SMBJXXA
1-Line ESD Protection

Description

SMBJXXA 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.

SMBJXXA 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
- Unidirectional
- High peak pulse current capability
- Operating voltage options: 5V to 170V

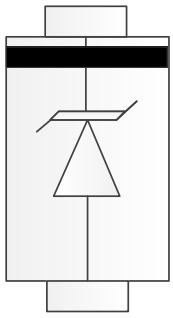
Applications

- 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



Unidirectional SMBJXXA

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}
(Uni)		V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(µA)
SMBJ5.0A	KE	5.0	6.40	7.00	10	9.20	65.30	800
SMBJ6.0A	KG	6.0	6.67	7.37	10	10.30	58.30	800
SMBJ6.5A	KK	6.5	7.22	7.98	10	11.20	53.60	500
SMBJ7.0A	KM	7.0	7.78	8.60	10	12.00	50.00	200
SMBJ7.5A	KP	7.5	8.33	9.21	1	12.90	46.60	100
SMBJ8.0A	KR	8.0	8.89	9.83	1	13.60	44.20	50
SMBJ8.5A	KT	8.5	9.44	10.40	1	14.40	41.70	20
SMBJ9.0A	KV	9.0	10.00	11.10	1	15.40	39.00	10
SMBJ10A	KX	10.0	11.10	12.30	1	17.00	35.30	5
SMBJ11A	KZ	11.0	12.20	13.50	1	18.20	33.00	1
SMBJ12A	LE	12.0	13.30	14.70	1	19.90	30.20	1
SMBJ13A	LG	13.0	14.40	15.90	1	21.50	27.90	1
SMBJ14A	LK	14.0	15.60	17.20	1	23.20	25.90	1
SMBJ15A	LM	15.0	16.70	18.50	1	24.40	24.60	1
SMBJ16A	LP	16.0	17.80	19.70	1	26.00	23.10	1
SMBJ17A	LR	17.0	18.90	20.90	1	27.60	21.80	1
SMBJ18A	LT	18.0	20.00	22.10	1	29.20	20.60	1
SMBJ20A	LV	20.0	22.20	24.50	1	32.40	18.60	1
SMBJ22A	LX	22.0	24.40	26.90	1	35.50	16.90	1

Electrical Characteristics

T=25^{O}C unless otherwise specified

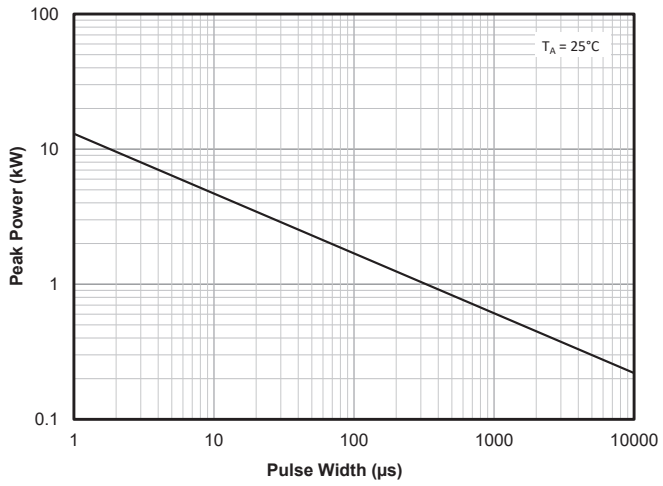
TYPE NUMBER	MARKING	REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE MIN. @I_T	BREAKDOWN VOLTAGE MAX. @I_T	TEST CURRENT	MAXIMUM CLAMPING VOLTAGE @I_{PP}	PEAK PULSE CURRENT	REVERSE LEAKAGE @V_{RMW}
(Uni)		V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(µA)
SMBJ24A	LZ	24.0	26.70	29.50	1	38.90	15.50	1
SMBJ26A	ME	26.0	28.90	31.90	1	42.10	14.30	1
SMBJ28A	MG	28.0	31.10	34.40	1	45.40	13.30	1
SMBJ30A	MK	30.0	33.30	36.80	1	48.40	12.40	1
SMBJ33A	MM	33.0	36.70	40.60	1	53.30	11.30	1
SMBJ36A	MP	36.0	40.00	44.20	1	58.10	10.40	1
SMBJ40A	MR	40.0	44.40	49.10	1	64.50	9.30	1
SMBJ43A	MT	43.0	47.80	52.80	1	69.40	8.70	1
SMBJ45A	MV	45.0	50.00	55.30	1	72.70	8.30	1
SMBJ48A	MX	48.0	53.30	58.90	1	77.40	7.80	1
SMBJ51A	MZ	51.0	56.70	62.70	1	82.40	7.30	1
SMBJ54A	NE	54.0	60.00	66.30	1	87.10	6.90	1
SMBJ58A	NG	58.0	64.40	71.20	1	93.60	6.50	1
SMBJ60A	NK	60.0	66.70	73.70	1	96.80	6.20	1
SMBJ64A	NM	64.0	71.10	78.60	1	103.00	5.90	1
SMBJ70A	NP	70.0	77.8	86.00	1	113.00	5.30	1
SMBJ75A	NR	75.0	83.30	92.10	1	121.00	5.00	1
SMBJ78A	NT	78.0	86.70	95.80	1	126.00	4.80	1
SMBJ85A	NV	85.0	94.40	104.00	1	137.00	4.40	1
SMBJ90A	NX	90.0	100.00	111.00	1	146.00	4.10	1
SMBJ100A	NZ	100.0	111.00	123.00	1	162.00	3.70	1
SMBJ110A	PE	110.0	122.00	135.00	1	177.00	3.40	1
SMBJ120A	PG	120.0	133.00	147.00	1	193.00	3.10	1
SMBJ130A	PK	130.0	144.00	159.00	1	209.00	2.90	1
SMBJ150A	PM	150.0	167.00	185.00	1	243.00	2.50	1
SMBJ160A	PP	160.0	178.00	197.00	1	259.00	2.30	1
SMBJ170A	PR	170.0	189.00	209.00	1	275.00	2.20	1

Notes:

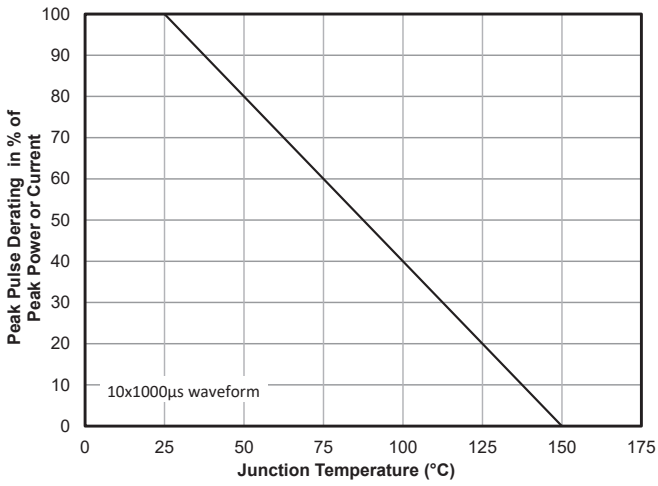
(1): Mounted on 5.0x5.0mm2 (0.03mm thick) Copper Pads to each terminal.

Typical Characteristics

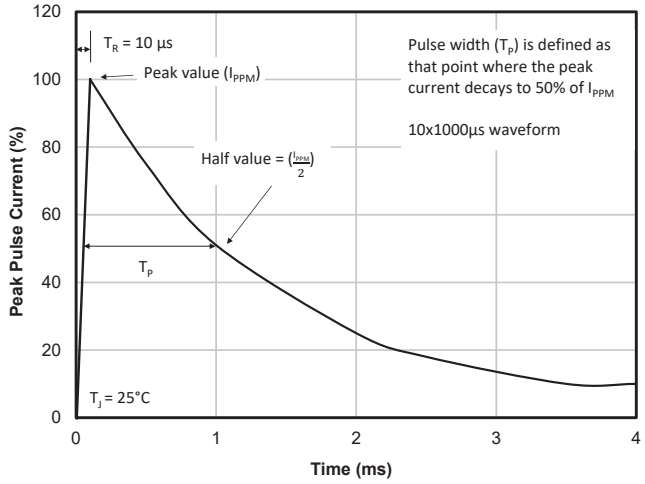
Peak Pulse Power Rating



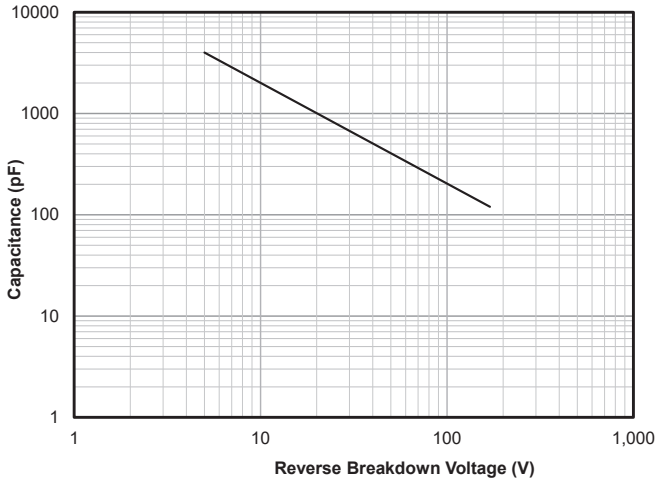
Pulse Derating Curve



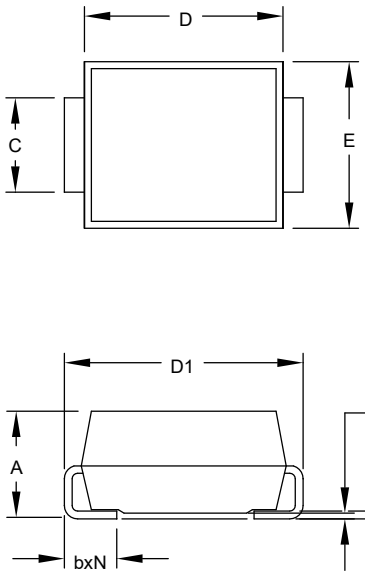
Pulse Waveform



Typical Junction Capacitance



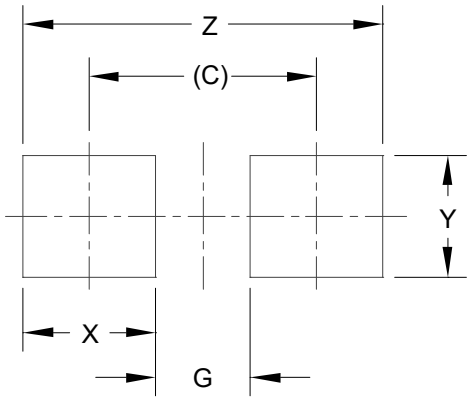
Outline Drawing - DO-214AA (SMB)



DIMENSIONS		
DIM	MILLIMETERS	
	MIN	MAX
A	2.01	2.50
b	0.76	1.52
C	1.96	2.21
D	4.06	4.57
D1	5.21	5.59
E	3.30	3.94
F	0.05	0.20
h	0.15	0.31
N	2	

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

Landing Pattern - DO-214AA (SMB)

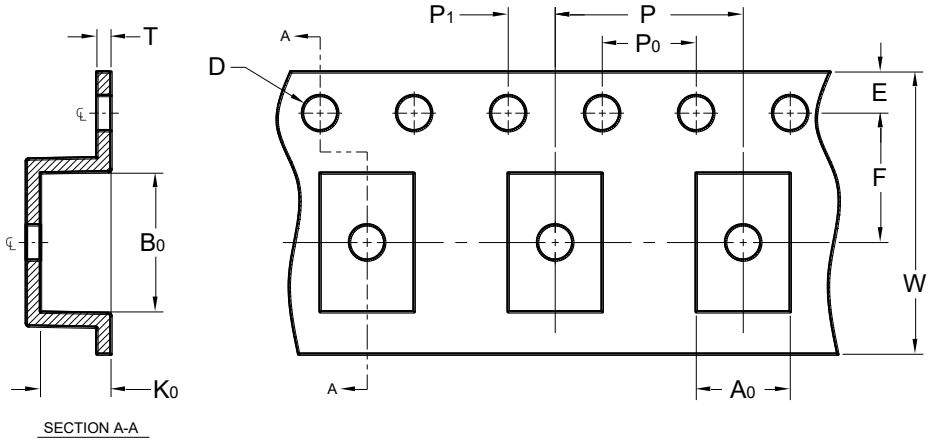


DIMENSIONS	
DIM	MILLIMETERS
C	(4.30)
G	1.80
X	2.50
Y	2.30
Z	6.80

NOTES:

CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANLES IN DEGREES)

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
SMBJXXA	3,000	13"

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