

Transient Voltage Suressor

Working Peak Reverse Voltage: 5.0 to 440 Volts

Power Dissipation: 3000Watts

RoHS Device

Halogen Free



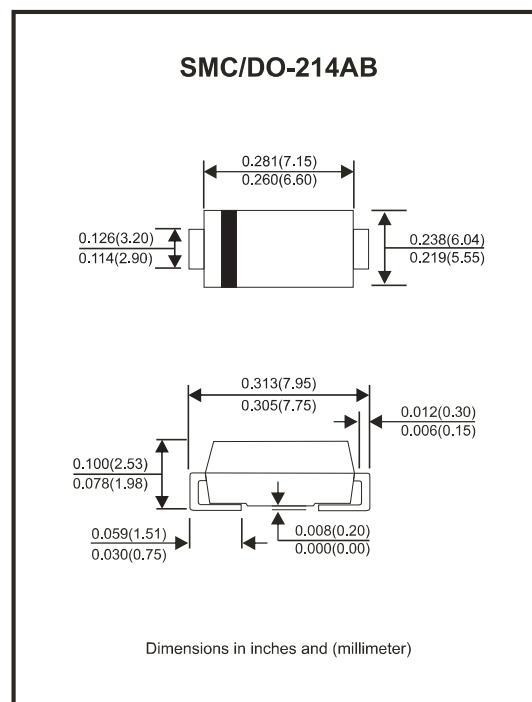
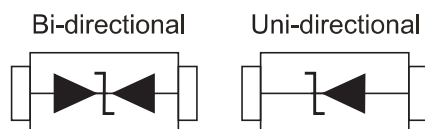
Features

- Glass passivated chip.
- 3000W peak pulse power capability with a 10/1000us waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.

Mechanical Data

- Case: DO-214AB/SMC molded plastic.
- Epoxy: UL 94V-0 rate flame retardant.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Polarity: Color band denoted cathode end except bipolar.
- Weight: 0.230 grams (approx.).

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 with a 10/1000μs waveform (Note 1)	P _{PP}	3000	W
Peak pulse current with a 10/1000μs waveform (Note 1)	I _{PP}	See Next Table	A
Power dissipation on infinite heatsink at T _L =75°C	P _D	6.5	W
Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 2)	I _{FSM}	300	A
Maximum instantaneous forward voltage at 100A for unidirectional only (Note 3)	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, per Fig.5 and derated above T_A=25°C, per Fig.1
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3. V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V

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

Rev:1.0

Electrical Characteristics (SMDJ5.0(C)A THRU SMDJ440(C)A)

Part No.	Breakdown voltage V _{BR} @ I _T			Maximum Reverse Leakage @V _{RRM} I _R (μA)	Working Peak Reverse Voltage V _{RRM} (V)	Maximum Reverse Surge Current I _{PP} (A)	Maximum Clamping Voltage @I _{PP} V _C (V)	Device Marking Code	
	Min. (V)	Max. (V)	I _T (mA)					UNI	BI
SMDJ5.0(C)A	6.40	7.00	10	800	5.0	326.09	9.2	PDE	DDE
SMDJ6.0(C)A	6.67	7.37	10	800	6.0	291.26	10.3	PDG	DDG
SMDJ6.5(C)A	7.22	7.98	10	500	6.5	267.86	11.2	PDK	DDK
SMDJ7.0(C)A	7.78	8.60	10	200	7.0	250.00	12.0	PDM	DDM
SMDJ7.5(C)A	8.33	9.21	1	100	7.5	232.56	12.9	PDP	DDP
SMDJ8.0(C)A	8.89	9.83	1	50	8.0	220.59	13.6	PDR	DDR
SMDJ8.5(C)A	9.44	10.40	1	20	8.5	208.33	14.4	PDT	DDT
SMDJ9.0(C)A	10.00	11.10	1	10	9.0	194.81	15.4	PDV	DDV
SMDJ10(C)A	11.10	12.30	1	5	10.0	176.47	17.0	PDX	DDX
SMDJ11(C)A	12.20	13.50	1	2	11.0	164.84	18.2	PDZ	DDZ
SMDJ12(C)A	13.30	14.70	1	2	12.0	150.75	19.9	PEE	DEE
SMDJ13(C)A	14.40	15.90	1	2	13.0	139.53	21.5	PEG	DEG
SMDJ14(C)A	15.60	17.20	1	2	14.0	129.31	23.2	PEK	DEK
SMDJ15(C)A	16.70	18.50	1	2	15.0	122.95	24.4	PEM	DEM
SMDJ16(C)A	17.80	19.70	1	2	16.0	115.38	26.0	PEP	DEP
SMDJ17(C)A	18.90	20.90	1	2	17.0	108.70	27.6	PER	DER
SMDJ18(C)A	20.00	22.10	1	2	18.0	102.74	29.2	PET	DET
SMDJ19(C)A	21.10	23.30	1	2	19.0	97.47	30.8	PEB	DEB
SMDJ20(C)A	22.20	24.50	1	2	20.0	92.59	32.4	PEV	DEV
SMDJ22(C)A	24.40	26.90	1	2	22.0	84.51	35.5	PEX	DEX
SMDJ24(C)A	26.70	29.50	1	2	24.0	77.12	38.9	PEZ	DEZ
SMDJ26(C)A	28.90	31.90	1	2	26.0	71.26	42.1	PFE	DFE
SMDJ28(C)A	31.10	34.40	1	2	28.0	66.08	45.4	PFG	DFG
SMDJ30(C)A	33.30	36.80	1	2	30.0	61.98	48.4	PFK	DFK
SMDJ33(C)A	36.70	40.60	1	2	33.0	56.29	53.3	PFM	DFM
SMDJ36(C)A	40.00	44.20	1	2	36.0	51.64	58.1	PFP	DFP
SMDJ40(C)A	44.40	49.10	1	2	40.0	46.51	64.5	PFR	DFR
SMDJ43(C)A	47.80	52.80	1	2	43.0	43.23	69.4	PFT	DFT
SMDJ45(C)A	50.00	55.30	1	2	45.0	41.27	72.7	PFV	DFV
SMDJ48(C)A	53.30	58.90	1	2	48.0	38.76	77.4	PFX	DFX
SMDJ51(C)A	56.70	62.70	1	2	51.0	36.41	82.4	PFZ	DFZ
SMDJ54(C)A	60.00	66.30	1	2	54.0	34.44	87.1	PGE	DGE
SMDJ58(C)A	64.40	71.20	1	2	58.0	32.05	93.6	PGG	DGG
SMDJ60(C)A	66.70	73.70	1	2	60.0	30.99	96.8	PGK	DGK
SMDJ64(C)A	71.10	78.60	1	2	64.0	29.13	103.0	PGM	DGM
SMDJ70(C)A	77.80	86.00	1	2	70.0	26.55	113.0	PGP	DGP
SMDJ75(C)A	83.30	92.10	1	2	75.0	24.79	121.0	PGR	DGR
SMDJ78(C)A	86.70	95.80	1	2	78.0	23.81	126.0	PGT	DGT
SMDJ80(C)A	88.80	97.60	1	2	80.0	23.15	129.6	PGB	DGB
SMDJ85(C)A	94.40	104.00	1	2	85.0	21.90	137.0	PGV	DGV
SMDJ90(C)A	100.00	111.00	1	2	90.0	20.55	146.0	PGX	DGX
SMDJ100(C)A	111.00	123.00	1	2	100.0	18.52	162.0	PGZ	DGZ
SMDJ110(C)A	122.00	135.00	1	2	110.0	16.95	177.0	PHE	DHE
SMDJ120(C)A	133.00	147.00	1	2	120.0	15.54	193.0	PHG	DHG

Electrical Characteristics (SMDJ5.0(C)A THRU SMDJ440(C)A)

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)	Device Marking Code	
	Min. (V)	Max. (V)	I _T (mA)					UNI	BI
SMDJ130(C)A	144.0	159.0	1	2	130.0	14.35	209.0	PHK	DHK
SMDJ140(C)A	155.0	171.0	1	2	140.0	13.23	226.8	PHB	DHB
SMDJ150(C)A	167.0	185.0	1	2	150.0	12.35	243.0	PHM	DHM
SMDJ160(C)A	178.0	197.0	1	2	160.0	11.58	259.0	PHP	DHP
SMDJ170(C)A	189.0	209.0	1	2	170.0	10.91	275.0	PHR	DHR
SMDJ180(C)A	200.0	220.0	1	2	180.0	10.29	291.6	PHT	DHT
SMDJ190(C)A	211.0	232.0	1	2	190.0	9.75	307.8	PHV	DHV
SMDJ200(C)A	224.0	247.0	1	2	200.0	9.26	324.0	PHW	DHW
SMDJ220(C)A	246.0	272.0	1	2	220.0	8.43	356.0	PHX	DHX
SMDJ250(C)A	279.0	309.0	1	2	250.0	7.41	405.0	PHZ	DHZ
SMDJ300(C)A	335.0	371.0	1	2	300.0	6.17	486.0	PJE	DJE
SMDJ350(C)A	391.0	432.0	1	2	350.0	5.29	567.0	PJG	DJG
SMDJ400(C)A	447.0	494.0	1	2	400.0	4.63	648.0	PJK	DJK
SMDJ440(C)A	492.0	543.0	1	2	440.0	4.21	713.0	PJM	DJM

Note:

- 1) Suffix C after part number to specify Bi-directional devices.
- 2) For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double.

Rating and Characteristic Curves (SMDJ5.0(C)A THRU SMDJ440(C)A)

Fig.1 - Pulse Derating Curve

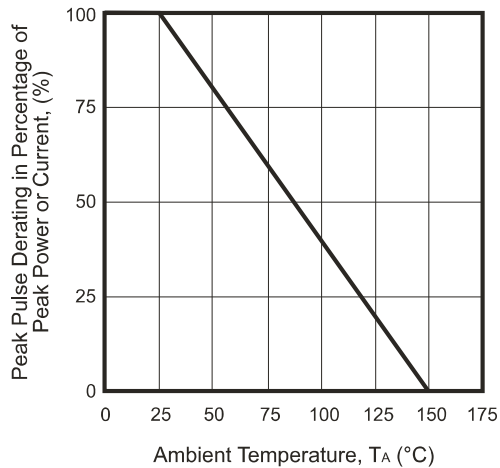


Fig.2 - Max. Non-Repetitive Surge Current

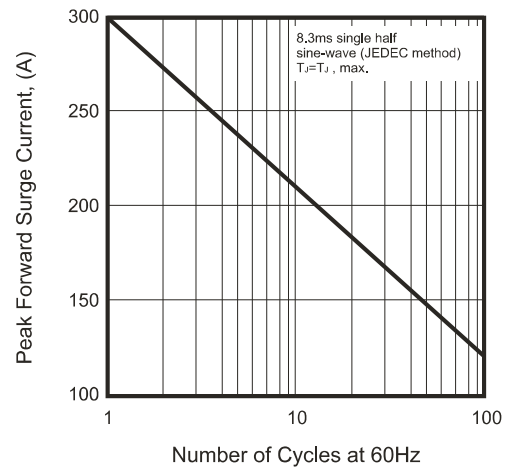


Fig.3 - Steady State Power Derating Curve

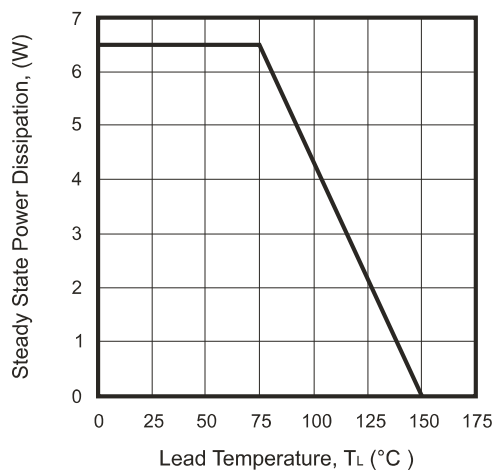


Fig.4 - Peak Pulse Power Rating Curve

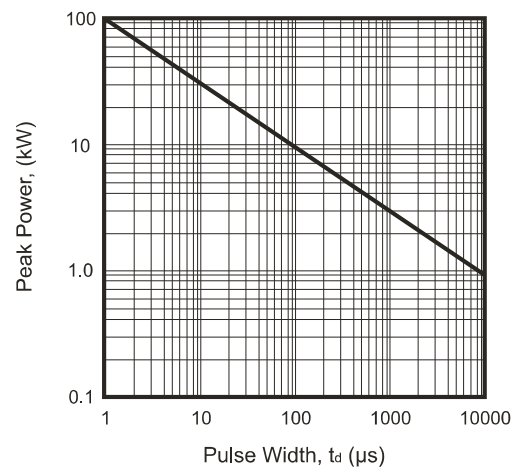


Fig.5 - Pulse Waveform

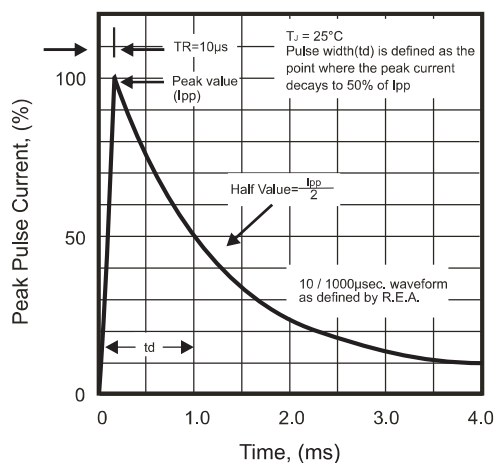
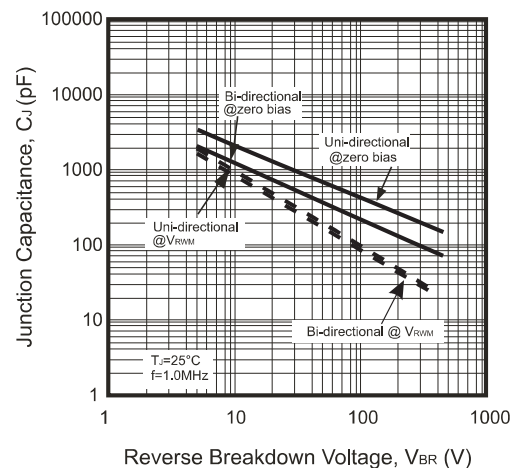
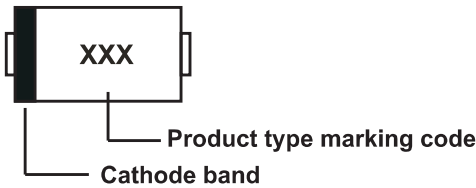


Fig.6 - Typical Junction Capacitance



Marking Code

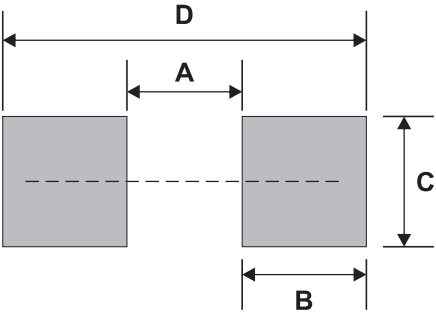
Part Number	Marking Code
SMDJ - Series	See Page 2~3



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

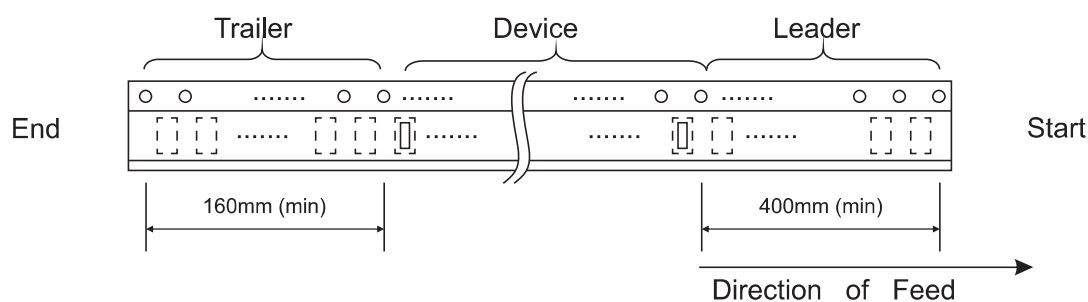
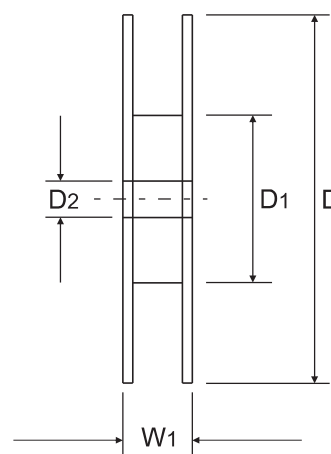
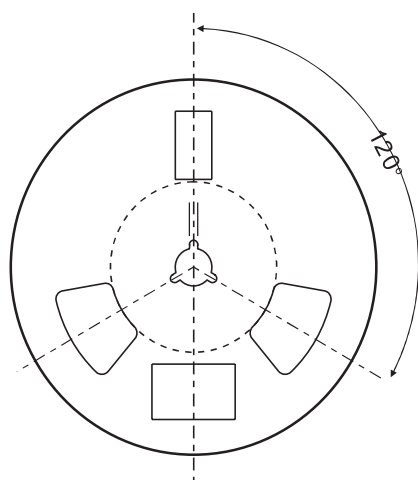
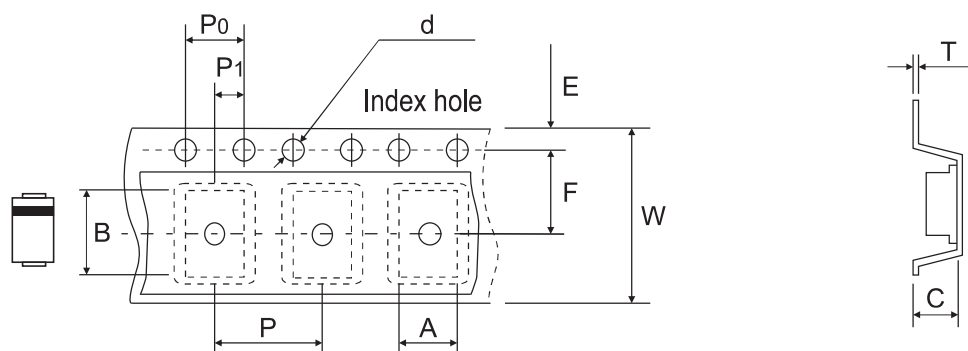


Note: 1. The pad layout is for reference purpose only.

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	D	D1	D2
	(mm)	6.22 ± 0.10	8.31 ± 0.10	2.49 ± 0.10	1.55 ± 0.05	330 ± 2.00	100.00 ± 1.00	13.00 ± 0.20
	(inch)	0.245 ± 0.004	0.327 ± 0.004	0.098 ± 0.004	0.061 ± 0.002	12.992 ± 0.079	3.937 ± 0.039	0.512 ± 0.008

DO-214AB (SMC)	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	7.50 ± 0.10	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.28 ± 0.02	16.00 ± 0.30	21.00 ± 2.00 - 1.00
	(inch)	0.069 ± 0.004	0.295 ± 0.004	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.011 ± 0.001	0.630 ± 0.012	0.827 ± 0.079 - 0.039

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

Rev:1.0