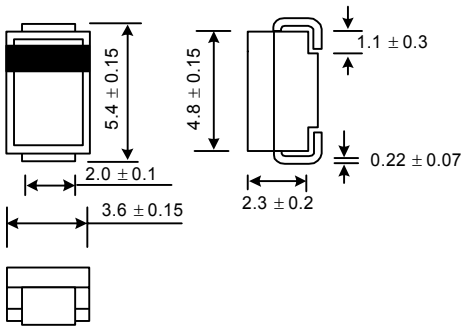
SMBJ-LC5.0 - 188A

SURFACE MOUNT LOW CAPACITANCE TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage : 5.0 to 188V
Peak Pulse Power : 600 W

SMB (DO-214AA)



Dimensions in millimeters

FEATURES :

* 600W peak pulse power capability with a 10/1000μs waveform
* Low junction capacitance
* Excellent clamping capability
* Very response Time
* Pb / RoHS Free

MECHANICAL DATA

* Case : SMB Molded plastic
* Epoxy : UL94V-O rate flame retardant
* Lead : Lead Formed for Surface Mount
* Polarity : Color band denotes cathode end
* Mounting position : Any
* Weight : 0.108 gram

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 μs waveform (1)(2)	P_{PPM}	Minimum 600	W
Peak Pulse Current on 10/1000 μs waveform (1)	I_{PPM}	See Table	A
Typical Thermal resistance, Junction to ambient	$R_{\Theta JA}$	100	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to + 150	°C

Notes :

(1) Non-repetitive Current pulse and derated above Ta = 25 °C

(2) Mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pads to each terminal.

ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless otherwise specified)

Type No.	Breakdown Voltage (1) @ I_T			Reverse Stand-off Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ I_{PPM}	Maximum Junction Capacitance @ 0 Volt
	V_{BR} (V)		I_T	V_{RWM}	I_R	I_{PPM}	V_C	
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	pF
SMBJ-LC5.0	7.20	8.62	10	5.0	800	62.5	9.6	80
SMBJ-LC5.0A	7.20	7.87	10	5.0	800	65.2	9.2	80
SMBJ-LC6.0	7.47	8.95	10	6.0	800	52.6	11.4	80
SMBJ-LC6.0A	7.47	8.17	10	6.0	800	58.3	10.3	80
SMBJ-LC6.5	8.02	9.62	10	6.5	500	48.7	12.3	80
SMBJ-LC6.5A	8.02	8.78	10	6.5	500	53.6	11.2	80
SMBJ-LC7.0	8.58	10.31	10	7.0	200	45.1	13.3	80
SMBJ-LC7.0A	8.58	9.40	10	7.0	200	50.0	12.0	80
SMBJ-LC7.5	9.13	11.00	1.0	7.5	100	42.0	14.3	80
SMBJ-LC7.5A	9.13	10.01	1.0	7.5	100	46.5	12.9	80
SMBJ-LC8.0	9.69	11.70	1.0	8.0	50	40.0	15.0	80
SMBJ-LC8.0A	9.69	10.63	1.0	8.0	50	44.1	13.6	80
SMBJ-LC8.5	10.24	12.3	1.0	8.5	10	37.7	15.9	80
SMBJ-LC8.5A	10.24	11.2	1.0	8.5	10	41.7	14.4	80
SMBJ-LC9.0	10.8	13.0	1.0	9.0	5.0	35.5	16.9	80
SMBJ-LC9.0A	10.8	11.9	1.0	9.0	5.0	39.0	15.4	80
SMBJ-LC10	11.9	14.4	1.0	10	1.0	31.9	18.8	80
SMBJ-LC10A	11.9	13.1	1.0	10	1.0	35.3	17.0	80
SMBJ-LC11	13.0	15.7	1.0	11	1.0	29.9	20.1	80
SMBJ-LC11A	13.0	14.3	1.0	11	1.0	33.0	18.2	80
SMBJ-LC12	14.1	17.1	1.0	12	1.0	27.3	22.0	80
SMBJ-LC12A	14.1	15.5	1.0	12	1.0	30.2	19.9	80
SMBJ-LC13	15.2	18.4	1.0	13	1.0	25.2	23.8	80
SMBJ-LC13A	15.2	16.7	1.0	13	1.0	27.9	21.5	80
SMBJ-LC14	16.4	19.9	1.0	14	1.0	23.3	25.8	80
SMBJ-LC14A	16.4	18.0	1.0	14	1.0	25.8	23.2	80
SMBJ-LC15	17.5	21.2	1.0	15	1.0	22.3	26.9	80
SMBJ-LC15A	17.5	19.3	1.0	15	1.0	24.0	24.4	80
SMBJ-LC16	18.6	22.6	1.0	16	1.0	20.8	28.8	80
SMBJ-LC16A	18.6	20.5	1.0	16	1.0	23.1	26.0	80
SMBJ-LC17	19.7	23.9	1.0	17	1.0	19.7	30.5	80
SMBJ-LC17A	19.7	21.7	1.0	17	1.0	21.7	27.6	80
SMBJ-LC18	20.8	25.2	1.0	18	1.0	18.6	32.2	80
SMBJ-LC18A	20.8	22.9	1.0	18	1.0	20.5	29.2	80
SMBJ-LC20	23.0	27.9	1.0	20	1.0	16.7	35.8	80
SMBJ-LC20A	23.0	25.3	1.0	20	1.0	18.5	32.4	80
SMBJ-LC22	25.2	30.6	1.0	22	1.0	15.2	39.4	80
SMBJ-LC22A	25.2	27.7	1.0	22	1.0	16.9	35.5	80
SMBJ-LC24	27.5	33.4	1.0	24	1.0	14.0	43.0	80
SMBJ-LC24A	27.5	30.3	1.0	24	1.0	15.4	38.9	80
SMBJ-LC26	29.7	36.1	1.0	26	1.0	12.4	46.6	80
SMBJ-LC26A	29.7	32.7	1.0	26	1.0	14.2	42.1	80
SMBJ-LC28	31.9	38.8	1.0	28	1.0	12.0	50.0	80
SMBJ-LC28A	31.9	35.2	1.0	28	1.0	13.2	45.4	80
SMBJ-LC30	34.1	41.5	1.0	30	1.0	11.2	53.5	80
SMBJ-LC30A	34.1	37.6	1.0	30	1.0	12.4	48.4	80
SMBJ-LC33	37.5	45.7	1.0	33	1.0	10.2	59.0	80
SMBJ-LC33A	37.5	41.4	1.0	33	1.0	11.3	53.3	80

ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless otherwise specified)

Type No.	Breakdown Voltage (1) @ I_T			Reverse Stand-off Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ I_{PPM}	Maximum Junction Capacitance @ 0 Volt
	V_{BR} (V)		I_T	V_{RWM}	I_R	I_{PPM}	V_C	
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	pF
SMBJ-LC36	40.8	49.7	1.0	36	1.0	9.3	64.3	80
SMBJ-LC36A	40.8	45.0	1.0	36	1.0	10.3	58.1	80
SMBJ-LC40	45.2	55.1	1.0	40	1.0	8.4	71.4	80
SMBJ-LC40A	45.2	49.9	1.0	40	1.0	9.3	64.5	80
SMBJ-LC43	48.6	59.2	1.0	43	1.0	7.8	76.7	80
SMBJ-LC43A	48.6	53.6	1.0	43	1.0	8.6	69.4	80
SMBJ-LC45	50.8	61.9	1.0	45	1.0	7.5	80.3	80
SMBJ-LC45A	50.8	56.1	1.0	45	1.0	8.3	72.7	80
SMBJ-LC48	54.1	65.9	1.0	48	1.0	7.0	85.5	80
SMBJ-LC48A	54.1	59.7	1.0	48	1.0	7.7	77.4	80
SMBJ-LC51	57.5	70.1	1.0	51	1.0	6.6	91.1	80
SMBJ-LC51A	57.5	63.5	1.0	51	1.0	7.3	82.4	80
SMBJ-LC54	60.8	74.1	1.0	54	1.0	6.2	96.3	80
SMBJ-LC54A	60.8	67.1	1.0	54	1.0	6.9	87.1	80
SMBJ-LC58	65.2	79.5	1.0	58	1.0	5.8	103	80
SMBJ-LC58A	65.2	72.0	1.0	58	1.0	6.4	93.6	80
SMBJ-LC60	67.5	82.3	1.0	60	1.0	5.6	107	80
SMBJ-LC60A	67.5	74.5	1.0	60	1.0	6.2	96.8	80
SMBJ-LC64	71.9	87.7	1.0	64	1.0	5.3	114	80
SMBJ-LC64A	71.9	79.4	1.0	64	1.0	5.8	103	80
SMBJ-LC70	78.6	95.9	1.0	70	1.0	4.8	125	80
SMBJ-LC70A	78.6	86.8	1.0	70	1.0	5.3	113	80
SMBJ-LC75	84.1	102.8	1.0	75	1.0	4.5	134	80
SMBJ-LC75A	84.1	92.9	1.0	75	1.0	4.9	121	80
SMBJ-LC78	87.5	106.8	1.0	78	1.0	4.3	139	80
SMBJ-LC78A	87.5	96.6	1.0	78	1.0	4.7	126	80
SMBJ-LC85	95.2	115.8	1.0	85	1.0	3.9	151	80
SMBJ-LC85A	95.2	104.8	1.0	85	1.0	4.4	137	80
SMBJ-LC90	100.8	122.8	1.0	90	1.0	3.8	160	80
SMBJ-LC90A	100.8	111.8	1.0	90	1.0	4.1	146	80
SMBJ-LC100	111.8	136.8	1.0	100	1.0	3.4	179	80
SMBJ-LC100A	111.8	123.8	1.0	100	1.0	3.7	162	80
SMBJ-LC110	122.8	149.8	1.0	110	1.0	3.0	196	80
SMBJ-LC110A	122.8	135.8	1.0	110	1.0	3.4	177	80
SMBJ-LC120	133.8	163.8	1.0	120	1.0	2.8	214	80
SMBJ-LC120A	133.8	147.8	1.0	120	1.0	3.1	193	80
SMBJ-LC130	144.8	176.8	1.0	130	1.0	2.6	231	80
SMBJ-LC130A	144.8	159.8	1.0	130	1.0	2.9	209	80
SMBJ-LC150	167.8	204.8	1.0	150	1.0	2.2	268	80
SMBJ-LC150A	167.8	185.8	1.0	150	1.0	2.5	243	80
SMBJ-LC160	178.8	218.8	1.0	160	1.0	2.1	287	80
SMBJ-LC160A	178.8	197.8	1.0	160	1.0	2.3	259	80
SMBJ-LC170	189.8	231.8	1.0	170	1.0	2.0	304	80
SMBJ-LC170A	189.8	209.8	1.0	170	1.0	2.2	275	80
SMBJ-LC188	209.8	255.8	1.0	188	1.0	1.7	344	80
SMBJ-LC188A	209.8	231.8	1.0	188	1.0	2.0	328	80

Notes:

(1) Pulse test : tp ≤ 50ms.

(2) "SMBJ-L" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (SMBJ-LC5.0 - SMBJ-LC188A)

FIG.1 - PULSE DERATING CURVE

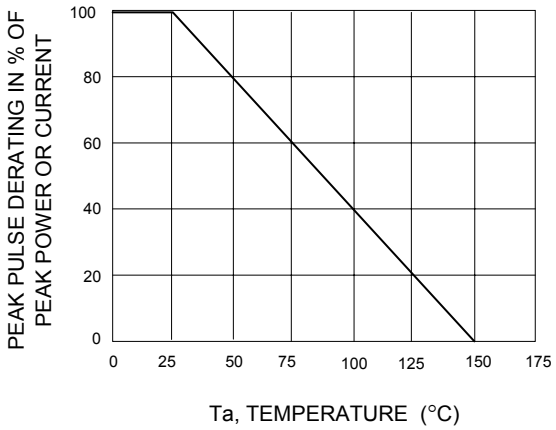


FIG.2 - PEAK PULSE POWER RATING CURVE

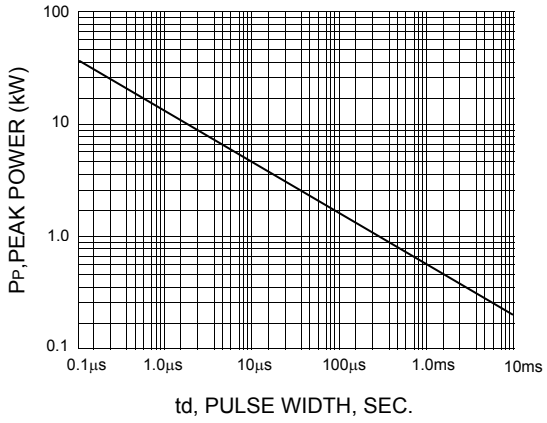
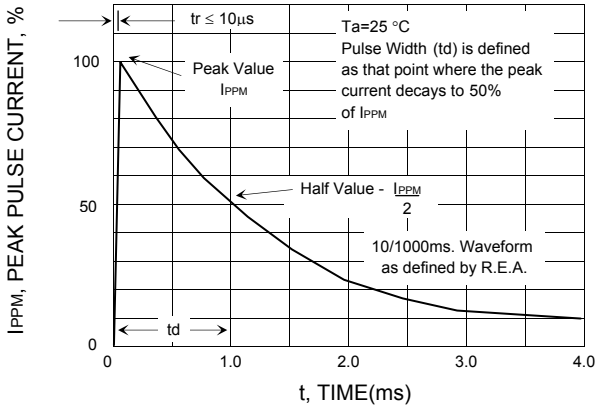



FIG.3 - PULSE WAVEFORM