www.eicsemi.com

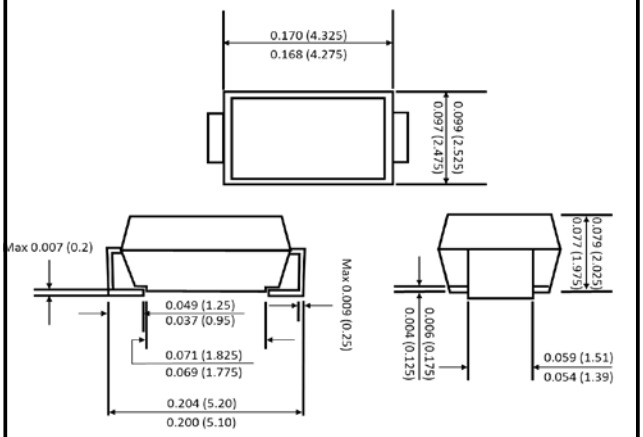
SMBJ5.0C - 440CA

SURFACE MOUNT BI-DIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage : 5.0 to 440V

Peak Pulse Power : 600 W

SMB



Dimensions in inches and (millimeters)

FEATURES :

* 600W peak pulse power capability with a 10/1000μs waveform
* Excellent clamping capability
* Very fast response time
* Pb / RoHS Free

MECHANICAL DATA

* Case : SMB Molded plastic
* Epoxy : UL94V-0 rate flame retardant
* Lead : Lead Formed for Surface Mount
* Mounting position : Any
* Polarity : Bi-directional without cathode mark
* Weight : 0.108 gram

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000μs waveform (1)(2) (Fig. 3)	P_{PPM}	Minimum 600	W
Peak Pulse Current on 10/1000μs waveform (1) (Fig. 4)	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, per Fig. 3 and derated above Ta = 25 °C per Fig. 1

(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 oth

Type	Marking	Breakdown Voltage @ I_T (1)			Reverse Stand-off Voltage	Maximum Reverse Leakage @ V_{WM}	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ I_{PPM}
		V_{BR} (V)		I_T	V_{WM}	I_R	I_{PPM}	V_C
		Min.	Max.	(mA)	(V)	(μA)	(A)	(V)
SMBJ5.0C	**5.0C**	6.40	7.82	10	5.0	1600	62.5	9.6
SMBJ5.0CA	**5.0CA**	6.40	7.25	10	5.0	1600	65.2	9.2
SMBJ6.0C	**6.0C**	6.67	8.15	10	6.0	1600	52.6	11.4
SMBJ6.0CA	**6.0CA**	6.67	7.37	10	6.0	1600	58.3	10.3
SMBJ6.5C	**6.5C**	7.22	8.82	10	6.5	1000	48.7	12.3
SMBJ6.5CA	**6.5CA**	7.22	7.98	10	6.5	1000	53.6	11.2
SMBJ7.0C	**7.0C**	7.78	9.51	10	7.0	400	45.1	13.3
SMBJ7.0CA	**7.0CA**	7.78	8.6	10	7.0	400	50.0	12.0
SMBJ7.5C	**7.5C**	8.33	10.2	1.0	7.5	200	42.0	14.3
SMBJ7.5CA	**7.5CA**	8.33	9.21	1.0	7.5	200	46.5	12.9
SMBJ8.0C	**8.0C**	8.89	10.9	1.0	8.0	100	40.0	15.0
SMBJ8.0CA	**8.0CA**	8.89	9.83	1.0	8.0	100	44.1	13.6
SMBJ8.5C	**8.5C**	9.44	11.5	1.0	8.5	20	37.7	15.9
SMBJ8.5CA	**8.5CA**	9.44	10.4	1.0	8.5	20	41.7	14.4
SMBJ9.0C	**9.0C**	10.0	12.2	1.0	9.0	10	35.5	16.9
SMBJ9.0CA	**9.0CA**	10.0	11.1	1.0	9.0	10	39.0	15.4
SMBJ10C	**10C**	11.1	13.6	1.0	10	2.0	31.9	18.8
SMBJ10CA	**10CA**	11.1	12.3	1.0	10	2.0	35.3	17.0
SMBJ11C	**11C**	12.2	14.9	1.0	11	1.0	29.9	20.1
SMBJ11CA	**11CA**	12.2	13.5	1.0	11	1.0	33.0	18.2
SMBJ12C	**12C**	13.3	16.3	1.0	12	1.0	27.3	22.0
SMBJ12CA	**12CA**	13.3	14.7	1.0	12	1.0	30.2	19.9
SMBJ13C	**13C**	14.4	17.6	1.0	13	1.0	25.2	23.8
SMBJ13CA	**13CA**	14.4	15.9	1.0	13	1.0	27.9	21.5
SMBJ14C	**14C**	15.6	19.1	1.0	14	1.0	23.3	25.8
SMBJ14CA	**14CA**	15.6	17.2	1.0	14	1.0	25.8	23.2
SMBJ15C	**15C**	16.7	20.4	1.0	15	1.0	22.3	26.9
SMBJ15CA	**15CA**	16.7	18.5	1.0	15	1.0	24.0	24.4
SMBJ16C	**16C**	17.8	21.8	1.0	16	1.0	20.8	28.8
SMBJ16CA	**16CA**	17.8	19.7	1.0	16	1.0	23.1	26.0
SMBJ17C	**17C**	18.9	23.1	1.0	17	1.0	19.7	30.5
SMBJ17CA	**17CA**	18.9	20.9	1.0	17	1.0	21.7	27.6
SMBJ18C	**18C**	20.0	24.4	1.0	18	1.0	18.6	32.2
SMBJ18CA	**18CA**	20.0	22.1	1.0	18	1.0	20.5	29.2
SMBJ20C	**20C**	22.2	27.1	1.0	20	1.0	16.7	35.8
SMBJ20CA	**20CA**	22.2	24.5	1.0	20	1.0	18.5	32.4
SMBJ22C	**22C**	24.4	29.8	1.0	22	1.0	15.2	39.4
SMBJ22CA	**22CA**	24.4	26.9	1.0	22	1.0	16.9	35.5
SMBJ24C	**24C**	26.7	32.6	1.0	24	1.0	14.0	43.0
SMBJ24CA	**24CA**	26.7	29.5	1.0	24	1.0	15.4	38.9
SMBJ26C	**26C**	28.9	35.3	1.0	26	1.0	12.4	46.6
SMBJ26CA	**26CA**	28.9	31.9	1.0	26	1.0	14.2	42.1
SMBJ28C	**28C**	31.1	38	1.0	28	1.0	12.0	50.0
SMBJ28CA	**28CA**	31.1	34.4	1.0	28	1.0	13.2	45.4
SMBJ30C	**30C**	33.3	40.7	1.0	30	1.0	11.2	53.5
SMBJ30CA	**30CA**	33.3	36.8	1.0	30	1.0	12.4	48.4
SMBJ33C	**33C**	36.7	44.9	1.0	33	1.0	10.2	59.0
SMBJ33CA	**33CA**	36.7	40.6	1.0	33	1.0	11.3	53.3
SMBJ36C	**36C**	40.0	48.9	1.0	36	1.0	9.3	64.3
SMBJ36CA	**36CA**	40.0	44.2	1.0	36	1.0	10.3	58.1

ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless oth

Type	Marking	Breakdown Voltage @ I_T (1)			Reverse Stand-off Voltage	Maximum Reverse Leakage @ V_{WM}	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ I_{PPM}
		V_{BR} (V)		I_T	V_{WM}	I_R	I_{PPM}	V_C
		Min.	Max.	(mA)	(V)	(μA)	(A)	(V)
SMBJ40C	**40C**	44.4	54.3	1.0	40	1.0	8.4	71.4
SMBJ40CA	**40CA**	44.4	49.1	1.0	40	1.0	9.3	64.5
SMBJ43C	**43C**	47.8	58.4	1.0	43	1.0	7.8	76.7
SMBJ43CA	**43CA**	47.8	52.8	1.0	43	1.0	8.6	69.4
SMBJ45C	**45C**	50.0	61.1	1.0	45	1.0	7.5	80.3
SMBJ45CA	**45CA**	50.0	55.3	1.0	45	1.0	8.3	72.7
SMBJ48C	**48C**	53.3	65.1	1.0	48	1.0	7.0	85.5
SMBJ48CA	**48CA**	53.3	58.9	1.0	48	1.0	7.7	77.4
SMBJ51C	**51C**	56.7	69.3	1.0	51	1.0	6.6	91.1
SMBJ51CA	**51CA**	56.7	62.7	1.0	51	1.0	7.3	82.4
SMBJ54C	**54C**	60.0	73.3	1.0	54	1.0	6.2	96.3
SMBJ54CA	**54CA**	60.0	66.3	1.0	54	1.0	6.9	87.1
SMBJ58C	**58C**	64.4	78.7	1.0	58	1.0	5.8	103
SMBJ58CA	**58CA**	64.4	71.2	1.0	58	1.0	6.4	93.6
SMBJ60C	**60C**	66.7	81.5	1.0	60	1.0	5.6	107
SMBJ60CA	**60CA**	66.7	73.7	1.0	60	1.0	6.2	96.8
SMBJ64C	**64C**	71.1	86.9	1.0	64	1.0	5.3	114
SMBJ64CA	**64CA**	71.1	78.6	1.0	64	1.0	5.8	103
SMBJ70C	**70C**	77.8	95.1	1.0	70	1.0	4.8	125
SMBJ70CA	**70CA**	77.8	86	1.0	70	1.0	5.3	113
SMBJ75C	**75C**	83.3	102	1.0	75	1.0	4.5	134
SMBJ75CA	**75CA**	83.3	92.1	1.0	75	1.0	4.9	121
SMBJ78C	**78C**	86.7	106	1.0	78	1.0	4.3	139
SMBJ78CA	**78CA**	86.7	95.8	1.0	78	1.0	4.7	126
SMBJ85C	**85C**	94.4	115	1.0	85	1.0	3.9	151
SMBJ85CA	**85CA**	94.4	104	1.0	85	1.0	4.4	137
SMBJ90C	**90C**	100	122	1.0	90	1.0	3.8	160
SMBJ90CA	**90CA**	100	111	1.0	90	1.0	4.1	146
SMBJ100C	**100C**	111	136	1.0	100	1.0	3.4	179
SMBJ100CA	**100CA**	111	123	1.0	100	1.0	3.7	162
SMBJ110C	**110C**	122	149	1.0	110	1.0	3.0	196
SMBJ110CA	**110CA**	122	135	1.0	110	1.0	3.4	177
SMBJ120C	**120C**	133	163	1.0	120	1.0	2.8	214
SMBJ120CA	**120CA**	133	147	1.0	120	1.0	3.1	193
SMBJ130C	**130C**	144	176	1.0	130	1.0	2.6	231
SMBJ130CA	**130CA**	144	159	1.0	130	1.0	2.9	209
SMBJ150C	**150C**	167	204	1.0	150	1.0	2.2	268
SMBJ150CA	**150CA**	167	185	1.0	150	1.0	2.5	243
SMBJ160C	**160C**	178	218	1.0	160	1.0	2.1	287
SMBJ160CA	**160CA**	178	197	1.0	160	1.0	2.3	259
SMBJ170C	**170C**	189	231	1.0	170	1.0	2.0	304
SMBJ170CA	**170CA**	189	209	1.0	170	1.0	2.2	275
SMBJ188C	**188C**	209	255	1.0	188	1.0	1.7	344
SMBJ188CA	**188CA**	209	231	1.0	188	1.0	2.0	328
SMBJ200C	**200C**	222	271	1.0	200	1.0	1.7	351
SMBJ200CA	**200CA**	222	246	1.0	200	1.0	1.9	323
SMBJ220C	**220C**	245	299	1.0	220	1.0	1.6	386
SMBJ220CA	**220CA**	245	270	1.0	220	1.0	1.7	355

ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless oth

Type	Marking	Breakdown Voltage @ I_T (1)			Reverse Stand-off Voltage	Maximum Reverse Leakage @ V_{WM}	Maximum Peak Pulse Surge Current	Maximum Clamping Voltage @ I_{PPM}
		V_{BR} (V)		I_T	V_{WM}	I_R	I_{PPM}	V_C
		Min.	Max.	(mA)	(V)	(μA)	(A)	(V)
SMBJ250C	**250C**	278	339	1.0	250	1.0	1.4	439
SMBJ250CA	**250CA**	278	307	1.0	250	1.0	1.5	403
SMBJ300C	**300C**	334	407	1.0	300	1.0	1.1	526
SMBJ300CA	**300CA**	334	368	1.0	300	1.0	1.2	484
SMBJ350C	**350C**	389	475	1.0	350	1.0	1.0	614
SMBJ350CA	**350CA**	389	430	1.0	350	1.0	1.1	565
SMBJ400C	**400C**	445	543	1.0	400	1.0	0.9	702
SMBJ400CA	**400CA**	445	491	1.0	400	1.0	0.9	645
SMBJ440C	**440C**	489	597	1.0	440	1.0	0.8	772
SMBJ440CA	**440CA**	489	540	1.0	440	1.0	0.8	710

Note: (1) Pulse test : tp ≤ 50ms.

PACKING INFORMATION

Case Type	Pack	Packaging	Quantity per Box (Pcs.)	Net weight per unit (Kgs.)	Gross weight per unit (Kgs.)	Quantity per Carton (Pcs.)	Net weight per carton (Kgs.)	Gross weight per carton (Kgs.)
SMB(DO-214AA)	**R**	REEL	3,000	0.35	0.60	15,000	1.76	3.35

RATING AND CHARACTERISTIC CURVES (SMBJ5.0C - SMBJ440CA)

FIG.1 - PULSE DERATING CURVE

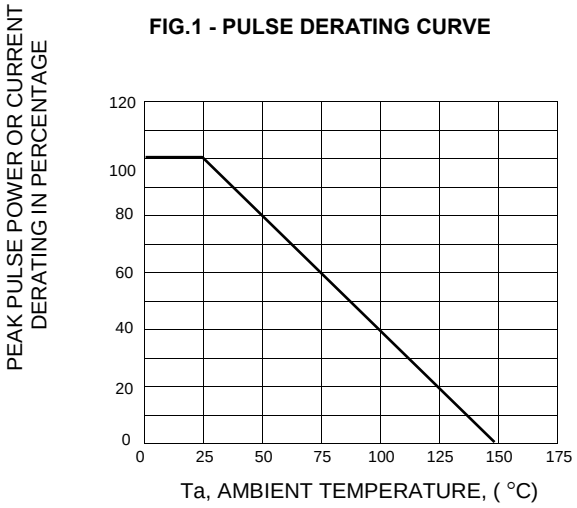


FIG.2 - TYPICAL JUNCTION CAPACITANCE

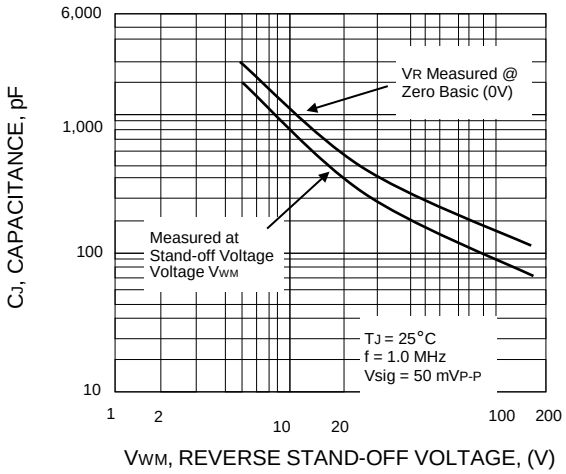


FIG.3 - PULSE WAVEFORM

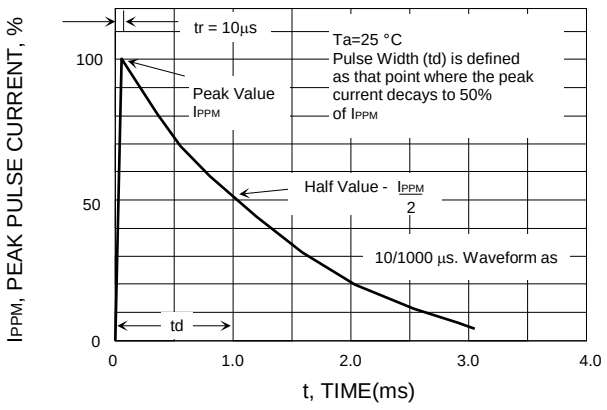


FIG.4 - PEAK PULSE POWER RATING CURVE