

1SMA5.0A(CA) - 1SMA440A(CA)

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR DIODE

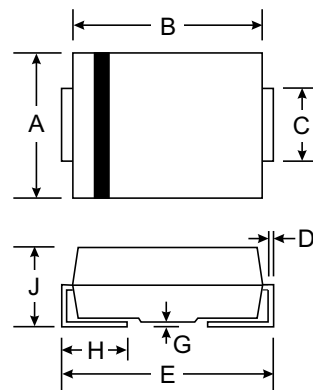
VOLTAGE RANGE: 5.0 - 440V
POWER: 400Watts

Features

- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Material: UL Flammability Classification Rating 94V-0

Mechanical Data

- Case: SMA/DO-214AC, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.064 grams (approx.)



SMA(DO-214AC)		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.10	0.20
H	0.76	1.52
J	2.01	2.62
All Dimensions in mm		

Maximum Ratings and Electrical Characteristics @T_A=25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation (Non repetitive current pulse derated above T _A = 25°C) (Note 1)	P _{PK}	400	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Notes 1, 2, & 3)	I _{FSM}	40	A
Instantaneous Forward Voltage @ I _{PP} = 35A (Notes 1, 2, & 3)	V _F	3.5	V
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

- Notes:
1. Valid provided that terminals are kept at ambient temperature.
 2. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
 3. Unidirectional units only.

TYPE		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 _{RWM}
(Uni)	(Bi)	(Uni)	(Bi)	V _{RWM} (V)	V _{BR} MIN(V)	V _{BR} MAX(V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
1SMA5.0	1SMA5.0C	HD	TD	5.0	6.40	7.55	10.0	9.6	41.7	800.0
1SMA5.0A	1SMA5.0CA	HE	TE	5.0	6.40	7.25	10.0	9.2	43.5	800.0
1SMA6.0	1SMA6.0C	HF	TF	6.0	6.67	8.45	10.0	11.4	35.1	800.0
1SMA6.0A	1SMA6.0CA	HG	TG	6.0	6.67	7.67	10.0	10.3	38.8	800.0
1SMA6.5	1SMA6.5C	HH	TH	6.5	7.22	9.14	10.0	12.3	32.5	500.0
1SMA6.5A	1SMA6.5CA	HK	TK	6.5	7.22	8.30	10.0	11.2	35.7	500.0
1SMA7.0	1SMA7.0C	HL	TL	7.0	7.78	9.86	10.0	13.3	30.1	200.0
1SMA7.0A	1SMA7.0CA	HM	TM	7.0	7.78	8.95	10.0	12.0	33.3	200.0
1SMA7.5	1SMA7.5C	HN	TN	7.5	8.33	10.67	1.0	14.3	28.0	100.0
1SMA7.5A	1SMA7.5CA	HP	TP	7.5	8.33	9.58	1.0	12.9	31.0	100.0
1SMA8.0	1SMA8.0C	HQ	TQ	8.0	8.89	11.3	1.0	15.0	26.7	50.0
1SMA8.0A	1SMA8.0CA	HR	TR	8.0	8.89	10.23	1.0	13.6	29.4	50.0
1SMA8.5	1SMA8.5C	HS	TS	8.5	9.44	11.92	1.0	15.9	25.2	20.0
1SMA8.5A	1SMA8.5CA	HT	TT	8.5	9.44	10.82	1.0	14.4	27.8	20.0
1SMA9.0	1SMA9.0C	HU	TU	9.0	10.0	12.6	1.0	16.9	23.7	10.0
1SMA9.0A	1SMA9.0CA	HV	TV	9.0	10.0	11.5	1.0	15.4	26.0	10.0
1SMA10	1SMA10C	HW	TW	10	11.1	14.1	1.0	18.8	21.3	5.0
1SMA10A	1SMA10CA	HX	TX	10	11.1	12.8	1.0	17.0	23.5	5.0
1SMA11	1SMA11C	HY	TY	11	12.2	15.4	1.0	20.1	19.9	5.0
1SMA11A	1SMA11CA	HZ	TZ	11	12.2	14.0	1.0	18.2	22.0	5.0
1SMA12	1SMA12C	ID	UD	12	13.3	16.9	1.0	22.0	18.2	5.0
1SMA12A	1SMA12CA	IE	UE	12	13.3	15.3	1.0	19.9	20.1	5.0
1SMA13	1SMA13C	IF	UF	13	14.4	18.2	1.0	23.8	16.8	5.0
1SMA13A	1SMA13CA	IG	UG	13	14.4	16.5	1.0	21.5	18.6	5.0
1SMA14	1SMA14C	IH	UH	14	15.6	19.8	1.0	25.8	15.5	5.0
1SMA14A	1SMA14CA	IK	UK	14	15.6	17.9	1.0	23.2	17.2	5.0
1SMA15	1SMA15C	IL	UL	15	16.7	21.1	1.0	26.9	14.9	5.0
1SMA15A	1SMA15CA	IM	UM	15	16.7	19.2	1.0	24.4	16.4	5.0
1SMA16	1SMA16C	IN	UN	16	17.8	22.6	1.0	28.8	13.9	5.0
1SMA16A	1SMA16CA	IP	UP	16	17.8	20.5	1.0	26.0	15.4	5.0
1SMA17	1SMA17C	IQ	UQ	17	18.9	23.9	1.0	30.5	13.1	5.0
1SMA17A	1SMA17CA	IR	UR	17	18.9	21.7	1.0	27.6	14.5	5.0
1SMA18	1SMA18C	IS	US	18	20.0	25.3	1.0	32.2	12.4	5.0
1SMA18A	1SMA18CA	IT	UT	18	20.0	23.3	1.0	29.2	13.7	5.0
1SMA20	1SMA20C	IU	UU	20	22.2	28.1	1.0	35.8	11.2	5.0
1SMA20A	1SMA20CA	IV	UV	20	22.2	25.5	1.0	32.4	12.3	5.0
1SMA22	1SMA22C	IW	UW	22	24.4	30.9	1.0	39.4	10.2	5.0
1SMA22A	1SMA22CA	IX	UX	22	24.4	28.0	1.0	35.5	11.3	5.0

TYPE		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 _{RWM}
(Uni)	(Bi)	(Uni)	(Bi)	V _{RWM} (V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
1SMA24	1SMA24C	IY	UY	24	26.7	33.8	1.0	43.0	9.3	5.0
1SMA24A	1SMA24CA	IZ	UZ	24	26.7	30.7	1.0	38.9	10.3	5.0
1SMA26	1SMA26C	JD	VD	26	28.9	36.6	1.0	46.6	8.6	5.0
1SMA26A	1SMA26CA	JE	VE	26	28.9	33.2	1.0	42.1	9.5	5.0
1SMA28	1SMA28C	JF	VF	28	31.1	39.4	1.0	50.0	8.0	5.0
1SMA28A	1SMA28CA	JG	VG	28	31.1	35.8	1.0	45.4	8.8	5.0
1SMA30	1SMA30C	JH	VH	30	33.3	42.2	1.0	53.5	7.5	5.0
1SMA30A	1SMA30CA	JK	VK	30	33.3	38.3	1.0	48.4	8.3	5.0
1SMA33	1SMA33C	JL	VL	33	36.7	46.5	1.0	59.0	6.8	5.0
1SMA33A	1SMA33CA	JM	VM	33	36.7	42.2	1.0	53.3	7.5	5.0
1SMA36	1SMA36C	JN	VN	36	40.0	50.7	1.0	64.3	6.2	5.0
1SMA36A	1SMA36CA	JP	VP	36	40.0	46.0	1.0	58.1	6.9	5.0
1SMA40	1SMA40C	JQ	VQ	40	44.4	56.3	1.0	71.4	5.6	5.0
1SMA40A	1SMA40CA	JR	VR	40	44.4	51.1	1.0	64.5	6.2	5.0
1SMA43	1SMA43C	JS	VS	43	47.7	60.5	1.0	76.7	5.2	5.0
1SMA43A	1SMA43CA	JT	VT	43	47.8	54.9	1.0	69.4	5.8	5.0
1SMA45	1SMA45C	JU	VU	45	50.0	63.3	1.0	80.3	5.0	5.0
1SMA45A	1SMA45CA	JV	VV	45	50.0	57.5	1.0	72.7	5.5	5.0
1SMA48	1SMA48C	JW	VW	48	53.3	67.5	1.0	85.5	4.7	5.0
1SMA48A	1SMA48CA	JX	VX	48	53.3	61.3	1.0	77.4	5.2	5.0
1SMA51	1SMA51C	JY	VY	51	56.7	71.8	1.0	91.1	4.4	5.0
1SMA51A	1SMA51CA	JZ	VZ	51	56.7	65.2	1.0	82.4	4.9	5.0
1SMA54	1SMA54C	RD	WD	54	60.0	76.0	1.0	96.3	4.2	5.0
1SMA54A	1SMA54CA	RE	WE	54	60.0	69.0	1.0	87.1	4.6	5.0
1SMA58	1SMA58C	RF	WF	58	64.4	81.6	1.0	103	3.9	5.0
1SMA58A	1SMA58CA	RG	WG	58	64.4	74.1	1.0	93.6	4.3	5.0
1SMA60	1SMA60C	RH	WH	60	66.7	84.5	1.0	107	3.7	5.0
1SMA60A	1SMA60CA	RK	WK	60	66.7	76.7	1.0	96.8	4.1	5.0
1SMA64	1SMA64C	RL	WL	64	71.1	90.1	1.0	114	3.5	5.0
1SMA64A	1SMA64CA	RM	WM	64	71.1	81.8	1.0	103	3.9	5.0
1SMA70	1SMA70C	RN	WN	70	77.8	98.6	1.0	125	3.2	5.0
1SMA70A	1SMA70CA	RP	WP	70	77.8	89.5	1.0	113	3.5	5.0
1SMA75	1SMA75C	RQ	WQ	75	83.0	105.7	1.0	134	3.0	5.0
1SMA75A	1SMA75CA	RR	WR	75	83.0	95.8	1.0	121	3.3	5.0
1SMA78	1SMA78C	RS	WS	78	86.0	109.8	1.0	139	2.9	5.0
1SMA78A	1SMA78CA	RT	WT	78	86.0	99.7	1.0	126	3.2	5.0
1SMA85	1SMA85C	RU	WU	85	94.0	119.2	1.0	151	2.6	5.0
1SMA85A	1SMA85CA	RV	WV	85	94.0	108.2	1.0	137	2.9	5.0

TYPE		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 _{RWM}
(Uni)	(Bi)	(Uni)	(Bi)	V _{RWM} (V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
1SMA90	1SMA90C	RW	WW	90	100	126.5	1.0	160	2.5	5.0
1SMA90A	1SMA90CA	RX	WX	90	100	115.5	1.0	146	2.7	5.0
1SMA100	1SMA100C	RY	WY	100	111	141.0	1.0	179	2.2	5.0
1SMA100A	1SMA100CA	RZ	WZ	100	111	128.0	1.0	162	2.5	5.0
1SMA110	1SMA110C	SD	XD	110	122	154.5	1.0	196	2.0	5.0
1SMA110A	1SMA110CA	SE	XE	110	122	140.5	1.0	177	2.3	5.0
1SMA120	1SMA120C	SF	XF	120	133	169.0	1.0	214	1.9	5.0
1SMA120A	1SMA120CA	SG	XG	120	133	153.0	1.0	193	2.1	5.0
1SMA130	1SMA130C	SH	XH	130	144	182.5	1.0	231	1.7	5.0
1SMA130A	1SMA130CA	SK	XK	130	144	165.5	1.0	209	1.9	5.0
1SMA150	1SMA150C	SL	XL	150	167	211.5	1.0	268	1.5	5.0
1SMA150A	1SMA150CA	SM	XM	150	167	192.5	1.0	243	1.6	5.0
1SMA160	1SMA160C	SN	XN	160	178	226.0	1.0	287	1.4	5.0
1SMA160A	1SMA160CA	SP	XP	160	178	205.0	1.0	259	1.5	5.0
1SMA170	1SMA170C	SQ	XQ	170	189	239.5	1.0	304	1.3	5.0
1SMA170A	1SMA170CA	SR	XR	170	189	217.5	1.0	275	1.5	5.0
1SMA180	1SMA180C	SS	XS	180	200	253.8	1.0	321	1.2	5.0
1SMA180A	1SMA180CA	ST	XT	180	200	230.4	1.0	290	1.4	5.0
1SMA190	1SMA190C	SU	XU	190	211	267.9	1.0	339	1.2	5.0
1SMA190A	1SMA190CA	SV	XV	190	211	243.2	1.0	306	1.3	5.0
1SMA200	1SMA200C	SW	XW	200	222	282.0	1.0	356	1.1	5.0
1SMA200A	1SMA200CA	SX	XX	200	222	256.0	1.0	322	1.2	5.0
1SMA210	1SMA210C	SY	XY	210	233	296.1	1.0	375	1.1	5.0
1SMA210A	1SMA210CA	SZ	XZ	210	233	268.8	1.0	339	1.2	5.0
1SMA220	1SMA220C	ZD	YD	220	244	310.2	1.0	392	1.0	5.0
1SMA220A	1SMA220CA	ZE	YE	220	244	281.6	1.0	355	1.1	5.0
1SMA250	1SMA250C	ZF	YF	250	278	342.5	1.0	447	0.9	5.0
1SMA250A	1SMA250CA	ZG	YG	250	278	309.0	1.0	403	1.0	5.0
1SMA300	1SMA300C	ZH	YH	300	333	411.0	1.0	535	0.7	5.0
1SMA300A	1SMA300CA	ZK	YK	300	333	371.0	1.0	484	0.8	5.0
1SMA350	1SMA350C	ZL	YL	350	389	479.5	1.0	624	0.6	5.0
1SMA350A	1SMA350CA	ZM	YM	350	389	432.0	1.0	565	0.7	5.0
1SMA400	1SMA400C	ZN	YN	400	444	548.0	1.0	687	0.6	5.0
1SMA400A	1SMA400CA	ZP	YP	400	444	494.0	1.0	645	0.6	5.0
1SMA440	1SMA440C	ZQ	YQ	440	489	602.8	1.0	786	0.5	5.0
1SMA440A	1SMA440CA	ZR	YR	440	489	543.0	1.0	710	0.6	5.0



Ratings and Characteristic Curves $T_A=25^\circ\text{C}$ unless otherwise noted

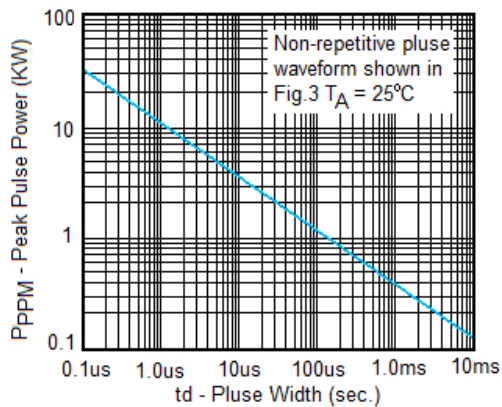


Fig. 1 Peak Pulse Power Rating

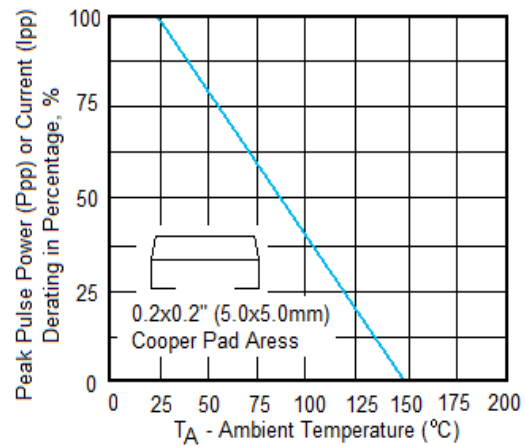


Fig. 2 Pulse Derating Curve

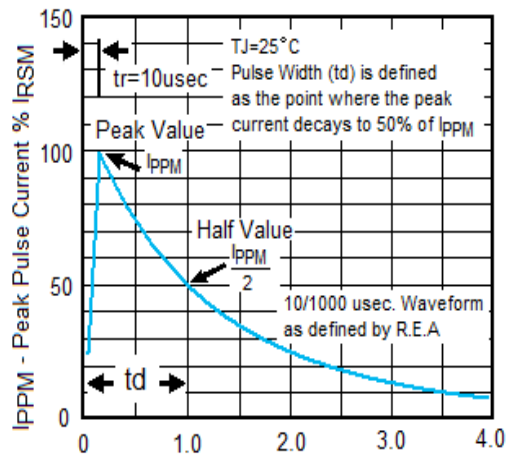


Fig. 3 Pulse Waveform

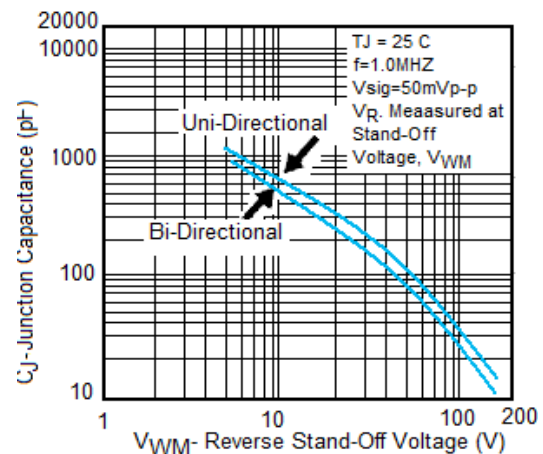


Fig. 4- Typical Junction Capacitance