SMBJXXCA
1-Line ESD Protection

Description

SMBJXXCA are designed to protect sensitive electronics from damage or latch-up due to EOS, lightning, CDE, and ESD. They feature large cross-sectional area junctions for conducting high transient currents. These devices offer desirable characteristics for board level protection including fast response time, low operating and clamping voltage, and no device degradation.

SMBJXXCA series may be used to protect 5V to 170V systems. They feature high surge current capability and high peak power rating, making them ideal for use in harsh transient environments.

Features

- High ESD withstand Voltage:
  - IEC 61000-4-2 (ESD): 30kV (Contact), 30kV (Air)
  - IEC 61000-4-4 (EFT) 40A (5/50ns)
- Peak power dissipation 600W @ 10x1000µs pulse
- Protects one data or power line
- Bidirectional
- High peak pulse current capability
- Operating voltage options: 5V to 170V

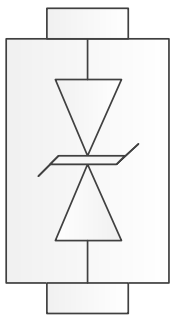
Applications

- Industrial Equipment
- Telecom/Datacom

Mechanical Characteristics

- Package: DO-214AA (SMB)
- Case material: Molding compound, UL Flammability classification 94V-0
- Pb-Free, Halogen Free, RoHS/WEEE Compliant
- Lead Finish: Pb-Free
- Marking: Marking code
- Packaging: Tape and Reel
- Low profile package
- Glass passivated junction

Schematic and Pin Configuration



Bidirectional SMBJXXCA

Absolute Maximum Rating

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation (tp = 10/1000µs)[1]	P_{PPM}	600	W
Power Dissipations on Infinite Heat Sink at T_L = 50°C	P_D	5	W
Peak Pulse Current of on 10/1000µs Waveform	I_{PPM}	See Table 1	A
Operating Temperature	T_J	-55 to +150	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Typical Thermal Resistance	$R_{\theta JA}$	100	°C/W

Electrical Characteristics

T=25°C unless otherwise specified

TYPE NUMBER	MARKING	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE MIN. @I_T	BREAKDOWN VOLTAGE MAX. @I_T	TEST CURRENT	MAXIMUM CLAMPING VOLTAGE @I_{PP}	PEAK PULSE CURRENT	REVERSE LEAKAGE @V_{RMW}
Bidirectional		V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(µA)
SMBJ5.0CA	AE	5.0	6.40	7.00	10	9.20	65.30	1600
SMBJ6.0CA	AG	6.0	6.67	7.37	10	10.30	58.30	1600
SMBJ6.5CA	AK	6.5	7.22	7.98	10	11.20	53.60	1000
SMBJ7.0CA	AM	7.0	7.78	8.60	10	12.00	50.00	400
SMBJ7.5CA	AP	7.5	8.33	9.21	1	12.90	46.60	200
SMBJ8.0CA	AR	8.0	8.89	9.83	1	13.60	44.20	100
SMBJ8.5CA	AT	8.5	9.44	10.40	1	14.40	41.70	40
SMBJ9.0CA	AV	9.0	10.00	11.10	1	15.40	39.00	20
SMBJ10CA	AX	10.0	11.10	12.30	1	17.00	35.30	10
SMBJ11CA	AZ	11.0	12.20	13.50	1	18.20	33.00	1
SMBJ12CA	BE	12.0	13.30	14.70	1	19.90	30.20	1
SMBJ13CA	BG	13.0	14.40	15.90	1	21.50	27.90	1
SMBJ14CA	BK	14.0	15.60	17.20	1	23.20	25.90	1
SMBJ15CA	BM	15.0	16.70	18.50	1	24.40	24.60	1
SMBJ16CA	BP	16.0	17.80	19.70	1	26.00	23.10	1
SMBJ17CA	BR	17.0	18.90	20.90	1	27.60	21.80	1
SMBJ18CA	BT	18.0	20.00	22.10	1	29.20	20.60	1
SMBJ20CA	BV	20.0	22.20	24.50	1	32.40	18.60	1
SMBJ22CA	BX	22.0	24.40	26.90	1	35.50	16.90	1

Electrical Characteristics

T=25^{O}C unless otherwise specified

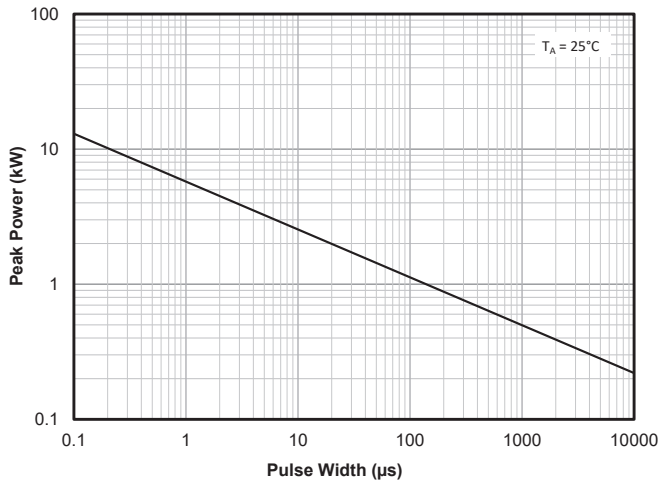
TYPE NUMBER	MARKING	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE MIN. @I_T	BREAKDOWN VOLTAGE MAX. @I_T	TEST CURRENT	MAXIMUM CLAMPING VOLTAGE @I_{PP}	PEAK PULSE CURRENT	REVERSE LEAKAGE @V_{RMW}
Bidirectional		V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(µA)
SMBJ24CA	BZ	24.0	26.70	29.50	1	38.90	15.50	1
SMBJ26CA	CE	26.0	28.90	31.90	1	42.10	14.30	1
SMBJ28CA	CG	28.0	31.10	34.40	1	45.40	13.30	1
SMBJ30CA	CK	30.0	33.30	36.80	1	48.40	12.40	1
SMBJ33CA	CM	33.0	36.70	40.60	1	53.30	11.30	1
SMBJ36CA	CP	36.0	40.00	44.20	1	58.10	10.40	1
SMBJ40CA	CR	40.0	44.40	49.10	1	64.50	9.30	1
SMBJ43CA	CT	43.0	47.80	52.80	1	69.40	8.70	1
SMBJ45CA	CV	45.0	50.00	55.30	1	72.70	8.30	1
SMBJ48CA	CX	48.0	53.30	58.90	1	77.40	7.80	1
SMBJ51CA	CZ	51.0	56.70	62.70	1	82.40	7.30	1
SMBJ54CA	DE	54.0	60.00	66.30	1	87.10	6.90	1
SMBJ58CA	DG	58.0	64.40	71.20	1	93.60	6.50	1
SMBJ60CA	DK	60.0	66.70	73.70	1	96.80	6.20	1
SMBJ64CA	DM	64.0	71.10	78.60	1	103.00	5.90	1
SMBJ70CA	DP	70.0	77.8	86.00	1	113.00	5.30	1
SMBJ75CA	DR	75.0	83.30	92.10	1	121.00	5.00	1
SMBJ78CA	DT	78.0	86.70	95.80	1	126.00	4.80	1
SMBJ85CA	DV	85.0	94.40	104.00	1	137.00	4.40	1
SMBJ90CA	DX	90.0	100.00	111.00	1	146.00	4.10	1
SMBJ100CA	DZ	100.0	111.00	123.00	1	162.00	3.70	1
SMBJ110CA	EE	110.0	122.00	135.00	1	177.00	3.40	1
SMBJ120CA	EG	120.0	133.00	147.00	1	193.00	3.10	1
SMBJ130CA	EK	130.0	144.00	159.00	1	209.00	2.90	1
SMBJ150CA	EM	150.0	167.00	185.00	1	243.00	2.50	1
SMBJ160CA	EP	160.0	178.00	197.00	1	259.00	2.30	1
SMBJ170CA	ER	170.0	189.00	209.00	1	275.00	2.20	1

Notes:

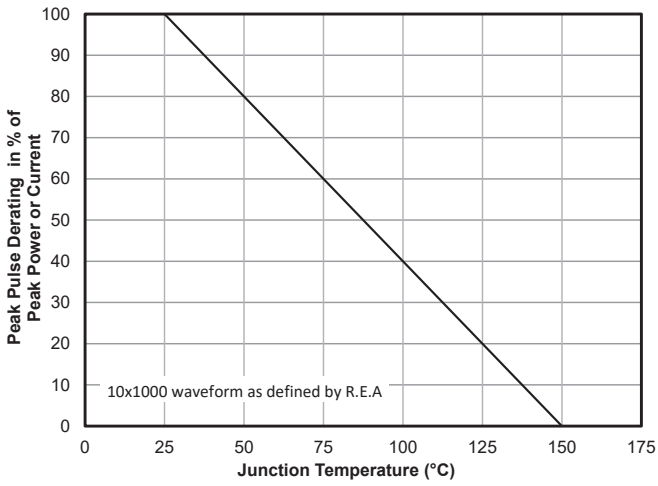
(1): Mounted on 5.0x5.0mm2 (0.03mm thick) Copper Pads to each terminal.

Typical Characteristics

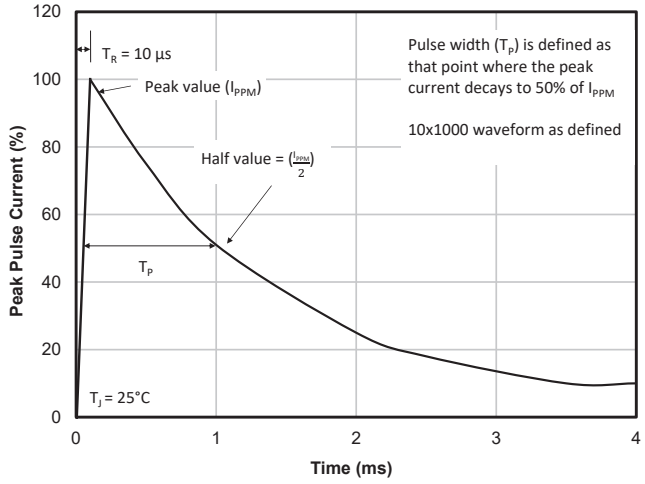
Peak Pulse Power Rating



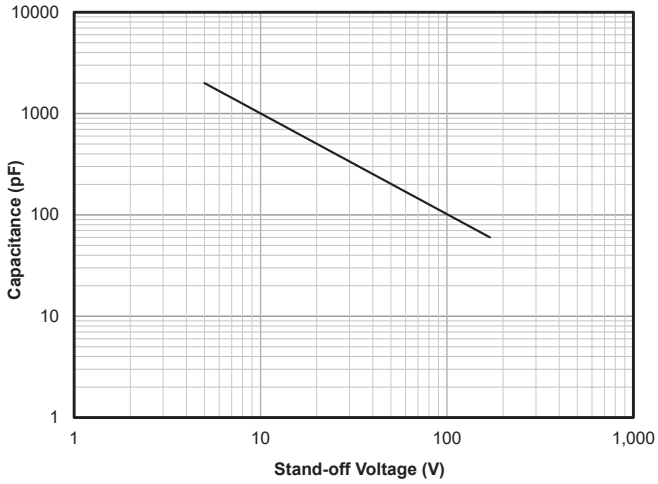
Pulse Derating Curve



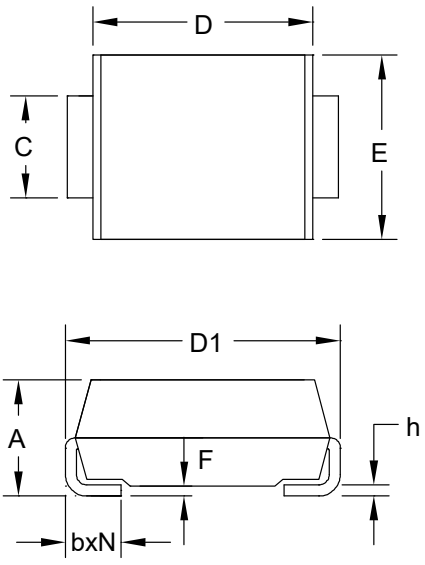
Pulse Waveform



Typical Junction Capacitance



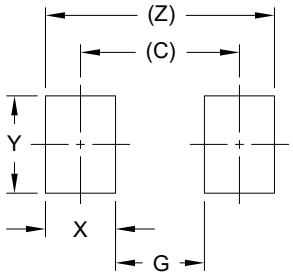
Outline Drawing - DO-214AA (SMB)



DIM	DIMENSIONS	
	MILLIMETERS	
	MIN	MAX
A	2.13	2.44
b	0.76	1.52
C	1.80	2.20
D	4.06	4.57
D1	5.21	5.59
E	3.30	3.94
F	---	0.20
h	0.13	0.31
N	2	

NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).

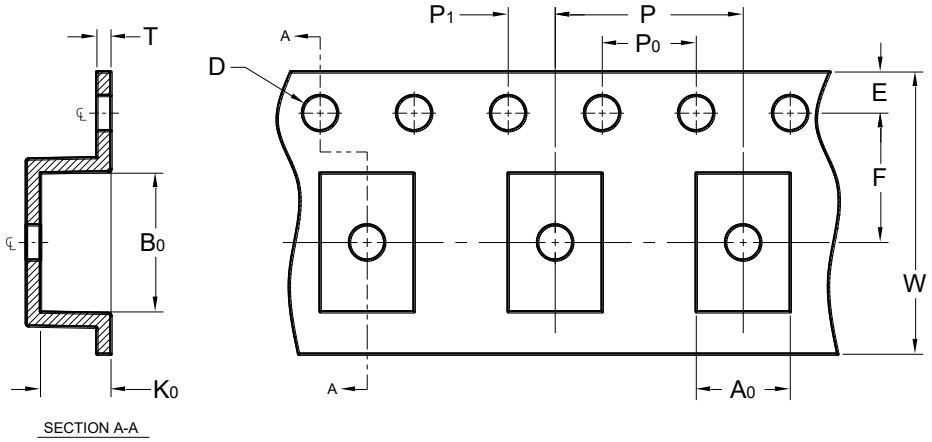
Landing Pattern - DO-214AA (SMB)



DIMENSIONS	
DIM	MILLIMETERS
C	(4.90)
G	2.74
X	2.16
Y	3.00
Z	(7.06)

NOTES:
1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

Tape and Reel Specification



NOTE: ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

CARRIER TAPE SPECIFICATION											
PACKAGE / DIM	A_0	B_0	K_0	D	E	F	P	P_0	P_1	T	W
DO-214AA (SMB)	4.0 (MAX)	5.9 (MAX)	3.0 (MAX)	1.50±0.1	1.75±0.1	5.5±0.05	8.0±0.1	4.0±0.1	2.0±0.05	0.6 (MAX)	12.0±0.3

Order Information

PART NUMBER	QTY PER REEL	REEL SIZE
SMBJXXCA	3,000	13 Inch

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