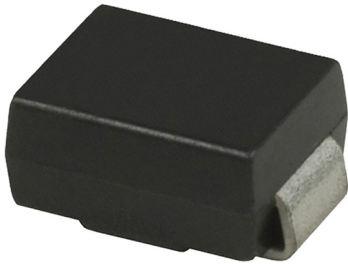


# Transient Voltage Suppressor

## SMBJ5.0 - SMBJ440CA



### Features:

- Glass passivated junction
- Low incremental surge resistance, excellent clamping capability
- 600W peak pulse power capability with a 10/1,000 $\mu$ s waveform, repetition rate (duty cycle): 0.01%
- Very fast response time
- High temperature soldering guaranteed: 250°C/10 secs at terminals

### Mechanical Data:

- Case: JEDEC DO-214AA moulded plastic over glass passivated junction
- Polarity: For uni-directional types the colour band denotes the cathode, which is positive with respect to the anode under normal TVS operation
- Weight: 0.0003oz, 0.093g

### Devices for Bidirectional Applications:

For bi-directional devices, use suffix C or CA (eg SMBJ10C, SMBJ10CA). Electrical characteristics apply in both directions. No colour band on bi-directional devices.

### Maximum Ratings & Characteristics: $T_a=25^\circ\text{C}$

Characteristics	Symbol	Value	Unit
Peak power dissipation with a 10/1,000 $\mu$ s waveform (Note 1, 2, Fig 1)	$P_{PPM}$	Minimum 600	W
Peak pulse current with a 10/1,000 $\mu$ s waveform (Note 1)	$I_{PPM}$	See table below	A
Peak forward surge current, 8.3ms single half sine-wave uni-directional only (Note 2)	$I_{FSM}$	100	A
Typical thermal resistance, junction to ambient (Note 3)	$R_{thJA}$	100	$^\circ\text{C/W}$
Typical thermal resistance, junction to lead	$R_{thJL}$	20	$^\circ\text{C/W}$
Operational junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Notes:

1. Non-repetitive current pulses, per Fig.3 and derated above  $T_a=25^\circ\text{C}$  per Fig.2
2. Mounted on 0.2"  $\times$  0.2" (5mm  $\times$  5mm) copper pads to each terminal
3. Mounted on minimum recommended pad layout

# Transient Voltage Suppressor

## SMBJ5.0 - SMBJ440CA



### Electrical Characteristics:

$T_a = 25^\circ\text{C}$  unless otherwise specified  $V_F = 3.5\text{V}$  @  $I_F = 50\text{A}$  (uni-directional only)

Part Number Add C for Bi-directional	Device Marking Code		$V_{(BR)}$			$V_{WM}$	$I_{RM}$ @ $V_{WM}$	$I_{PPM}$	$V_C$ @ $I_{PPM}$
	UNI	BI	Min (V)	Max (V)	mA (@ $I_T$ )	V	A	A	V
SMBJ5.0 (C)	KD	AD	6.4	7.82	10	5	800	62.5	9.6
SMBJ5.0 (C)A	KE	AE	6.4	7.07	10	5	800	65.2	9.2
SMBJ6.0 (C)	KF	AF	6.67	8.15	10	6	800	52.6	11.4
SMBJ6.0 (C)A	KG	AG	6.67	8.15	10	6	800	58.3	10.3
SMBJ6.5 (C)	KH	AH	7.22	8.82	10	6.5	500	48.8	12.3
SMBJ6.5 (C)A	KK	AK	7.22	7.98	10	6.5	500	53.6	11.2
SMBJ7.0 (C)	KL	AL	7.78	9.51	10	7	200	45.1	13.3
SMBJ7.0 (C)A	KM	AM	7.78	8.6	10	7	200	50	12
SMBJ7.5 (C)	KN	AN	8.33	10.2	1	7.5	100	42	14.3
SMBJ7.5 (C)A	KP	AP	8.33	9.21	1	7.5	100	46.5	12.9
SMBJ8.0 (C)	KQ	AQ	8.89	10.9	1	8	50	40	15
SMBJ8.0 (C)A	KR	AR	8.89	9.83	1	8	50	44.1	13.6
SMBJ8.5 (C)	KS	AS	9.44	11.5	1	8.5	20	37.7	15.9
SMBJ8.5 (C)A	KT	AT	9.44	10.4	1	8.5	20	41.7	14.4
SMBJ9.0 (C)	KU	AU	10	12.2	1	9	10	35.5	16.9
SMBJ9.0 (C)A	KV	AV	10	11.1	1	9	10	39	15.4
SMBJ10 (C)	KW	AW	11.1	13.6	1	10	5	31.9	18.8
SMBJ10 (C)A	KX	AX	11.1	12.3	1	10	5	35.3	17
SMBJ11 (C)	KY	AY	12.2	14.9	1	11	5	29.9	20.1
SMBJ11 (C)A	KZ	AZ	12.2	13.5	1	11	5	33	18.2
SMBJ12 (C)	LD	BD	13.3	16.2	1	12	5	27.3	22
SMBJ12 (C)A	LE	BE	13.3	14.7	1	12	5	30.2	19.9
SMBJ13 (C)	LF	BF	14.4	17.6	1	13	5	25.2	23.8
SMBJ13 (C)A	LG	BG	14.4	15.9	1	13	5	27.9	21.5
SMBJ14 (C)	LH	BH	15.6	19.1	1	14	5	23.3	25.8
SMBJ14 (C)A	LK	BK	15.6	17.2	1	14	5	25.9	23.2
SMBJ15 (C)	LL	BL	16.7	20.4	1	15	5	22.3	26.9
SMBJ15 (C)A	LM	BM	16.7	18.5	1	15	5	24.6	24.4
SMBJ16 (C)	LN	BN	17.8	21.8	1	16	5	20.8	28.8
SMBJ16 (C)A	LP	BP	17.8	19.7	1	16	5	23.1	26
SMBJ17 (C)	LQ	BQ	18.9	23.1	1	17	5	19.7	30.5

Parts may be marked with full part number **OR** Device marking code depending on production criteria.

# Transient Voltage Suppressor

## SMBJ5.0 - SMBJ440CA



### Electrical Characteristics:

$T_a = 25^\circ\text{C}$  unless otherwise specified  $V_F = 3.5\text{V}$  @  $I_F = 50\text{A}$  (uni-directional only)

Part Number Add C for Bi-directional	Device Marking Code		$V_{(BR)}$			$V_{WM}$	$I_{RM}$ @ $V_{WM}$	$I_{PPM}$	$V_C$ @ $I_{PPM}$
	UNI	BI	Min (V)	Max (V)	mA (@ $I_T$ )	V	A	A	V
SMBJ17 (C)A	LR	BR	18.9	20.9	1	17	5	21.7	27.6
SMBJ18 (C)	LS	BS	20	24.4	1	18	5	18.6	32.2
SMBJ18 (C)A	LT	BT	20	22.1	1	18	5	20.5	29.2
SMBJ20 (C)	LU	BU	22.2	27.1	1	20	5	16.8	35.8
SMBJ20 (C)A	LV	BV	22.2	24.5	1	20	5	18.5	32.4
SMBJ22 (C)	LW	BW	24.4	29.8	1	22	5	15.2	39.4
SMBJ22 (C)A	LX	BX	24.4	26.9	1	22	5	16.9	35.5
SMBJ24 (C)	LY	BY	26.7	32.6	1	24	5	14	43
SMBJ24 (C)A	LZ	BZ	26.7	29.5	1	24	5	15.4	38.9
SMBJ26 (C)	MD	CD	28.9	35.3	1	26	5	12.9	46.6
SMBJ26 (C)A	ME	CE	28.9	31.9	1	26	5	14.3	42.1
SMBJ28 (C)	MF	CF	31.1	38	1	28	5	12	50
SMBJ28 (C)A	MG	CG	31.1	34.4	1	28	5	13.2	45.4
SMBJ30 (C)	MH	CH	33.3	40.7	1	30	5	11.2	53.5
SMBJ30 (C)A	MK	CK	33.3	36.8	1	30	5	12.4	48.4
SMBJ33 (C)	ML	CL	36.7	44.9	1	33	5	10.2	59
SMBJ33 (C)A	MM	CM	36.7	40.6	1	33	5	11.3	53.3
SMBJ36 (C)	MN	CN	40	48.9	1	36	5	9.3	64.3
SMBJ36 (C)A	MP	CP	40	44.2	1	36	5	10.3	58.1
SMBJ40 (C)	MQ	CQ	44.4	54.3	1	40	5	8.4	71.4
SMBJ40 (C)A	MR	CR	44.4	49.1	1	40	5	9.3	64.5
SMBJ43 (C)	MS	CS	47.8	58.4	1	43	5	7.8	76.7
SMBJ43 (C)A	MT	CT	47.8	52.8	1	43	5	8.6	69.4
SMBJ45 (C)	MU	CU	50	61.1	1	45	5	7.5	80.3
SMBJ45 (C)A	MV	CV	50	55.3	1	45	5	8.3	72.7
SMBJ48 (C)	MW	CW	53.3	65.1	1	48	5	7	85.5
SMBJ48 (C)A	MX	CX	53.3	58.9	1	48	5	7.8	77.4
SMBJ51 (C)	MY	CY	56.7	69.3	1	51	5	6.6	91.1
SMBJ51 (C)A	MZ	CZ	56.7	62.7	1	51	5	7.3	82.4
SMBJ54 (C)	ND	DD	60	73.3	1	54	5	6.2	96.3
SMBJ54 (C)A	NE	DE	60	66.3	1	54	5	6.9	87.1

Parts may be marked with full part number **OR** Device marking code depending on production criteria.

# Transient Voltage Suppressor

## SMBJ5.0 - SMBJ440CA



### Electrical Characteristics:

$T_a=25^{\circ}\text{C}$  unless otherwise specified  $V_F=3.5\text{V}$  @  $I_F=50\text{A}$  (uni-directional only)

Part Number Add C for Bi-directional	Device Marking Code		$V_{(BR)}$			$V_{WM}$	$I_{RM}$ @ $V_{WM}$	$I_{PPM}$	$V_C$ @ $I_{PPM}$
	UNI	BI	Min (V)	Max (V)	mA (@ $I_T$ )	V	A	A	V
SMBJ58 (C)	NF	DF	64.4	78.7	1	58	5	5.8	103
SMBJ58 (C)A	NG	DG	64.4	71.2	1	58	5	6.4	93.6
SMBJ60 (C)	NH	DH	66.7	81.5	1	60	5	5.6	107
SMBJ60 (C)A	NK	DK	66.7	73.7	1	60	5	6.2	96.8
SMBJ64 (C)	NL	DL	71.1	86.9	1	64	5	5.3	114
SMBJ64 (C)A	NM	DM	71.1	78.6	1	64	5	5.8	103
SMBJ70 (C)	NN	DN	77.8	95.1	1	70	5	4.8	125
SMBJ70 (C)A	NP	DP	77.8	86	1	70	5	5.3	113
SMBJ75 (C)	NQ	DQ	83.3	102	1	75	5	4.5	134
SMBJ75 (C)A	NR	DR	83.3	92.1	1	75	5	5	121
SMBJ78 (C)	NS	DS	86.7	106	1	78	5	4.3	139
SMBJ78 (C)A	NT	DT	86.7	95.8	1	78	5	4.8	126
SMBJ85 (C)	NU	DU	94.4	115	1	85	5	4	151
SMBJ85 (C)A	NV	DV	94.4	104	1	85	5	4.4	137
SMBJ90 (C)	NW	DW	100	122	1	90	5	3.8	160
SMBJ90 (C)A	NX	DX	100	111	1	90	5	4.1	146
SMBJ100 (C)	NY	DY	111	136	1	100	5	3.4	179
SMBJ100 (C)A	NZ	DZ	111	123	1	100	5	3.7	162
SMBJ110 (C)	PD	ED	122	149	1	110	5	3.1	196
SMBJ110 (C)A	PE	EE	122	135	1	110	5	3.4	177
SMBJ120 (C)	PF	EF	133	163	1	120	5	2.8	214
SMBJ120 (C)A	PG	EG	133	147	1	120	5	3.1	193
SMBJ130 (C)	PH	EH	144	176	1	130	5	2.6	231
SMBJ130 (C)A	PK	EK	144	159	1	130	5	2.9	209
SMBJ150 (C)	PL	EL	167	204	1	150	5	2.2	268
SMBJ150 (C)A	PM	EM	167	185	1	150	5	2.5	243
SMBJ160 (C)	PN	EN	178	218	1	160	5	2.1	287
SMBJ160 (C)A	PP	EP	178	197	1	160	5	2.3	259
SMBJ170 (C)	PQ	EQ	189	231	1	170	5	2	304
SMBJ170 (C)A	PR	ER	189	209	1	170	5	2.2	275

Parts may be marked with full part number **OR** Device marking code depending on production criteria.

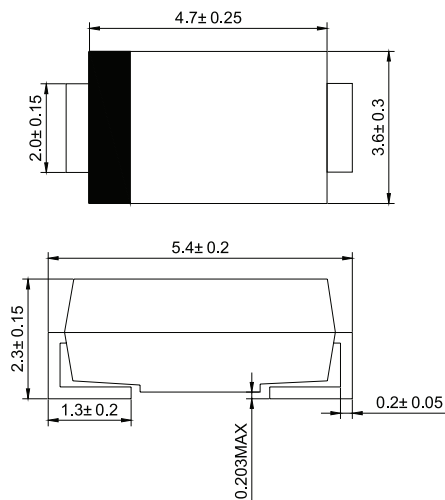
# Transient Voltage Suppressor

## SMBJ5.0 - SMBJ440CA



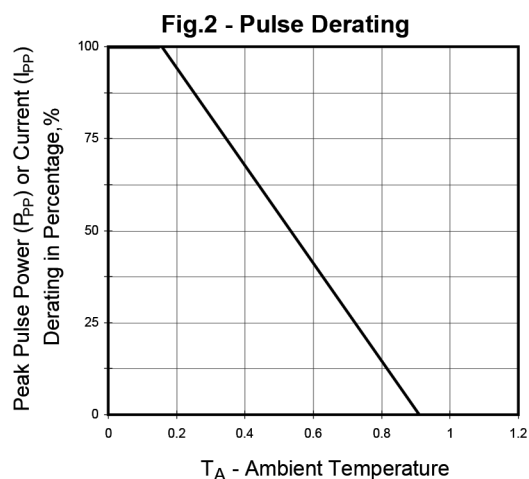
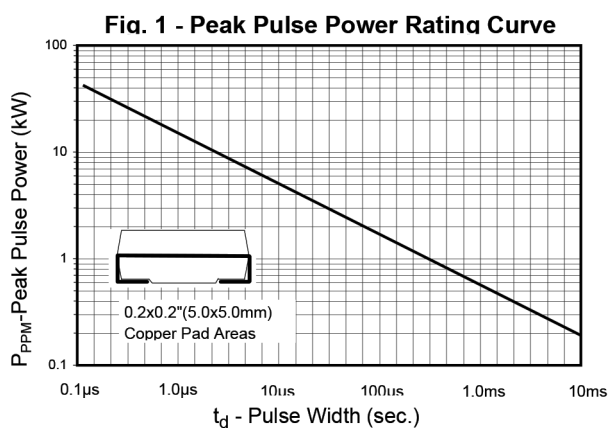
### Dimensions:

#### DO-214AA(SMB)



Dimensions : Millimetres

### Ratings & Characteristic Curves:

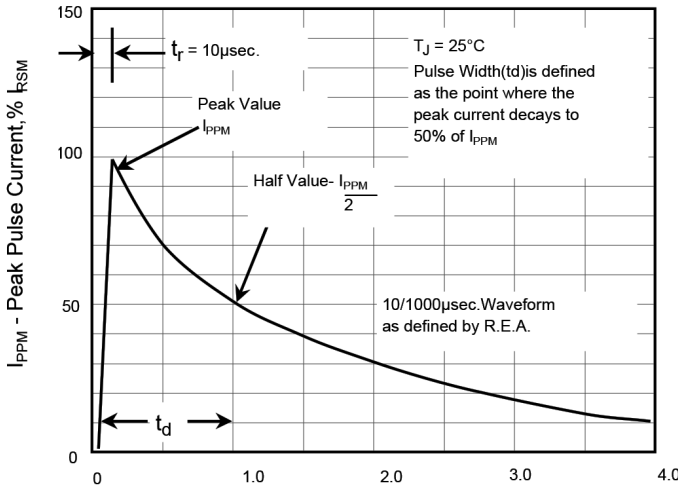


# Transient Voltage Suppressor

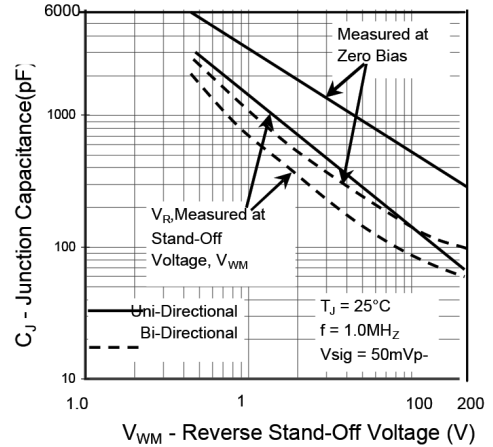
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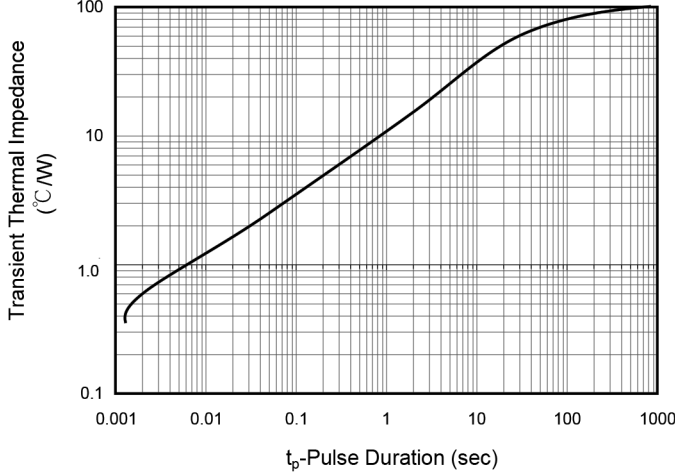
**Fig.3 - Pulse Waveform**



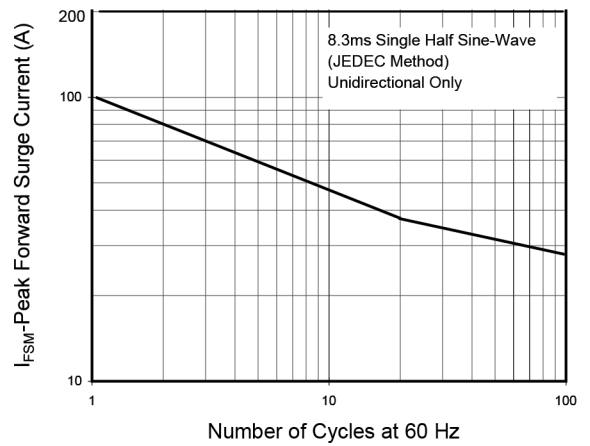
**Fig.4 - Typical Junction**



**Fig. 5 - Typ. Transient Thermal Impedance**



**Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current**



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