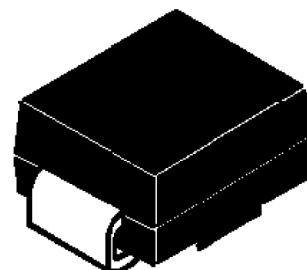


600W Surface Mount Transient Voltage Suppressors

Features

- ⌘ Working peak reverse voltage range – 5.0V to 440V.
- ⌘ Peak power dissipation 600W @10 x 1000 us Pulse
- ⌘ Low profile package.
- ⌘ Excellent clamping capability.
- ⌘ Glass passivated junction.
- ⌘ Fast response time: typically less than 1 ns for Uni-direction.
- Less than 5 ns for Bi-direction, from 0 Volts to BV min
- ⌘ Typical IR less than 1uA above 10V.
- ⌘ Plastic material has UL flammability classification 94V-O
- ⌘ RoHS compliant in lead-free versions

NOTE: HK-4 IS SPECIALIZED MARKING OF SMBJ6.5CA FOR HIKVISION.



Mechanical Characteristics

CASE: Void-free, JEDEC DO-214AA Molded Plastic over glass passivated junction..

Mounting Position: Any

Polarity: by cathode band denotes uni-directional device, none cathode band denotes bi-directional device.

Terminal: Solder plated, solderable per MIL-STD-750, Method 2026

Maximum Ratings And Characteristics @ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, 2, FIG.1)	P _{PPM}	Min 600	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	I _{PPM}	See Table 1	Amps
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method) (Note 2. 3)	I _{FSM}	100	Amps
Operating Junction Temperature Range	T _J	-55 to 150	°C
Storage Temperature Range	T _{STG}	-55 to 150	°C

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25°C per Fig.2.
2. Mounted on 5.0mm² (0.03mm thick) Copper Pads to each terminal.
3. 8.3 ms single half sine-wave, or equivalent square wave, Duty cycle=4 pluses per minute maximum.

KI SEMICONDUCTOR **SMBJ5.0 --- SMBJ440CA**

Electrical Specification @ Tamb 25°C

Type Number		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 _{RMW}
(Uni)	(Bi)	V _{RMW} (V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
SMBJ5.0	SMBJ5.0C	5.0	6.40	7.55	10	9.6	62.5	800.0
SMBJ5.0A	SMBJ5.0CA	5.0	6.40	7.25	10	9.2	65.2	800.0
SMBJ6.0	SMBJ6.0C	6.0	6.67	8.45	10	11.4	52.6	800.0
SMBJ6.0A	SMBJ6.0CA	6.0	6.67	7.67	10	10.3	58.3	800.0
SMBJ6.5	SMBJ6.5C	6.5	7.22	9.14	10	12.3	48.8	500.0
SMBJ6.5A	SMBJ6.5CA	6.5	7.22	8.30	10	11.2	53.6	500.0
SMBJ7.0	SMBJ7.0C	7.0	7.78	9.86	10	13.3	45.1	200.0
SMBJ7.0A	SMBJ7.0CA	7.0	7.78	8.95	10	12.0	50.0	200.0
SMBJ7.5	SMBJ7.5C	7.5	8.33	10.67	1.0	14.3	42.0	100.0
SMBJ7.5A	SMBJ7.5CA	7.5	8.33	9.58	1.0	12.9	46.5	100.0
SMBJ8.0	SMBJ8.0C	8.0	8.89	11.3	1.0	15.0	40.0	50.0
SMBJ8.0A	SMBJ8.0CA	8.0	8.89	10.23	1.0	13.6	44.1	50.0
SMBJ8.5	SMBJ8.5C	8.5	9.44	11.92	1.0	15.9	37.7	20.0
SMBJ8.5A	SMBJ8.5CA	8.5	9.44	10.82	1.0	14.4	41.7	20.0
SMBJ9.0	SMBJ9.0C	9.0	10.0	12.6	1.0	16.9	35.5	10.0
SMBJ9.0A	SMBJ9.0CA	9.0	10.0	11.5	1.0	15.4	39.0	10.0
SMBJ10	SMBJ10C	10	11.1	14.1	1.0	18.8	31.9	5.0
SMBJ10A	SMBJ10CA	10	11.1	12.8	1.0	17.0	35.3	5.0
SMBJ11	SMBJ11C	11	12.2	15.4	1.0	20.1	29.9	5.0
SMBJ11A	SMBJ11CA	11	12.2	14.0	1.0	18.2	33.0	5.0
SMBJ12	SMBJ12C	12	13.3	16.9	1.0	22.0	27.3	5.0
SMBJ12A	SMBJ12CA	12	13.3	15.3	1.0	19.9	30.2	5.0
SMBJ13	SMBJ13C	13	14.4	18.2	1.0	23.8	25.2	5.0
SMBJ13A	SMBJ13CA	13	14.4	16.5	1.0	21.5	27.9	5.0
SMBJ14	SMBJ14C	14	15.6	19.8	1.0	25.8	23.3	5.0
SMBJ14A	SMBJ14CA	14	15.6	17.9	1.0	23.2	25.9	5.0
SMBJ15	SMBJ15C	15	16.7	21.1	1.0	26.9	22.3	5.0
SMBJ15A	SMBJ15CA	15	16.7	19.2	1.0	24.4	24.6	5.0
SMBJ16	SMBJ16C	16	17.8	22.6	1.0	28.8	20.8	5.0
SMBJ16A	SMBJ16CA	16	17.8	20.5	1.0	26.0	23.1	5.0
SMBJ17	SMBJ17C	17	18.9	23.9	1.0	30.5	19.7	5.0
SMBJ17A	SMBJ17CA	17	18.9	21.7	1.0	27.6	21.7	5.0
SMBJ18	SMBJ18C	18	20.0	25.3	1.0	32.2	18.6	5.0
SMBJ18A	SMBJ18CA	18	20.0	23.3	1.0	29.2	20.5	5.0
SMBJ20	SMBJ20C	20	22.2	28.1	1.0	35.8	16.8	5.0
SMBJ20A	SMBJ20CA	20	22.2	25.5	1.0	32.4	18.5	5.0

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

KI SEMICONDUCTOR *SMBJ5.0 --- SMBJ440CA*

Type Number		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 _{RMW}
(Uni)	(Bi)	V _{RMW} (V)	V _{BR} MIN(V)	V _{BR} MAX(V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
SMBJ22	SMBJ22C	22	24.4	30.9	1.0	39.4	15.2	5.0
SMBJ22A	SMBJ22CA	22	24.4	28.0	1.0	35.5	16.9	5.0
SMBJ24	SMBJ24C	24	26.7	33.8	1.0	43.0	14.0	5.0
SMBJ24A	SMBJ24CA	24	26.7	30.7	1.0	38.9	15.4	5.0
SMBJ26	SMBJ26C	26	28.9	36.6	1.0	46.6	12.9	5.0
SMBJ26A	SMBJ26CA	26	28.9	33.2	1.0	42.1	14.3	5.0
SMBJ28	SMBJ28C	28	31.1	39.4	1.0	50.0	12.0	5.0
SMBJ28A	SMBJ28CA	28	31.1	35.8	1.0	45.4	13.2	5.0
SMBJ30	SMBJ30C	30	33.3	42.2	1.0	53.5	11.2	5.0
SMBJ30A	SMBJ30CA	30	33.3	38.3	1.0	48.4	12.4	5.0
SMBJ33	SMBJ33C	33	36.7	46.5	1.0	59.0	10.2	5.0
SMBJ33A	SMBJ33CA	33	36.7	42.2	1.0	53.3	11.3	5.0
SMBJ36	SMBJ36C	36	40.0	50.7	1.0	64.3	9.3	5.0
SMBJ36A	SMBJ36CA	36	40.0	46.0	1.0	58.1	10.3	5.0
SMBJ40	SMBJ40C	40	44.4	56.3	1.0	71.4	8.4	5.0
SMBJ40A	SMBJ40CA	40	44.4	51.1	1.0	64.5	9.3	5.0
SMBJ43	SMBJ43C	43	47.8	60.5	1.0	76.7	7.8	5.0
SMBJ43A	SMBJ43CA	43	47.8	54.9	1.0	69.4	8.6	5.0
SMBJ45	SMBJ45C	45	50.0	63.3	1.0	80.3	7.5	5.0
SMBJ45A	SMBJ45CA	45	50.0	57.5	1.0	72.7	8.3	5.0
SMBJ48	SMBJ48C	48	53.3	67.5	1.0	85.5	7.0	5.0
SMBJ48A	SMBJ48CA	48	53.3	61.3	1.0	77.4	7.8	5.0
SMBJ51	SMBJ51C	51	56.7	71.8	1.0	91.1	6.6	5.0
SMBJ51A	SMBJ51CA	51	56.7	65.2	1.0	82.4	7.3	5.0
SMBJ54	SMBJ54C	54	60.0	76.0	1.0	96.3	6.2	5.0
SMBJ54A	SMBJ54CA	54	60.0	69.0	1.0	87.1	6.9	5.0
SMBJ58	SMBJ58C	58	64.4	81.6	1.0	103	5.8	5.0
SMBJ58A	SMBJ58CA	58	64.4	74.1	1.0	93.6	6.4	5.0
SMBJ60	SMBJ60C	60	66.7	84.5	1.0	107	5.6	5.0
SMBJ60A	SMBJ60CA	60	66.7	76.7	1.0	96.8	6.2	5.0
SMBJ64	SMBJ64C	64	71.1	90.1	1.0	114	5.3	5.0
SMBJ64A	SMBJ64CA	64	71.1	81.8	1.0	103	5.8	5.0
SMBJ70	SMBJ70C	70	77.8	98.6	1.0	125	4.8	5.0
SMBJ70A	SMBJ70CA	70	77.8	89.5	1.0	113	5.3	5.0
SMBJ75	SMBJ75C	75	83.0	105.7	1.0	134	4.5	5.0
SMBJ75A	SMBJ75CA	75	83.0	95.8	1.0	121	5.0	5.0
SMBJ78	SMBJ78C	78	86.0	109.8	1.0	139	4.3	5.0
SMBJ78A	SMBJ78CA	78	86.0	99.7	1.0	126	4.8	5.0

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

KI SEMICONDUCTOR *SMBJ5.0 --- SMBJ440CA*

Type Number		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 _{RMW}
(Uni)	(Bi)	V _{RMW} (V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
SMBJ85	SMBJ85C	85	94.0	119.2	1.0	151	4.0	5.0
SMBJ85A	SMBJ85CA	85	94.0	108.2	1.0	137	4.4	5.0
SMBJ90	SMBJ90C	90	100	126.5	1.0	160	3.8	5.0
SMBJ90A	SMBJ90CA	90	100	115.5	1.0	146	4.1	5.0
SMBJ100	SMBJ100C	100	111	141.0	1.0	179	3.4	5.0
SMBJ100A	SMBJ100CA	100	111	128.0	1.0	162	3.7	5.0
SMBJ110	SMBJ110C	110	122	154.5	1.0	196	3.1	5.0
SMBJ110A	SMBJ110CA	110	122	140.5	1.0	177	3.4	5.0
SMBJ120	SMBJ120C	120	133	169.0	1.0	214	2.8	5.0
SMBJ120A	SMBJ120CA	120	133	153.0	1.0	193	3.1	5.0
SMBJ130	SMBJ130C	130	144	182.5	1.0	231	2.6	5.0
SMBJ130A	SMBJ130CA	130	144	165.5	1.0	209	2.9	5.0
SMBJ150	SMBJ150C	150	167	211.5	1.0	268	2.2	5.0
SMBJ150A	SMBJ150CA	150	167	192.5	1.0	243	2.5	5.0
SMBJ160	SMBJ160C	160	178	226.0	1.0	287	2.1	5.0
SMBJ160A	SMBJ160CA	160	178	205.0	1.0	259	2.3	5.0
SMBJ170	SMBJ170C	170	189	239.5	1.0	304	2.0	5.0
SMBJ170A	SMBJ170CA	170	189	217.5	1.0	275	2.2	5.0
SMBJ180	SMBJ180C	180	200	253.8	1.0	321	1.9	5.0
SMBJ180A	SMBJ180CA	180	200	230.4	1.0	290	2.1	5.0
SMBJ190	SMBJ190C	190	211	267.9	1.0	339	1.8	5.0
SMBJ190A	SMBJ190CA	190	211	243.2	1.0	306	2.0	5.0
SMBJ200	SMBJ200C	200	222	282.0	1.0	356	1.7	5.0
SMBJ200A	SMBJ200CA	200	222	256.0	1.0	322	1.9	5.0
SMBJ210	SMBJ210C	210	233	296.1	1.0	375	1.6	5.0
SMBJ210A	SMBJ210CA	210	233	268.8	1.0	339	1.8	5.0
SMBJ220	SMBJ220C	220	244	310.2	1.0	392	1.5	5.0
SMBJ220A	SMBJ220CA	220	244	281.6	1.0	355	1.7	5.0
SMBJ250	SMBJ250C	250	278	342.5	1.0	447	1.3	5.0
SMBJ250A	SMBJ250CA	250	278	309.0	1.0	403	1.5	5.0
SMBJ300	SMBJ300C	300	333	411.0	1.0	535	1.1	5.0
SMBJ300A	SMBJ300CA	300	333	371.0	1.0	484	1.2	5.0
SMBJ350	SMBJ350C	350	389	479.5	1.0	624	1.0	5.0
SMBJ350A	SMBJ350CA	350	389	432.0	1.0	565	1.1	5.0
SMBJ400	SMBJ400C	400	444	548.0	1.0	687	0.9	5.0
SMBJ400A	SMBJ400CA	400	444	494.0	1.0	645	0.9	5.0
SMBJ440	SMBJ440C	440	489	602.8	1.0	786	0.8	5.0
SMBJ440A	SMBJ440CA	440	489	543.0	1.0	710	0.8	5.0

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

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

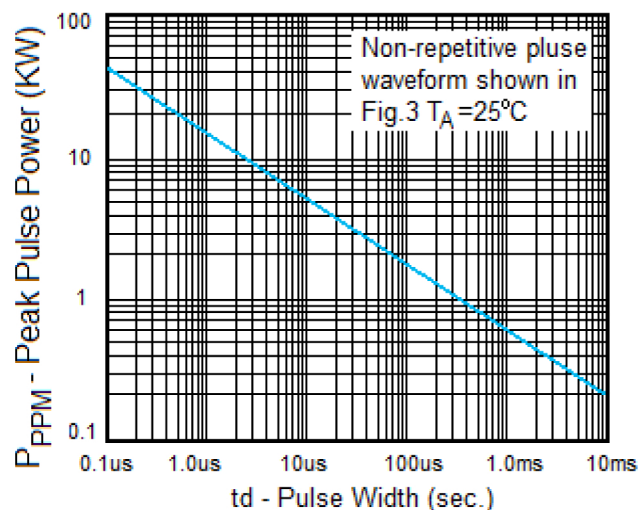


Fig. 1 Peak Pulse Power Rating

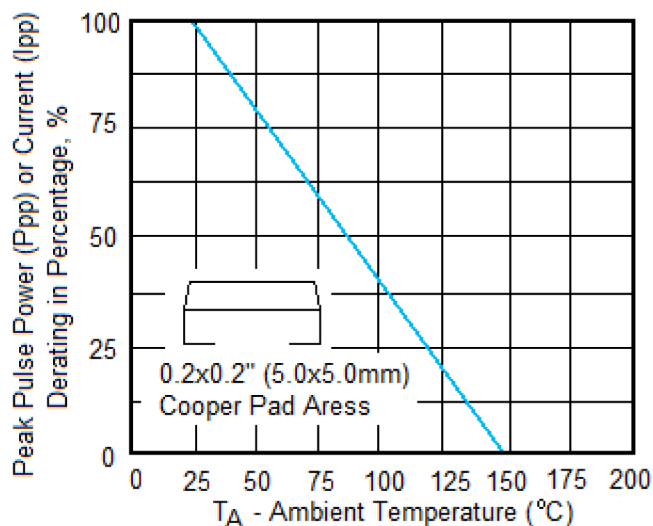


Fig.2 Pulse Derating Curve

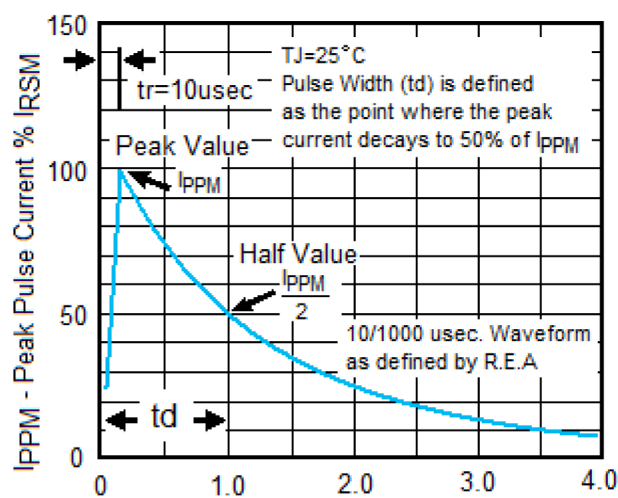


Fig.3 Pulse Waveform

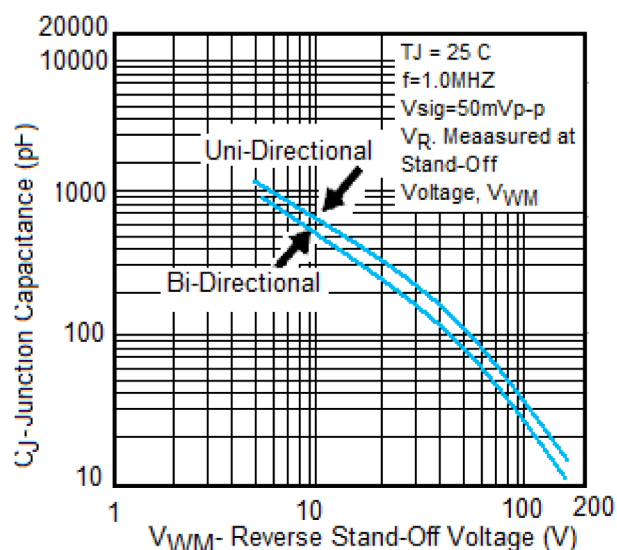
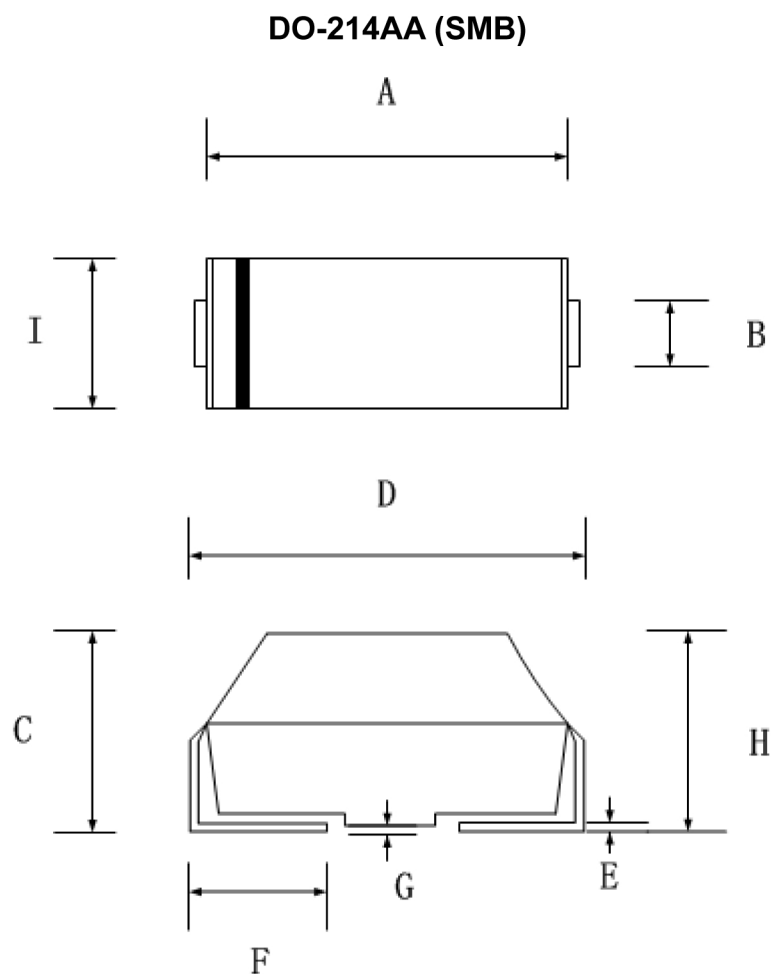


Fig. 4- Typical Junction Capacitance

Package Outline Dimensions and Pad Layouts



SMB		
Dim	MIN	MAX
A	4.40	4.55
B	1.85	2.15
C	2.10	2.30
D	5.10	5.30
E	0.15	0.25
F	1.05	1.40
G	0.00	0.20
H	2.20	2.40
I	3.55	3.70
All Dimensions in mm		