

1500 WATT TVS COMPONENT



APPLICATIONS

- Power Supply
- AC/DC Applications
- Telecom

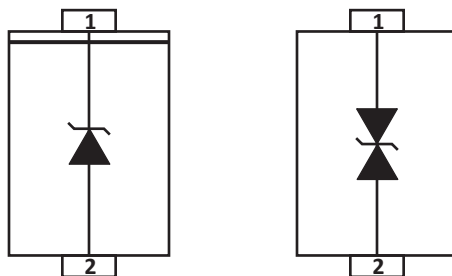
FEATURES

- UL File Recognition #E333727
- Compatible with IEC 61000-4-2 (ESD): Level 4 - Air 15kV, Contact 8kV
- Compatible with IEC 61000-4-4 (EFT): 40A, 5/50ns
- Compatible with IEC 61000-4-5 (Surge): 8/20 μ s Waveform
- Glass Passivated Chip
- 1500 Watts Peak Pulse Power per Line ($t_p = 10/1000\mu$ s)
- Low Leakage Current
- Bidirectional and Unidirectional Configurations
- Excellent Clamping Capability
- Very Fast Response Time
- Available in Multiple Voltages
- RoHS Compliant
- REACH Compliant

MECHANICAL CHARACTERISTICS

- Molded JEDEC DO-214AB Package
- Approximate Weight: 0.248 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
Pure-Tin - Sn, 100: 260-270°C
- 16mm Tape and Reel Per EIA Standard 481
- Terminal: Solderable per MIL-STD-750, Method 2026
- Flammability Rating UL 94V-0

PIN CONFIGURATIONS



TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Temperature	T_A	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Peak Pulse Power (tp =10/1000µs) - See Figure 1 and Note 2	P_{PP}	1500	Watts
Power Dissipation on Infinite Heatsink at $T_L = 75^\circ\text{C}$	P_D	6.5	Watts
Peak Forward Surge Current, 8.3ms single half sinewave - Unidirectional Only (Note 2)	I_{FSM}	200	Amps
Maximum Instantaneous Forward Voltage at 100A - Unidirectional Only (Note 3)	V_F	3.5/5.0	V

NOTE

1. Non-repetitive current pulse per Figure 2 and derated above $T_A = 25^\circ\text{C}$ per Figure 2.
2. Measured on 8.3ms single half sinewave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3. $V_F < 3.5\text{V}$.

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-3)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_P V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R µA
	UNI	BI		MIN	MAX				
SMCJ5.0	GDD	BDD	5.0	6.40	7.30	10	9.6	156	800
SMCJ5.0A	GDE	BDE	5.0	6.40	7.00	10	9.2	163	800
SMCJ6.0	GDF	BDF	6.0	6.67	8.15	10	11.4	132	800
SMCJ6.0A	GDG	BDG	6.0	6.67	7.37	10	10.3	146	800
SMCJ6.5	GDH	BDH	6.5	7.22	8.82	10	12.3	122	500
SMCJ6.5A	GDK	BDK	6.5	7.22	7.98	10	11.2	134	500
SMCJ7.0	GDL	BDL	7.0	7.78	9.51	10	13.3	113	200
SMCJ7.0A	GDM	BDM	7.0	7.78	8.60	10	12.0	125	200
SMCJ7.5	GDN	BDN	7.5	8.33	10.20	1	14.3	105	100
SMCJ7.5A	GDP	BDP	7.5	8.33	9.21	1	12.9	116	100
SMCJ8.0	GDQ	BDQ	8.0	8.89	10.90	1	15.0	100	50
SMCJ8.0A	GDR	BDR	8.0	8.89	9.83	1	13.6	110	50
SMCJ8.5	GDS	BDS	8.5	9.44	11.50	1	15.9	94.3	20
SMCJ8.5A	GDT	BDT	8.5	9.44	10.40	1	14.4	104	20
SMCJ9.0	GDU	BDU	9.0	10.00	12.20	1	16.9	88.8	10
SMCJ9.0A	GDV	BDV	9.0	10.00	11.10	1	15.4	97.4	10
SMCJ10	GDW	BDW	10.0	11.10	13.60	1	18.8	79.8	5
SMCJ10A	GDX	BDX	10.0	11.10	12.30	1	17.0	88.2	5
SMCJ11	GDY	BDY	11.0	12.20	14.90	1	20.1	74.6	1
SMCJ11A	GDZ	BDZ	11.0	12.20	13.50	1	18.2	82.4	1
SMCJ12	GED	BED	12.0	13.30	16.30	1	22.0	68.2	1
SMCJ12A	GEE	BEE	12.0	13.30	14.70	1	19.9	75.4	1

TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-3)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_p V_c VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
	UNI	BI		MIN	MAX				
	SMCJ13	GEF	BEF	13.0	14.40	17.60	1	23.8	63.0
SMCJ13A	GEG	BEG	13.0	14.40	15.90	1	21.5	69.8	1
SMCJ14	GEH	BEH	14.0	15.60	19.10	1	25.8	58.1	1
SMCJ14A	GEK	BEK	14.0	15.60	17.20	1	23.2	64.7	1
SMCJ15	GEL	BEL	15.0	16.70	20.40	1	26.9	55.8	1
SMCJ15A	GEM	BEM	15.0	16.70	18.50	1	24.4	61.5	1
SMCJ16	GEN	BEN	16.0	17.80	21.80	1	28.8	52.1	1
SMCJ16A	GEP	BEP	16.0	17.80	19.70	1	26.0	57.7	1
SMCJ17	GEQ	BEQ	17.0	18.90	23.10	1	30.5	49.2	1
SMCJ17A	GER	BER	17.0	18.90	20.90	1	27.6	54.4	1
SMCJ18	GES	BES	18.0	20.00	24.40	1	32.2	46.6	1
SMCJ18A	GET	BET	18.0	20.00	22.10	1	29.2	51.4	1
SMCJ19	GEA	BEA	19.0	21.13	25.76	1	34.0	44.1	1
SMCJ19A	GEB	BEB	19.0	21.10	23.30	1	30.8	48.7	1
SMCJ20	GEU	BEU	20.0	22.20	27.10	1	35.8	42.0	1
SMCJ20A	GEV	BEV	20.0	22.20	24.50	1	32.4	46.3	1
SMCJ22	GEW	BEW	22.0	24.40	29.80	1	39.4	38.1	1
SMCJ22A	GEX	BEX	22.0	24.40	26.90	1	35.5	42.3	1
SMCJ24	GEY	BEY	24.0	26.70	32.60	1	43.0	34.9	1
SMCJ24A	GEZ	BEZ	24.0	26.70	29.50	1	38.9	38.6	1
SMCJ26	GFD	BFD	26.0	28.90	35.30	1	46.6	32.2	1
SMCJ26A	GFE	BFE	26.0	28.90	31.90	1	42.1	35.6	1
SMCJ28	GFF	BFF	28.0	31.10	38.00	1	50.0	30.0	1
SMCJ28A	GFG	BFG	28.0	31.10	34.40	1	45.4	33.0	1
SMCJ30	GFH	BFH	30.0	33.30	40.70	1	53.5	28.0	1
SMCJ30A	GFK	BFK	30.0	33.30	36.80	1	48.4	31.0	1
SMCJ33	GFL	BFL	33.0	36.70	44.90	1	59.0	25.4	1
SMCJ33A	GFM	BFM	33.0	36.70	40.60	1	53.3	28.1	1
SMCJ36	GFN	BFN	36.0	40.00	48.90	1	64.3	23.3	1
SMCJ36A	GFP	BFP	36.0	40.00	44.20	1	58.1	25.8	1
SMCJ40	GFQ	BFQ	40.0	44.40	54.30	1	71.4	21.0	1
SMCJ40A	GFR	BFR	40.0	44.40	49.10	1	64.5	23.3	1
SMCJ43	GFS	BFS	43.0	47.80	58.40	1	76.7	19.6	1
SMCJ43A	GFT	BFT	43.0	47.80	52.80	1	69.4	21.6	1

TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-3)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_p V_c VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
	UNI	BI		MIN	MAX				
	SMCJ45	GFU	BFU	45.0	50.0	61.10	1	80.3	18.7
SMCJ45A	GFV	BFV	45.0	50.0	55.30	1	72.7	20.6	1
SMCJ48	GFW	BFW	48.0	53.30	65.10	1	85.5	17.5	1
SMCJ48A	GFY	BFY	48.0	53.30	58.90	1	77.4	19.4	1
SMCJ51	GFY	GFY	51.0	56.70	69.30	1	91.1	16.5	1
SMCJ51A	GFZ	BFZ	51.0	56.70	62.70	1	82.4	18.2	1
SMCJ54	GGD	BGD	54.0	60.00	73.30	1	96.3	15.6	1
SMCJ54A	GGE	BGE	54.0	60.00	66.30	1	87.1	17.2	1
SMCJ58	GGF	BGF	58.0	64.40	78.70	1	103.0	14.6	1
SMCJ58A	GGG	BGG	58.0	64.40	71.20	1	93.6	16.0	1
SMCJ60	GGH	BGH	60.0	66.70	81.50	1	107.0	14.0	1
SMCJ60A	GGK	BGK	60.0	66.70	73.70	1	96.8	15.5	1
SMCJ64	GGL	BGL	64.0	71.10	86.90	1	114.0	13.2	1
SMCJ64A	GGM	BGM	64.0	71.10	78.60	1	103.0	14.6	1
SMCJ70	GGN	BGN	70.0	77.80	95.10	1	125.0	12.0	1
SMCJ70A	GGP	BGP	70.0	77.80	86.00	1	113.0	13.3	1
SMCJ75	GGQ	BGQ	75.0	83.30	102.00	1	134.0	11.2	1
SMCJ75A	GGR	BGR	75.0	83.30	92.10	1	121.0	12.4	1
SMCJ78	GGS	BGS	78.0	86.70	106.00	1	139.0	10.8	1
SMCJ78A	GGT	BGT	78.0	86.70	95.80	1	126.0	11.9	1
SMCJ80	GGA	BGA	80.0	88.96	108.80	1	143.2	10.5	1
SMCJ80A	GGB	BGB	80.0	88.80	97.60	1	129.6	11.6	1
SMCJ85	GGU	BGU	85.0	94.40	115.00	1	151.0	9.9	1
SMCJ85A	GGV	BGV	85.0	94.40	104.00	1	137.0	11.0	1
SMCJ90	GGW	BGW	90.0	100.00	122.00	1	160.0	9.4	1
SMCJ90A	GGX	BGX	90.0	100.00	111.00	1	146.0	10.3	1
SMCJ100	GGY	BGY	100.0	111.00	136.00	1	179.0	8.4	1
SMCJ100A	GGZ	BGZ	100.0	111.00	123.00	1	162.0	9.3	1
SMCJ110	GHD	BHD	110.0	122.00	149.00	1	196.0	7.7	1
SMCJ110A	GHE	BHE	110.0	122.00	135.00	1	177.0	8.5	1
SMCJ120	GHF	BHF	120.0	133.00	163.00	1	214.0	7.0	1
SMCJ120A	GHG	BHG	120.0	133.00	147.00	1	193.0	7.8	1
SMCJ130	GHH	BHH	130.0	144.00	176.00	1	231.0	6.5	1
SMCJ130A	GHK	BHK	130.0	144.00	159.00	1	209.0	7.2	1

TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-3)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_P V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R μA
	UNI	BI		MIN	MAX				
	SMCJ140	GHA	BHA	140.0	155.68	190.40	1	250.6	6.0
SMCJ140A	GHB	BHB	140.0	155.00	171.00	1	226.8	6.6	1
SMCJ150	GHL	BHL	150.0	167.00	204.00	1	268.0	5.6	1
SMCJ150A	GHM	BHM	150.0	167.00	185.00	1	243.0	6.2	1
SMCJ160	GHN	BHN	160.0	178.00	218.00	1	287.0	5.2	1
SMCJ160A	GHP	BHP	160.0	178.00	197.00	1	259.0	5.8	1
SMCJ170	GHQ	BHQ	170.0	189.00	231.00	1	304.0	4.9	1
SMCJ170A	GHR	BHR	170.0	189.00	209.00	1	275.0	5.5	1
SMCJ180	GHS	BHS	180.0	200.16	244.80	1	322.2	4.7	1
SMCJ180A	GHT	BHT	180.0	200.00	220.00	1	291.6	5.1	1
SMCJ190	GHU	BHU	190.0	211.28	258.40	1	340.1	4.4	1
SMCJ190A	GHV	BHV	190.0	211.00	232.00	1	307.8	4.9	1
SMCJ200A	GHW	BHW	200.0	224.00	247.00	1	324.0	4.6	1
SMCJ220A	GHX	BHX	220.0	246.00	272.00	1	356.0	4.2	1
SMCJ250A	GHZ	BHZ	250.0	279.00	309.00	1	405.0	3.7	1
SMCJ300A	GJE	BJE	300.0	335.00	371.00	1	486.0	3.1	1
SMCJ350A	GJG	BJG	350.0	391.00	432.00	1	567.0	2.6	1
SMCJ400A	GJK	BJK	400.0	447.00	494.00	1	648.0	2.3	1
SMCJ440A	GJM	BJM	440.0	492.00	543.00	1	713.0	2.1	1

NOTE

1. Suffix 'A' denotes 5% tolerance, without 'A' denotes 10% tolerance.
2. Add suffix 'C' or 'CA' after part number to specify a bidirectional device.
3. For bidirectional devices having a V_{RWM} of 10 Volts and under, the I_R limit is double.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

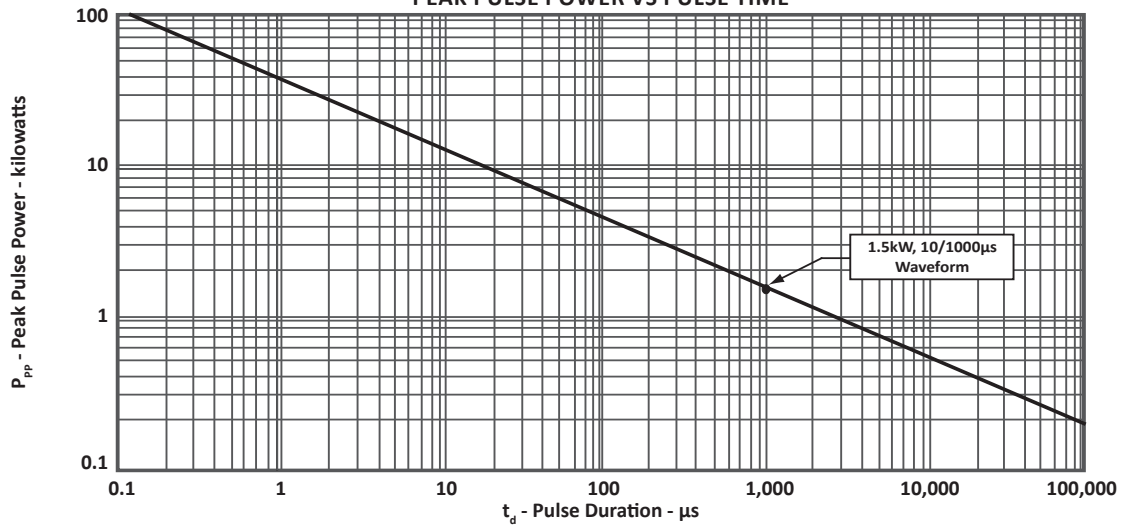


FIGURE 2
PULSE WAVEFORM

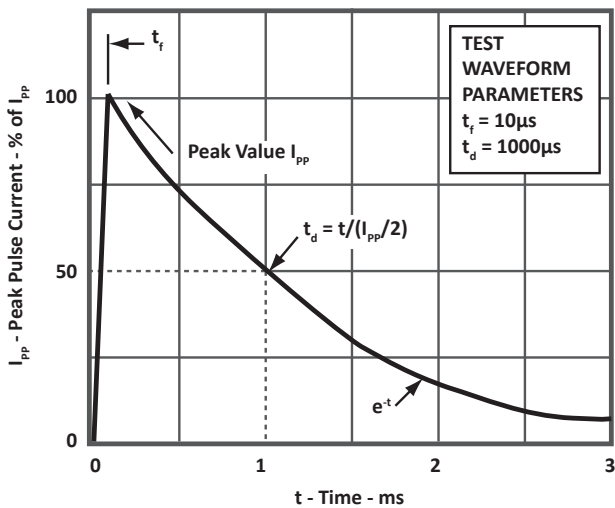
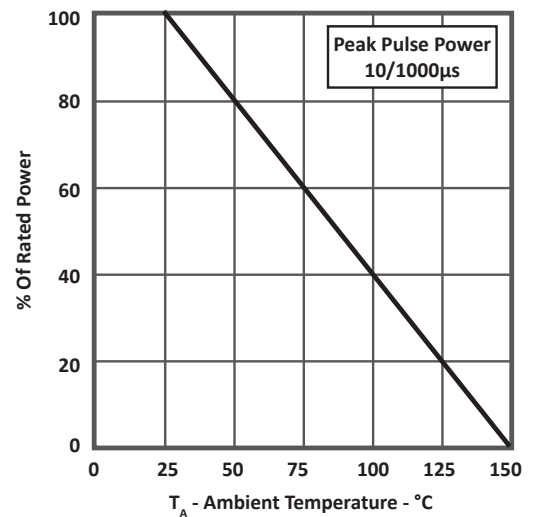


FIGURE 3
POWER DERATING CURVE



TYPICAL DEVICE CHARACTERISTICS

FIGURE 4
TYPICAL JUNCTION CAPACITANCE

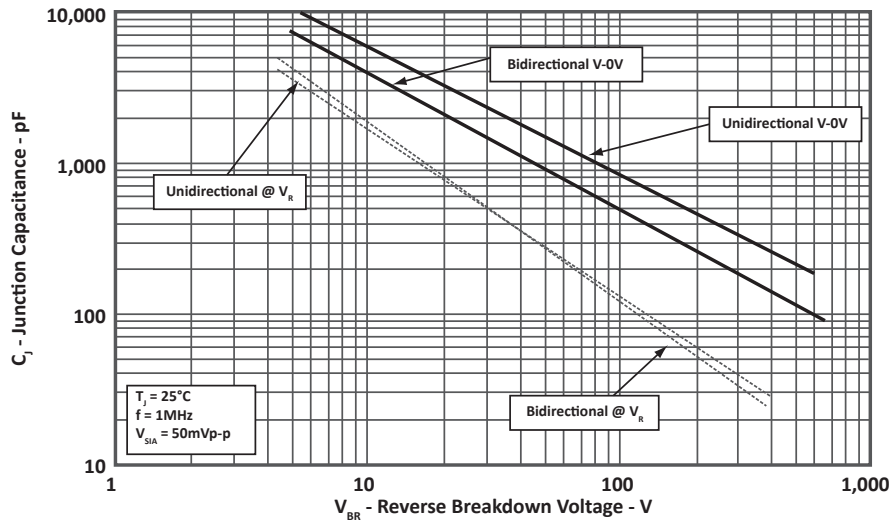


FIGURE 5
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

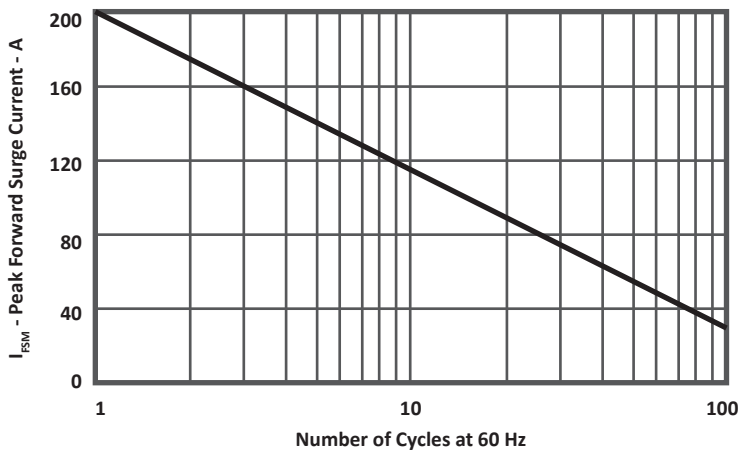
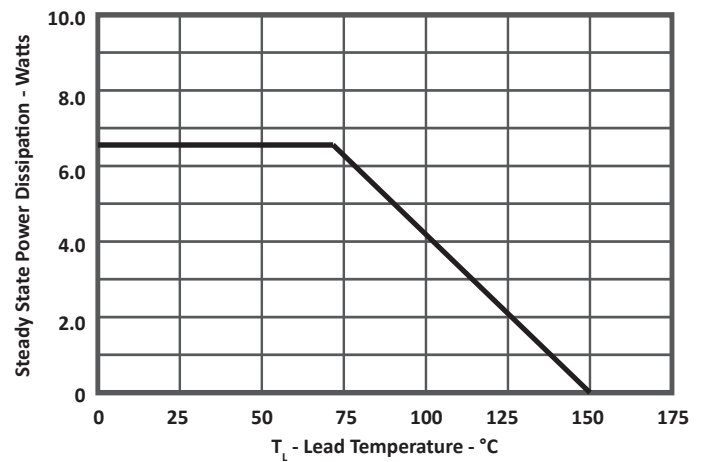


FIGURE 6
STEADY STATE POWER DERATING CURVE



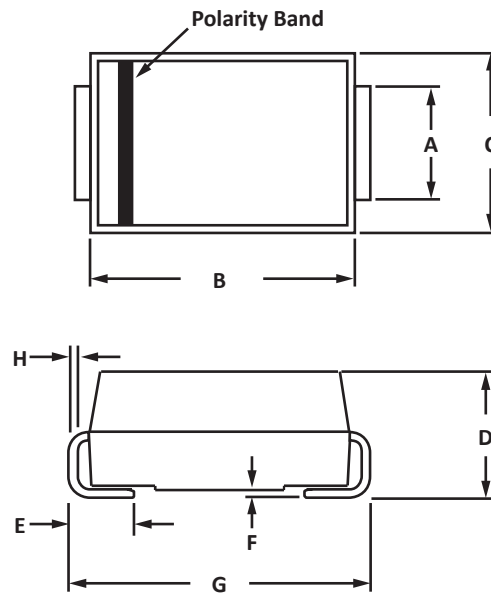
DO-214AB PACKAGE INFORMATION

OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.86	3.16	0.114	0.126
B	6.52	7.02	0.260	0.280
C	5.52	6.15	0.220	0.245
D	1.98	2.59	0.079	0.103
E	0.75	1.51	0.030	0.060
F	0.00	0.20	0.000	0.008
G	7.64	8.02	0.305	0.320
H	0.15	0.30	0.006	0.012

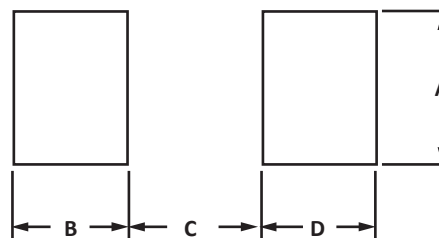
NOTES

1. Dimensions are exclusive of mold flash and metal burrs.

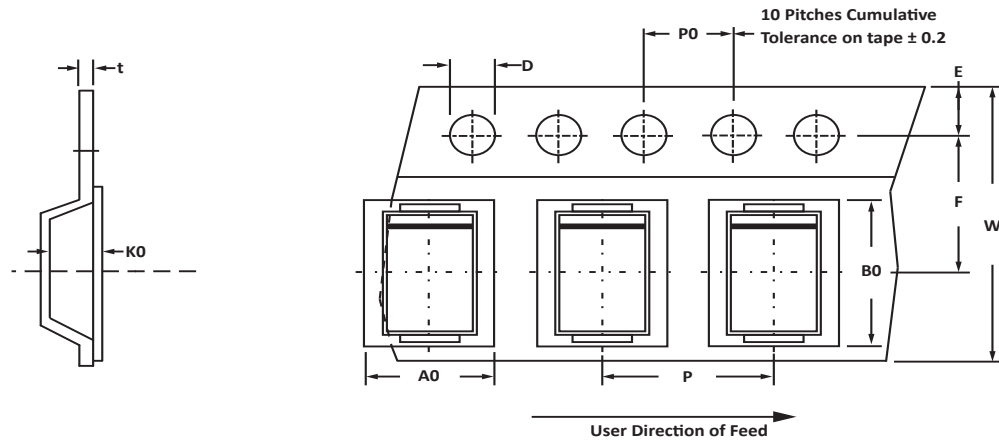


PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.17	-	0.124	-
B	1.49	-	0.059	-
C	-	4.60	-	0.180
D	1.49	-	0.059	-



TAPE AND REEL



SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P	tmax
330mm (13")	16mm	6.05 ± 0.10	8.31 ± 0.10	2.54 ± 0.10	1.55 ± 0.05	1.75 ± 0.10	7.5 ± 0.10	16.00 ± 0.30	4.00 ± 0.10	8.00 ± 0.10	0.4

NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T13 = 13" Reel - 3,000 pieces per 16mm tape.
- Marking on Part - marking code (see page 2), date code, logo and cathode defined by polarity band.

ORDERING INFORMATION

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SMCJxx	N/A	-T13	3,000	13"	N/A
SMCJxxA	N/A	-T13	3,000	13"	N/A
SMCJxxC	N/A	-T13	3,000	13"	N/A
SMCJxxCA	N/A	-T13	3,000	13"	N/A

This device is only available in a Lead-Free configuration.

COMPANY INFORMATION

COMPANY PROFILE

In business more than 20 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers high performance interface and linear products. They include analog switches; multiplexers; LED drivers; LED wafer die for ESD protection; audio control ICs; RF and related high frequency products.

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