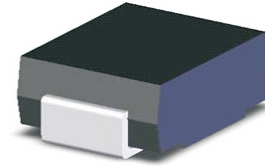
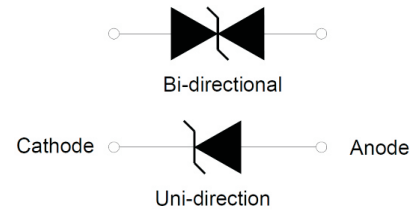


## TVS Diode

KLS5-SMBJ SMBJ Series

### Features

- \*600W peak pulse capability at 10/1000µs waveform
- \*IEC 61000-4-2(ESD) 15Kv(air), 8kV(contact)
- \*Quick response to surge voltage
- \*Excellent clamping capability
- \*Typical failure mode is short from over-specified voltage or current
- \*Solid-state silicon avalanche technology



**SMB**

### Mechanical Characteristics

- \*JEDEC DO-214AA. Molded plastic over glass passivated junction
- \*Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
- \*Polarity: Color band denotes cathode except bi-directional models
- \*Standard Packaging: 12mm tape (EIA STD RS-481)
- \*Weight: 0.10g

### Maximum Rating @ Ta=25°C unless otherwise specified

Symbol	Parameter	Ratings	Units
PPK	Peak Pulse Power Dissipation by10/1000µs Test Waveform	600	Watts
IFSM	Peak Forward Surge Current, 8.3ms Single Half Sine Wave Unidirectional Only	100	A
PM(AV)	Power Dissipation on Infinite Heat Sink at TA=50°C	5	W
TL	Lead Soldering Temperature	260(10sec.)	°C
TJ	Operating Temperature	-55 to +125	°C
TSTG	Storage Temperature	-55 to +150	°C

## TVS Diode

### Electrical Characteristics@ Ta=25°C unless otherwise



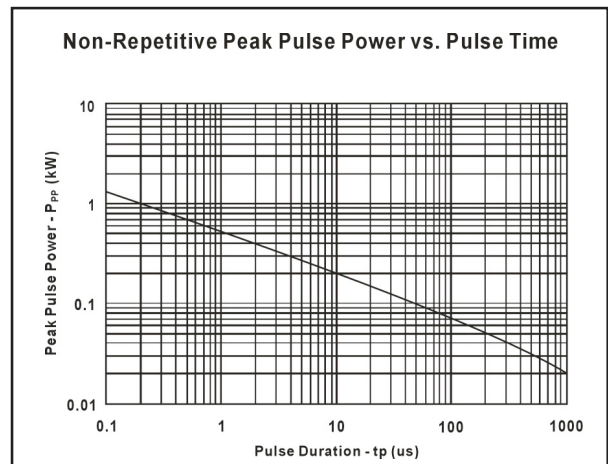
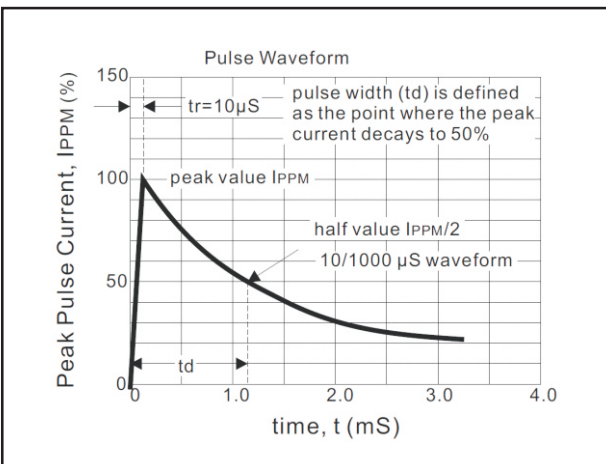
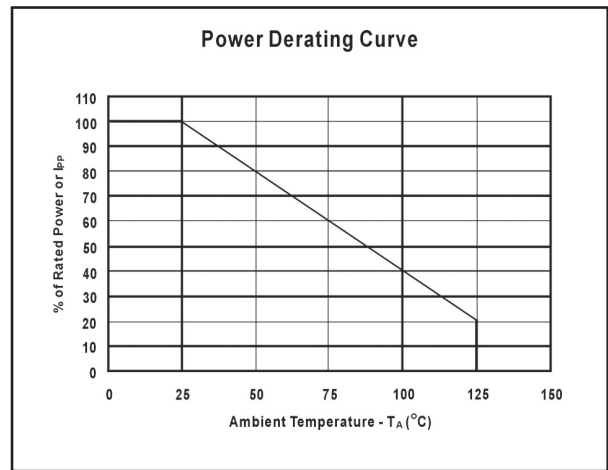
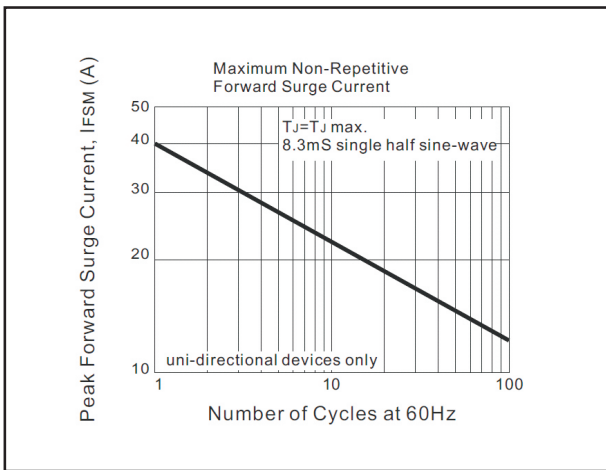
Part No.		Marking		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Maximum Clamping Voltage @ IPP		Maximum Leakage Current
					V <sub>BR</sub>	V <sub>BR</sub>		V <sub>C</sub>	I <sub>PP</sub>	
Uni	Bi	Uni	Bi	Volts	Volts	Volts	mA	Volts	A	µA
SMBJ5.0A	SMBJ5.0CA	KE	AE	5.0	6.40	7.00	10	9.2	65.3	800
SMBJ6.0A	SMBJ6.0CA	KG	AG	6.0	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	KK	AK	6.5	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	KM	AM	7.0	7.78	8.60	10	12.0	50.0	200
SMBJ7.5A	SMBJ7.5CA	KP	AP	7.5	8.33	9.21	1	12.9	46.6	100
SMBJ8.0A	SMBJ8.0CA	KR	AR	8.0	8.89	9.83	1	13.6	44.2	50
SMBJ8.5A	SMBJ8.5CA	KT	AT	8.5	9.44	10.40	1	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	KV	AV	9.0	10.00	11.10	1	15.4	39.0	10
SMBJ10A	SMBJ10CA	KX	AX	10.0	11.10	12.30	1	17.0	35.3	5
SMBJ11A	SMBJ11CA	KZ	AZ	11.0	12.20	13.50	1	18.2	33.0	1
SMBJ12A	SMBJ12CA	LE	BE	12.0	13.30	14.70	1	19.9	30.2	1
SMBJ13A	SMBJ13CA	LG	BG	13.0	14.40	15.90	1	21.5	28.0	1
SMBJ14A	SMBJ14CA	LK	BK	14.0	15.60	17.20	1	23.2	25.9	1
SMBJ15A	SMBJ15CA	LM	BM	15.0	16.70	18.50	1	24.4	24.6	1
SMBJ16A	SMBJ16CA	LP	BP	16.0	17.80	19.70	1	26.0	23.1	1
SMBJ17A	SMBJ17CA	LR	BR	17.0	18.90	20.90	1	27.6	21.8	1
SMBJ18A	SMBJ18CA	LT	BT	18.0	20.00	22.10	1	29.2	20.6	1
SMBJ20A	SMBJ20CA	LV	BV	20.0	22.20	24.50	1	32.4	18.6	1
SMBJ22A	SMBJ22CA	LX	BX	22.0	24.40	26.90	1	35.5	16.9	1
SMBJ24A	SMBJ24CA	LZ	BZ	24.0	26.70	29.50	1	38.9	15.5	1
SMBJ26A	SMBJ26CA	ME	CE	26.0	28.90	31.90	1	42.1	14.3	1
SMBJ28A	SMBJ28CA	MG	CG	28.0	31.10	34.40	1	45.4	13.3	1
SMBJ30A	SMBJ30CA	MK	CK	30.0	33.30	36.80	1	48.4	12.4	1
SMBJ33A	SMBJ33CA	MM	CM	33.0	36.70	40.60	1	53.3	11.3	1
SMBJ36A	SMBJ36CA	MP	CP	36.0	40.00	44.20	1	58.1	10.4	1
SMBJ40A	SMBJ40CA	MR	CR	40.0	44.40	49.10	1	64.5	9.3	1
SMBJ43A	SMBJ43CA	MT	CT	43.0	47.80	52.80	1	69.4	8.7	1
SMBJ45A	SMBJ45CA	MV	CV	45.0	50.00	55.30	1	72.7	8.3	1
SMBJ48A	SMBJ48CA	MX	CX	48.0	53.30	58.90	1	77.4	7.8	1
SMBJ51A	SMBJ51CA	MZ	CZ	51.0	56.70	62.70	1	82.4	7.3	1
SMBJ54A	SMBJ54CA	NE	DE	54.0	60.00	66.30	1	87.1	6.9	1
SMBJ58A	SMBJ58CA	NG	DG	58.0	64.40	71.20	1	93.6	6.5	1
SMBJ60A	SMBJ60CA	NK	DK	60.0	66.70	73.70	1	96.8	6.2	1
SMBJ64A	SMBJ64CA	NM	DM	64.0	71.10	78.60	1	103.0	5.9	1



## TVS Diode

SMBJ70A	SMBJ70CA	NP	DP	70.0	77.80	86.00	1	113.0	5.3	1
SMBJ75A	SMBJ75CA	NR	DR	75.0	83.30	92.10	1	121.0	5.0	1
SMBJ78A	SMBJ78CA	NT	DT	78.0	86.70	95.80	1	126.0	4.8	1
SMBJ85A	SMBJ85CA	NV	DV	85.0	94.40	104.00	1	137.0	4.4	1
SMBJ90A	SMBJ90CA	NX	DX	90.0	100.00	111.00	1	146.0	4.1	1
SMBJ100A	SMBJ100CA	NZ	DZ	100.0	111.00	123.00	1	162.0	3.7	1
SMBJ110A	SMBJ110CA	PE	EE	110.0	122.00	135.00	1	177.0	3.4	1
SMBJ120A	SMBJ120CA	PG	EG	120.0	133.00	147.00	1	193.0	3.1	1
SMBJ130A	SMBJ130CA	PK	EK	130.0	144.00	159.00	1	209.0	2.9	1
SMBJ150A	SMBJ150CA	PM	EM	150.0	167.00	185.00	1	243.0	2.5	1
SMBJ160A	SMBJ160CA	PP	EP	160.0	178.00	197.00	1	259.0	2.3	1
SMBJ170A	SMBJ170CA	PR	ER	170.0	189.00	209.00	1	275.0	2.2	1
SMBJ180A	SMBJ180CA	PT	ET	180.0	201.00	222.00	1	292.0	2.1	1
SMBJ190A	SMBJ190CA	PV	EV	190.0	209.00	243.20	1	308.0	2.0	1
SMBJ200A	SMBJ200CA	PX	EX	200.0	224.00	247.00	1	324.0	1.9	1
SMBJ210A	SMBJ210CA	PZ	EZ	210.0	231.00	268.80	1	340.0	1.8	1
SMBJ220A	SMBJ220CA	QE	FE	220.0	246.00	272.00	1	356.0	1.7	1

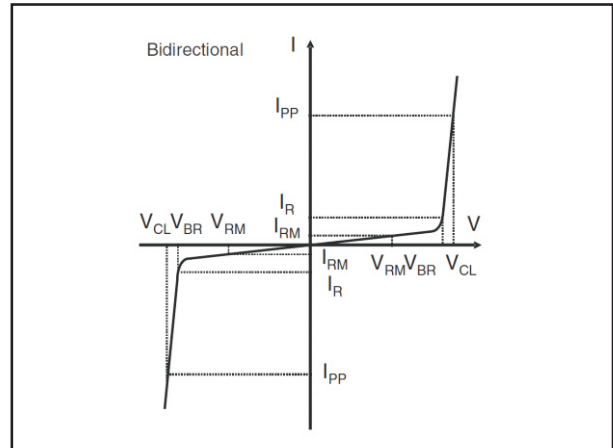
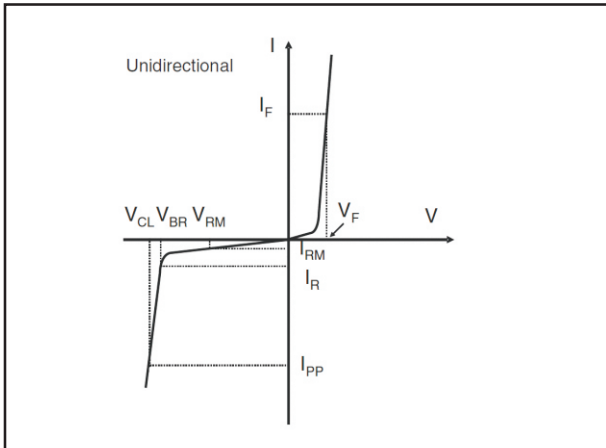
### Typical Characteristics @ Ta=25°C unless otherwise specified





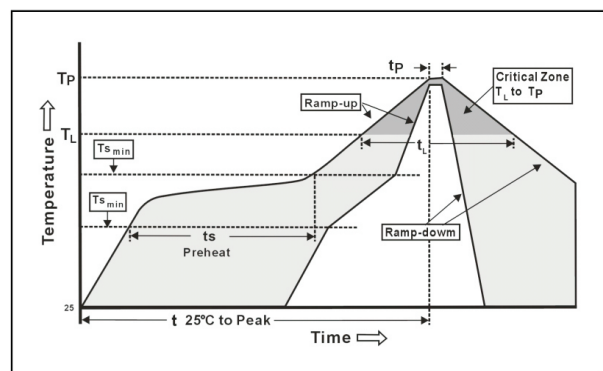
## TVS Diode

### I-V Curve Characteristics

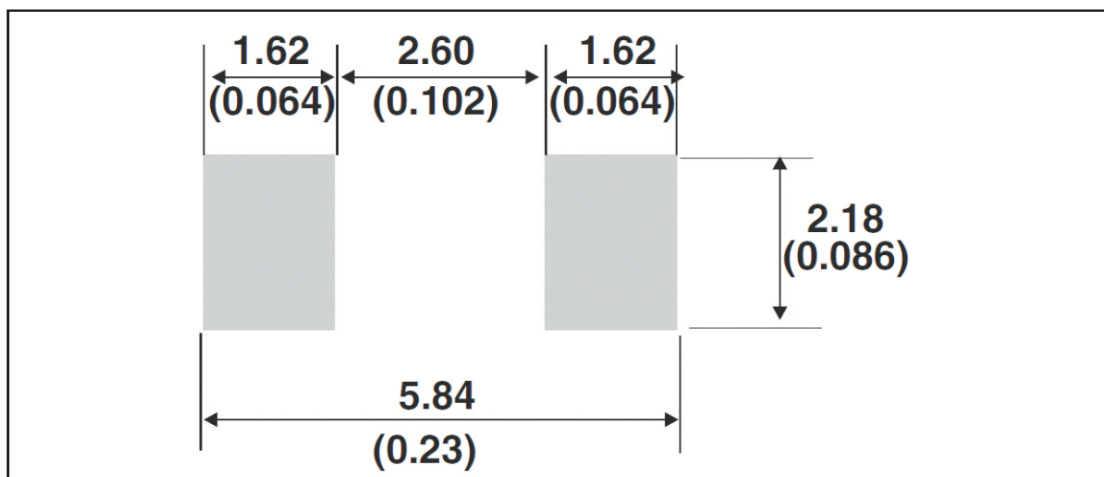


### Soldering Parameters

Reflow Condition		Fb – 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)	217°C
	- Temperature ( $t_l$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		250 <sup>+0/-5</sup> °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



### Solde



## TVS Diode

### Package Outline/Plastic surface mounted package



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A1	1.90	2.45	0.075	0.096
A2	0.05	0.20	0.002	0.008
b	1.95	2.20	0.077	0.087
c	0.15	0.40	0.006	0.016
D	3.30	3.95	0.130	0.156
E	5.10	5.60	0.201	0.220
E1	4.05	4.60	0.159	0.181
L	0.75	1.50	0.030	0.059

### Package And Marking Information

Device	Package	Shipping	Reel Size
SMBJ Series	SMB	3000/Reel	12 inch
SMBJ Series	SMB	500/Reel	7 inch