

600W Surface Mount Transient Voltage Suppressor

Features

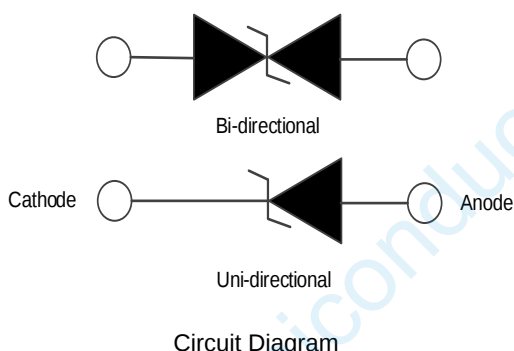
- ✧ 600W Peak Pulse Power (10/1000us Waveform)
- ✧ Typical I_R less than $1\mu A$ above 10V
- ✧ Low incremental surge resistance
- ✧ High temperature soldering: $260^\circ C/10s$ at terminals
- ✧ Fast response time
- ✧ Low profile package
- ✧ Excellent clamping capability

Applications

- ✧ Power lines
- ✧ Automotive and Telecommunication
- ✧ Industrial Electronics
- ✧ Computers & Consumer Electronics

Mechanical Data

- ✧ UL Flame Rating : UL94V-0
- ✧ RoHS/WEEE Compliant



DO-214AA

Absolute Maximum Rating at $T_A = 25^\circ C$, unless otherwise specified

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 10/1000\mu s$)	P_{PPM}	600	W
Peak Pulse Current ($t_p = 10/1000\mu s$)	I_{pp}	See next table	A
Power Dissipation on Infinite Heat Sink at $T_L = 50^\circ C$	P_D	5.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only	V_F	3.5/5.0	V
Operating Temperature	T_J	-55 to + 150	$^\circ C$

Electrical Characteristics at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Part Number		Marking		V_R	$I_R@V_R$	$V_{BR}@I_T$		I_T	$V_C@I_{PP}$	I_{PP}
Uni-Polar	Bi-Polar	UNI	BI	V	μA	min(V)	max(V)	mA	max(V)	A
SMBJ5.0A	SMBJ5.0CA	KE	AE	5.0	800	6.40	7.00	10	9.2	65.3
SMBJ6.0A	SMBJ6.0CA	KG	AG	6.0	800	6.67	7.37	10	10.3	58.3
SMBJ6.5A	SMBJ6.5CA	KK	AK	6.5	500	7.22	7.98	10	11.2	53.6
SMBJ7.0A	SMBJ7.0CA	KM	AM	7.0	200	7.78	8.60	10	12.0	50.0
SMBJ7.5A	SMBJ7.5CA	KP	AP	7.5	100	8.33	9.21	1	12.9	46.6
SMBJ8.0A	SMBJ8.0CA	KR	AR	8.0	50	8.89	9.83	1	13.6	44.1
SMBJ8.5A	SMBJ8.5CA	KT	AT	8.5	20	9.44	10.40	1	14.4	41.7
SMBJ9.0A	SMBJ9.0CA	KV	AV	9.0	10	10.00	11.10	1	15.4	39.0
SMBJ10A	SMBJ10CA	KX	AX	10	5	11.10	12.30	1	17.0	35.3
SMBJ11A	SMBJ11CA	KZ	AZ	11	1	12.20	13.50	1	18.2	33.0
SMBJ12A	SMBJ12CA	LE	BE	12	1	13.30	14.70	1	19.9	30.2
SMBJ13A	SMBJ13CA	LG	BG	13	1	14.40	15.90	1	21.5	28.0
SMBJ14A	SMBJ14CA	LK	BK	14	1	15.60	17.20	1	23.2	25.9
SMBJ15A	SMBJ15CA	LM	BM	15	1	16.70	18.50	1	24.4	24.6
SMBJ16A	SMBJ16CA	LP	BP	16	1	17.80	19.70	1	26.0	23.1
SMBJ17A	SMBJ17CA	LR	BR	17	1	18.90	20.90	1	27.6	21.8
SMBJ18A	SMBJ18CA	LT	BT	18	1	20.00	22.10	1	29.2	20.6
SMBJ20A	SMBJ20CA	LV	BV	20	1	22.20	24.50	1	32.4	18.6
SMBJ22A	SMBJ22CA	LX	BX	22	1	24.40	26.90	1	35.5	16.9
SMBJ24A	SMBJ24CA	LZ	BZ	24	1	26.70	29.50	1	38.9	15.5
SMBJ26A	SMBJ26CA	ME	CE	26	1	28.90	31.90	1	42.1	14.3
SMBJ28A	SMBJ28CA	MG	CG	28	1	31.10	34.40	1	45.4	13.3
SMBJ30A	SMBJ30CA	MK	CK	30	1	33.30	36.80	1	48.4	12.4
SMBJ33A	SMBJ33CA	MM	CM	33	1	36.70	40.60	1	53.3	11.3
SMBJ36A	SMBJ36CA	MP	CP	36	1	40.00	44.20	1	58.1	10.4
SMBJ40A	SMBJ40CA	MR	CR	40	1	44.40	49.10	1	64.5	9.3
SMBJ43A	SMBJ43CA	MT	CT	43	1	47.80	52.80	1	69.4	8.7
SMBJ45A	SMBJ45CA	MV	CV	45	1	50.00	55.30	1	72.7	8.3
SMBJ48A	SMBJ48CA	MX	CX	48	1	53.30	58.90	1	77.4	7.8
SMBJ51A	SMBJ51CA	MZ	CZ	51	1	56.70	62.70	1	82.4	7.3
SMBJ54A	SMBJ54CA	NE	DE	54	1	60.00	66.30	1	87.1	6.9
SMBJ58A	SMBJ58CA	NG	DG	58	1	64.40	71.20	1	93.6	6.5
SMBJ60A	SMBJ60CA	NK	DK	60	1	66.70	73.70	1	96.8	6.2
SMBJ64A	SMBJ64CA	NM	DM	64	1	71.10	78.60	1	103.0	5.9
SMBJ70A	SMBJ70CA	NP	DP	70	1	77.80	86.00	1	113.0	5.3
SMBJ75A	SMBJ75CA	NR	DR	75	1	83.30	92.10	1	121.0	5.0
SMBJ78A	SMBJ78CA	NT	DT	78	1	86.70	95.80	1	126.0	4.8
SMBJ85A	SMBJ85CA	NV	DV	85	1	94.40	104.0	1	137.0	4.4
SMBJ90A	SMBJ90CA	NX	DX	90	1	100.0	111.0	1	146.0	4.1
SMBJ100A	SMBJ100CA	NZ	DZ	100	1	111.0	123.0	1	162.0	3.7
SMBJ110A	SMBJ110CA	PE	EE	110	1	122.0	135.0	1	177.0	3.4
SMBJ120A	SMBJ120CA	PG	EG	120	1	133.0	147.0	1	193.0	3.1
SMBJ130A	SMBJ130CA	PK	EK	130	1	144.0	159.0	1	209.0	2.9
SMBJ150A	SMBJ150CA	PM	EM	150	1	167.0	185.0	1	243.0	2.5
SMBJ160A	SMBJ160CA	PP	EP	160	1	178.0	197.0	1	259.0	2.3
SMBJ170A	SMBJ170CA	PR	ER	170	1	189.0	209.0	1	275.0	2.2
SMBJ180A	SMBJ180CA	PT	ET	180	1	201.0	222.0	1	292.0	2.1
SMBJ190A	SMBJ190CA	PB	EB	190	1	211.0	234.0	1	307.0	2.0
SMBJ200A	SMBJ200CA	PV	EV	200	1	224.0	247.0	1	324.0	1.9
SMBJ220A	SMBJ220CA	PX	EX	220	1	246.0	272.0	1	356.0	1.7
SMBJ250A	SMBJ250CA	PZ	EZ	250	1	279.0	309.0	1	405.0	1.5
SMBJ300A	SMBJ300CA	QE	FE	300	1	335.0	371.0	1	486.0	1.3
SMBJ350A	SMBJ350CA	QG	FG	350	1	391.0	432.0	1	567.0	1.1
SMBJ400A	SMBJ400CA	QK	FK	400	1	447.0	494.0	1	648.0	0.9
SMBJ440A	SMBJ440CA	QM	FM	440	1	492.0	543.0	1	713.0	0.8

Typical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Fig1. Peak Pulse Power Rating Curve

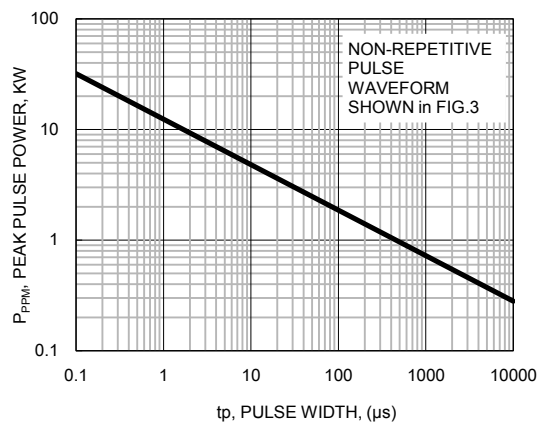


Fig2. Pulse Derating Curve

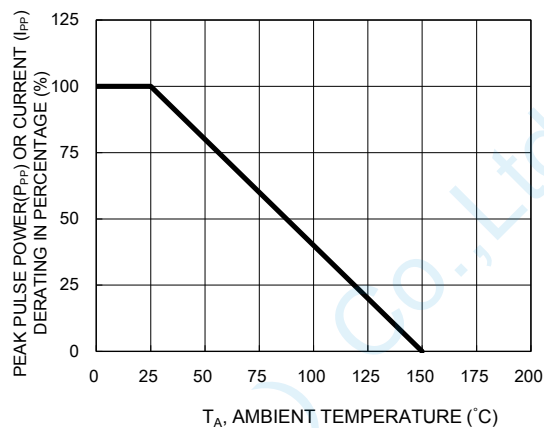


Fig3. Clamping Power Pulse Waveform

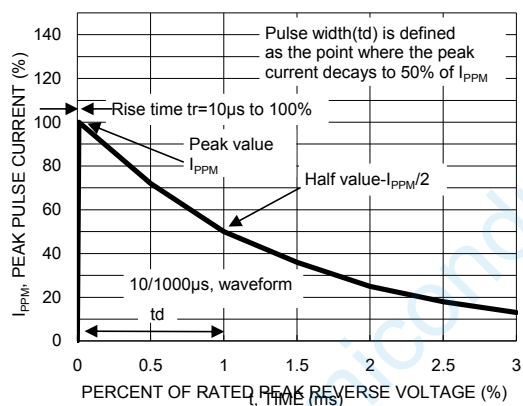


Fig4. Maximum Non-Repetitive Forward Surge Current Unidirectional Only

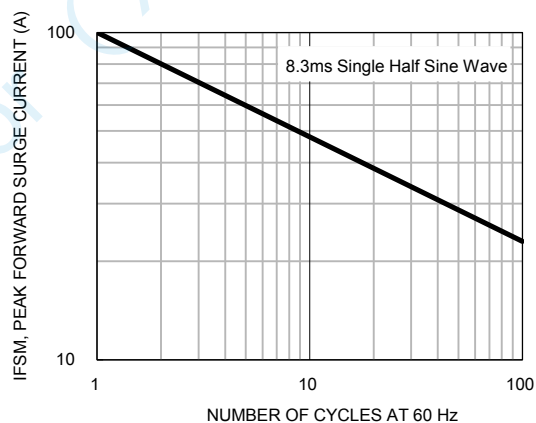
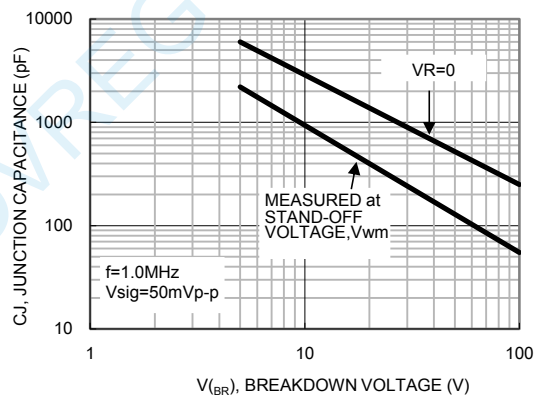
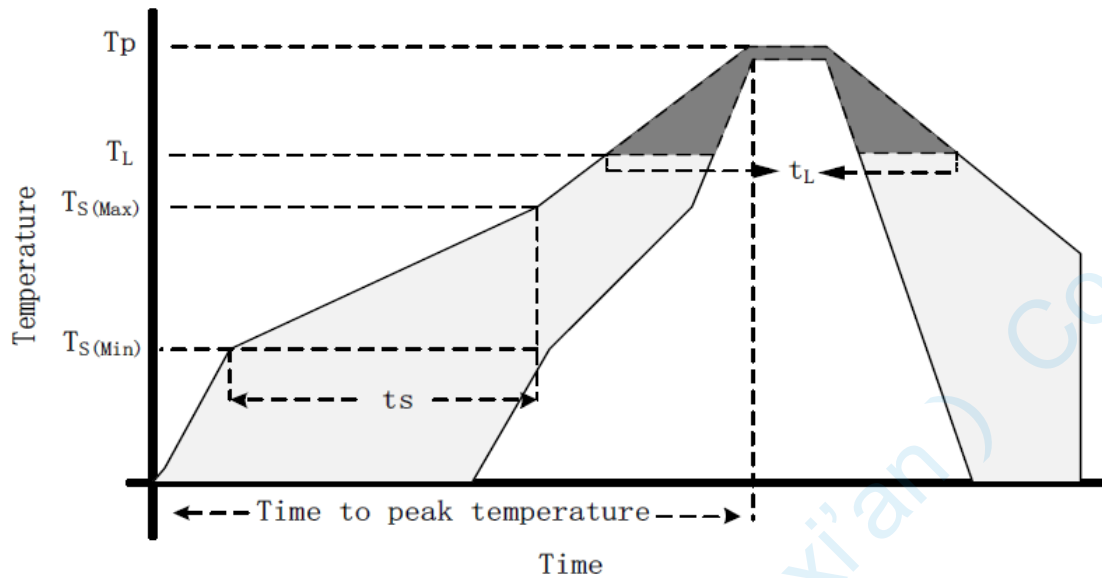


Fig5. Typical Junction Capacitance

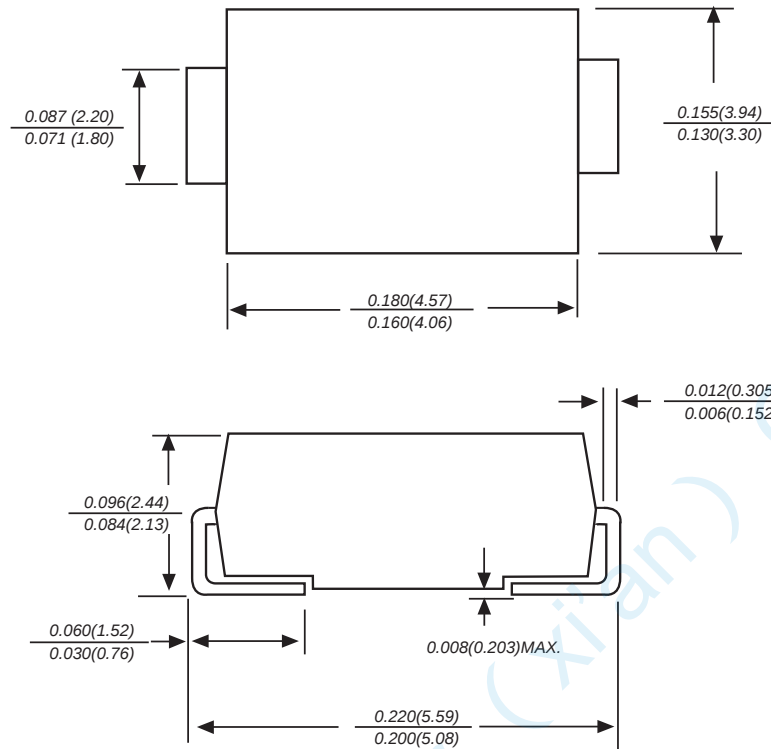


Soldering Parameters

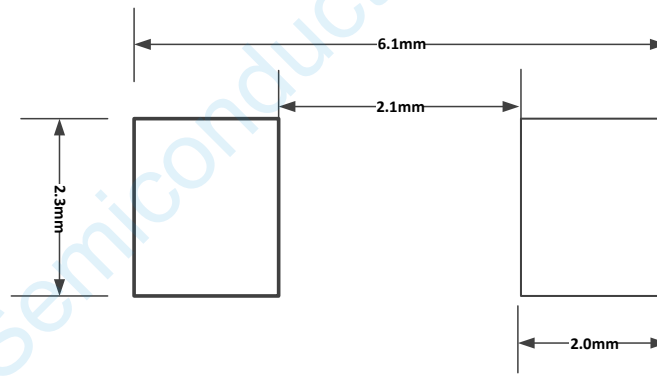


Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus) Temp(T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	220°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temp(T_p)		260+0/-5 °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C

Package Information

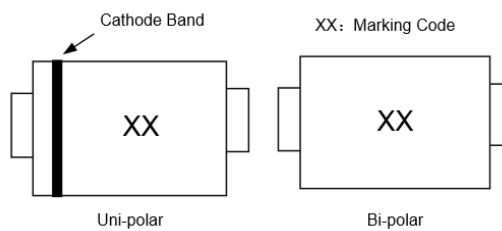


Recommend PCB Layout



Notes: This PCB Layout Is For Reference Purposes Only

Marking



Ordering Information

Part number	Package	Type	Reel size	MOQ	Packaging specification
SMBJxxx(C)A	DO-214AA	T/R	13 inch	3k/reel	EIA STD RS-481