BDV
SMCJ10(C)A	11.10	12.30	1	5	10.0	88.2	17.0	GDX	BDX
SMCJ11(C)A	12.20	13.50	1	5	11.0	82.4	18.2	GDZ	BDZ
SMCJ12(C)A	13.30	14.70	1	5	12.0	75.4	19.9	GEE	BEE
SMCJ13(C)A	14.40	15.90	1	5	13.0	69.8	21.5	GEG	BEG
SMCJ14(C)A	15.60	17.20	1	5	14.0	64.7	23.2	GEK	BEK
SMCJ15(C)A	16.70	18.50	1	5	15.0	61.5	24.4	GEM	BEM
SMCJ16(C)A	17.80	19.70	1	5	16.0	57.7	26.0	GEP	BEP
SMCJ17(C)A	18.90	20.90	1	5	17.0	54.3	27.6	GER	BER
SMCJ18(C)A	20.00	22.10	1	5	18.0	51.4	29.2	GET	BET
SMCJ20(C)A	22.20	24.50	1	5	20.0	46.3	32.4	GEV	BEV
SMCJ22(C)A	24.40	26.90	1	5	22.0	42.3	35.5	GEX	BEX
SMCJ24(C)A	26.70	29.50	1	5	24.0	38.6	38.9	GEZ	BEZ
SMCJ26(C)A	28.90	31.90	1	5	26.0	35.6	42.1	GFE	BFE
SMCJ28(C)A	31.10	34.40	1	5	28.0	33.0	45.4	GFG	BFG
SMCJ30(C)A	33.30	36.80	1	5	30.0	31.1	48.4	GFK	BFK
SMCJ33(C)A	36.70	40.60	1	5	33.0	28.1	53.3	GFM	BFM
SMCJ36(C)A	40.00	44.20	1	5	36.0	25.8	58.1	GFP	BFP
SMCJ40(C)A	44.40	49.10	1	5	40.0	23.3	64.5	GFR	BFR
SMCJ43(C)A	47.80	52.80	1	5	43.0	21.6	69.4	GFT	BFT
SMCJ45(C)A	50.00	55.30	1	5	45.0	20.6	72.7	GFV	BFV
SMCJ48(C)A	53.30	58.90	1	5	48.0	19.4	77.4	GFX	BFX
SMCJ51(C)A	56.70	62.70	1	5	51.0	18.2	82.4	GFZ	BFZ
SMCJ54(C)A	60.00	66.30	1	5	54.0	17.2	87.1	GGE	BGE
SMCJ58(C)A	64.40	71.20	1	5	58.0	16.0	93.6	GGG	BGG
SMCJ60(C)A	66.70	73.70	1	5	60.0	15.5	96.8	GGK	BGK
SMCJ64(C)A	71.10	78.60	1	5	64.0	14.5	103.0	GGM	BGM
SMCJ70(C)A	77.80	86.00	1	5	70.0	13.3	113.0	GGP	BGP
SMCJ75(C)A	83.30	92.10	1	5	75.0	12.4	121.0	GGR	BGR
SMCJ78(C)A	86.70	95.80	1	5	78.0	11.9	126.0	GGT	BGT
SMCJ85(C)A	94.40	104.00	1	5	85.0	10.9	137.0	GGV	BGV
SMCJ90(C)A	100.00	111.00	1	5	90.0	10.3	146.0	GGX	BGX
SMCJ100(C)A	111.00	123.00	1	5	100.0	9.3	162.0	GGZ	BGZ

Electrical Characteristics (at TA=25°C, unless otherwise specified)

Part No.	Breakdown voltage V _{BR} @ I _T			Maximum Reverse Leakage @V _{RWM} I _R (μA)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} (A)	Maximum Clamping Voltage @I _{PP} V _C (V)	Marking Code	
	Min. (V)	Max. (V)	I _T (mA)					UNI	BI
SMCJ110(C)A	122.0	135.0	1	5	110.0	8.5	177.0	GHE	BHE
SMCJ120(C)A	133.0	147.0	1	5	120.0	7.8	193.0	GHG	BHG
SMCJ130(C)A	144.0	159.0	1	5	130.0	7.2	209.0	GHK	BHK
SMCJ150(C)A	167.0	185.0	1	5	150.0	6.2	243.0	GHM	BHM
SMCJ160(C)A	178.0	197.0	1	5	160.0	5.8	259.0	GHP	BHP
SMCJ170(C)A	189.0	209.0	1	5	170.0	5.4	275.0	GHR	BHR
SMCJ180(C)A	200.0	220.0	1	5	180.0	5.1	291.6	GHT	BHT
SMCJ200(C)A	224.0	247.0	1	5	200.0	4.6	324.0	GHV	BHV
SMCJ220(C)A	246.0	272.0	1	5	220.0	4.2	356.0	GHX	BHX
SMCJ250(C)A	279.0	309.0	1	5	250.0	3.7	405.0	GHZ	BHZ
SMCJ300(C)A	335.0	371.0	1	5	300.0	3.1	486.0	GJE	BJE
SMCJ350(C)A	391.0	432.0	1	5	350.0	2.6	567.0	GJG	BJG
SMCJ400(C)A	447.0	494.0	1	5	400.0	2.3	648.0	GJK	BJK
SMCJ440(C)A	492.0	543.0	1	5	440.0	2.1	713.0	GJM	BJM

Notes: 1. For Bi-directional type having V_{RWM} of 10V and less, the I_R Limit is double.

2. For Bi-directional devices, use suffix CA.

Rating and Characteristic Curves (SMCJ5.0(C)A THRU SMCJ440(C)A)

Fig.1 - Pulse Derating Curve

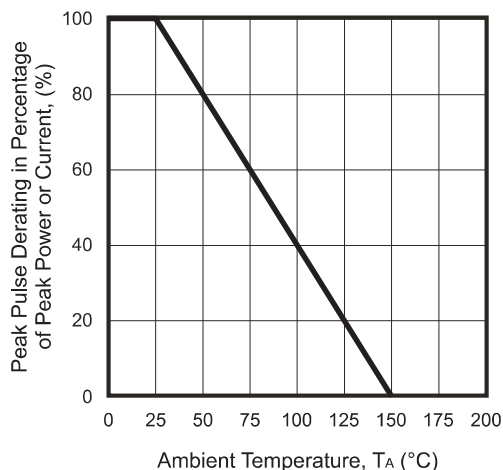


Fig.2 - Maximum Non-Repetitive Surge Current

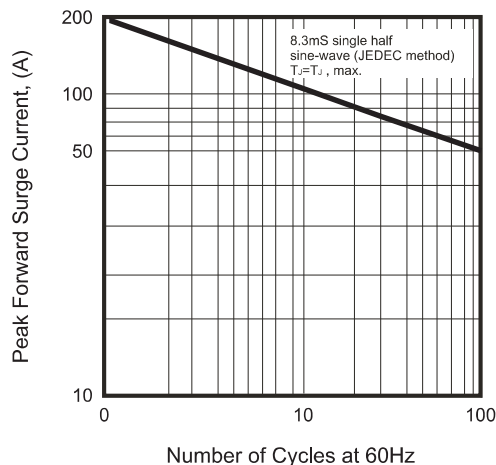


Fig.3 - Steady State Power Derating Curve

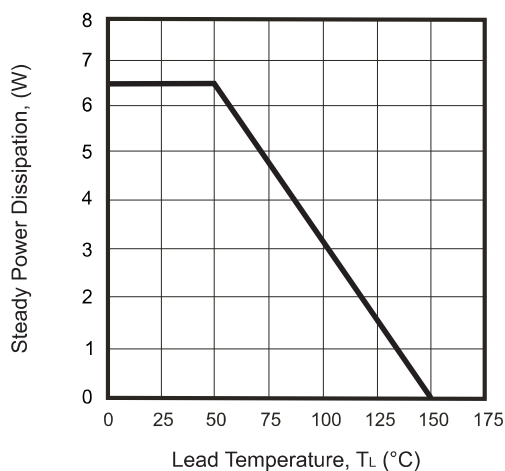


Fig.4 - Peak Pulse Power Rating Curve

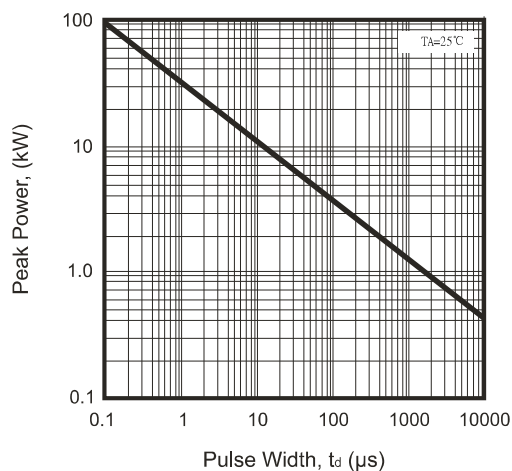
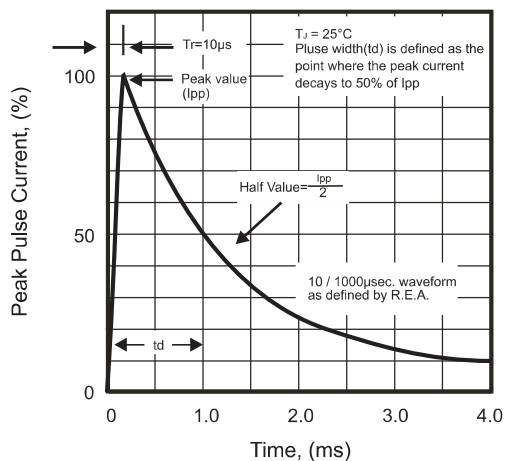
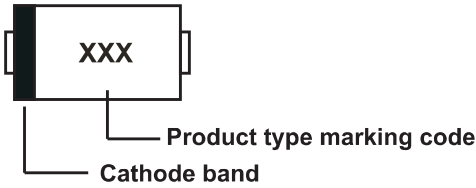


Fig.5 - Pulse Waveform



Marking Code

Part Number	Marking Code
SMCJ - Series	See Page 2~3

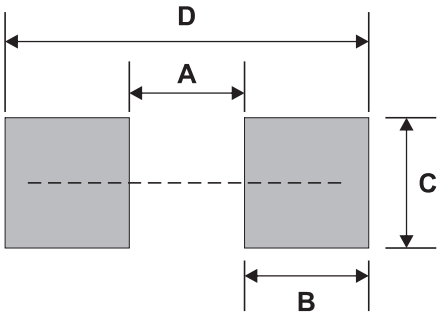


xxx = Marking code (See Page 2~3)

Suggested P.C.B. PAD Layout

SIZE	DO-214AB (SMC)	
	(mm)	(inch)
A	3.80	0.150
B	4.10	0.161
C	4.30	0.169
D	12.00	0.472

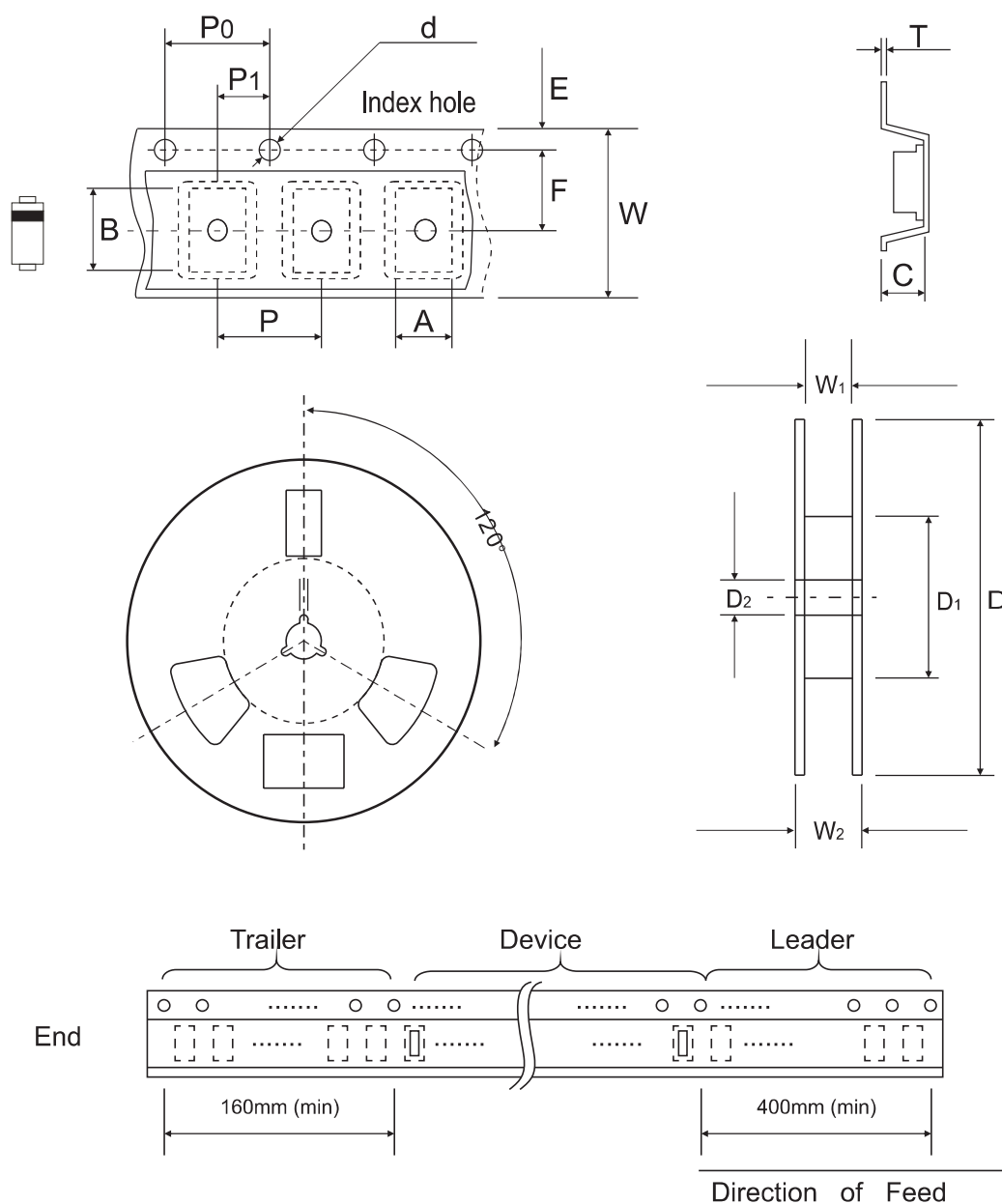
Note: 1. The pad layout is for reference purpose only.



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
DO-214AB (SMC)	3,000	13

Reel Taping Specification



DO-214AB (SMC)	SYMBOL	A	B	C	d	T	D	D ₁	D ₂
	(mm)	See Note 1			1.55 ± 0.05	0.40 (Max.)	330.00	50.00 (Min.)	13.00 ^{+0.50} _{-0.20}
	(inch)				0.061 ± 0.002	0.016 (Max.)	13.000	1.969 (Min.)	0.512 ^{+0.020} _{-0.008}

DO-214AB (SMC)	SYMBOL	E	F	P	P ₀	P ₁	W	W ₁	W ₂
	(mm)	1.75 ± 0.10	7.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	16.00 ± 0.10	16.40 ^{+2.00} _{-0.00}	22.40 (Max.)
	(inch)	0.069 ± 0.004	0.295 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.630 ± 0.004	0.646 ^{+0.079} _{-0.000}	0.882 (Max.)

Notes: 1. A, B, and C the clearance between the component and the cavity must be within 0.5 mm max. for 8 mm tape and 12 mm tape, 1.0 mm max. for 16mm tape and 24 mm tape.

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Rev:1.0