5000 WATT TVS COMPONENT

DO-214AB PACKAGE

DESCRIPTION

The 5.0SMDJ-S Series are multi-line transient voltage suppressor arrays that provides board level protection for standard TTL and MOS bus line applications against the damaging effects of ESD, tertiary lightning and switching transients.

The 5.0SMDJ-S Series has a peak pulse power rating of 5000 Watts for an 10/1000µs waveshape. This device series meets the IEC 61000-4-2, IEC 61000-4-4 and IEC 61000-4-5 requirements.

FEATURES

- IEC Compatibility 61000-4-2 (ESD): ±30kV Air, ±30kV Contact
- IEC Compatibility 61000-4-4 (EFT)
- IEC Compatibility 61000-4-5 (Surge)
- Glass Passivated Chip
- 5000 Watts Peak Pulse Power per Line (tp = 10/1000µs)
- Low Leakage Current: < 5µA (Min. V_{BR} > 22V)
- Unidirectional & Bidirectional Configurations
- Available in Multiple Voltages
- Excellent Clamping Capability
- Very Fast Response Time
- Low Incremental Surge Resistance
- Low Profile Package
- RoHS & Halogen-free Compliant

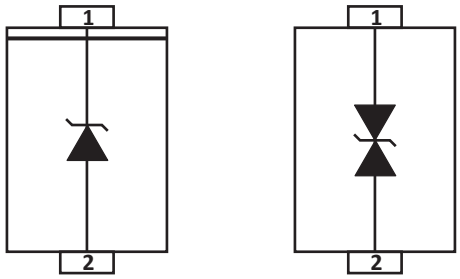
APPLICATIONS

- Communications Equipment
- Industrial Control Equipment
- Power Supply Protection
- Lightning Protection

MECHANICAL CHARACTERISTICS

- Molded JEDEC DO-214AB Package
- Approximate Weight: 0.21 grams
- Lead-Free Matte-Tin Plating
- Solder Reflow Temperature: 260°C Max, ≤ 10 seconds
- 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_J	-55 to 150	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Peak Pulse Power (tp =10/1000µs) - See Figure 1 and Note 1	P_{PP}	5000	Watts
Peak Power Dissipation on Infinite Heatsink at T_L = 50°C	P_D	6.5	Watts
Peak Forward Surge Current, 8.3ms single half sinewave - Unidirectional Only (Note 2)	I_{FSM}	300	Amps
Maximum Instantaneous Forward Voltage at 100A - Unidirectional Only	V_F	5.0	V
Typical Thermal Resistance, Junction to Lead	$R_{\Theta JL}$	15	°C/W
Typical Thermal Resistance, Junction to Ambient	$R_{\Theta JA}$	75	°C/W

NOTE
1. Non-repetitive current pulse per Figure 2 and derated above T_J = 25°C per Figure 3.
2. Measured on 8.3ms single half sinewave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Note 1)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM REVERSE LEAKAGE CURRENT
	UNI	BI	V_{RWM} VOLTS	MIN	MAX	@ I_T mA	@ I_P V_C VOLTS	@I_{PP} AMPS	@V_{RWM} I_R µA
5.0SMDJ12A-S	5PEP	5BEP	12.0	13.30	14.70	10	19.9	252.0	800
5.0SMDJ13A-S	5PEQ	5BEQ	13.0	14.40	15.90	10	21.5	233.0	500
5.0SMDJ14A-S	5PER	5BER	14.0	15.60	17.20	10	23.2	216.0	200
5.0SMDJ15A-S	5PES	5BES	15.0	16.70	18.50	1	24.4	205.0	100
5.0SMDJ16A-S	5PET	5BET	16.0	17.80	19.70	1	26.0	193.0	50
5.0SMDJ17A-S	5PEU	5BEU	17.0	18.90	20.90	1	27.6	181.0	20
5.0SMDJ18A-S	5PEV	5BEV	18.0	20.00	22.10	1	29.2	172.0	10
5.0SMDJ20A-S	5PEW	5BEW	20.0	22.20	24.50	1	32.4	155.0	5
5.0SMDJ22A-S	5PEX	5BEX	22.0	24.40	26.90	1	35.5	141.0	5
5.0SMDJ24A-S	5PEZ	5BEZ	24.0	26.70	29.50	1	38.9	129.0	5
5.0SMDJ26A-S	5PFE	5BFE	26.0	28.90	31.90	1	42.1	119.0	5
5.0SMDJ28A-S	5PFG	5BFG	28.0	31.10	34.40	1	45.4	110.0	5
5.0SMDJ30A-S	5PFK	5BFK	30.0	33.30	36.80	1	48.4	103.0	5
5.0SMDJ33A-S	5PFM	5BFM	33.0	36.70	40.60	1	53.3	93.9	5
5.0SMDJ36A-S	5PFP	5BFP	36.0	40.00	44.20	1	58.1	86.1	5
5.0SMDJ40A-S	5PFR	5BFR	40.0	44.40	49.10	1	64.5	77.6	5
5.0SMDJ43A-S	5PFT	5BFT	43.0	47.80	52.80	1	69.4	72.1	5
5.0SMDJ45A-S	5PFV	5BFV	45.0	50.00	55.30	1	72.7	68.8	5

TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified									
PART NUMBER (Note 1)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE $V_{(BR)}$ @ I_T VOLTS		TEST CURRENT	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ I_P	MAXIMUM REVERSE SURGE CURRENT	MAXIMUM REVERSE LEAKAGE CURRENT (Note 2) @V_{RWM}
	UNI	BI	V_{RWM} VOLTS	MIN	MAX	@ I_T mA	V_C VOLTS	@I_{PP} AMPS	I_R µA
5.0SMDJ48A-S	5PFX	5BFX	48.0	53.30	58.90	1	77.4	64.7	5
5.0SMDJ51A-S	5PFZ	5BFZ	51.0	56.70	62.70	1	82.4	60.7	5
5.0SMDJ54A-S	5PGE	5BGE	54.0	60.00	66.30	1	87.1	57.5	5
5.0SMDJ58A-S	5PGG	5BGG	58.0	64.40	71.20	1	93.6	53.5	5
5.0SMDJ60A-S	5PGK	5BGK	60.0	66.70	73.70	1	96.8	51.7	5
5.0SMDJ64A-S	5PGM	5BGM	64.0	71.10	78.60	1	103.0	48.6	5
5.0SMDJ70A-S	5PGP	5BGP	70.0	77.80	86.00	1	113.0	44.3	5
5.0SMDJ75A-S	5PGR	5BGR	75.0	83.30	92.10	1	121.0	41.4	5
5.0SMDJ78A-S	5PGT	5BGT	78.0	86.70	95.80	1	126.0	39.7	5
5.0SMDJ85A-S	5PGV	5BGV	85.0	94.40	104.00	1	137.0	36.5	5
5.0SMDJ90A-S	5PGX	5BGX	90.0	100.00	111.00	1	146.0	34.3	5
5.0SMDJ100A-S	5PGZ	5BGZ	100.0	111.0	123.00	1	162.0	30.9	5
5.0SMDJ110A-S	5PHE	5BHE	110.0	122.00	135.00	1	177.0	28.3	5
5.0SMDJ120A-S	5PHG	5BHG	120.0	133.00	147.00	1	193.0	26.0	5
5.0SMDJ130A-S	5PHK	5BHK	130.0	144.00	159.00	1	209.0	24.0	5
5.0SMDJ140A-S	5PHL	5BHL	140.0	156.00	172.00	1	226.0	22.2	5
5.0SMDJ150A-S	5PHM	5BHM	150.0	167.0	185.00	1	243.0	20.6	5
5.0SMDJ160A-S	5PHP	5BHP	160.0	178.00	197.00	1	259.0	19.3	5
5.0SMDJ170A-S	5PHR	5BHR	170.0	189.00	209.00	1	275.0	18.2	5

NOTE
1. Add suffix 'CA-S' after part number to specify a bidirectional device. For example: 5.0SMDJ78CA-S.
2. V_R less than or equal to 20V, the IR should be doubled - bidirectional only.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

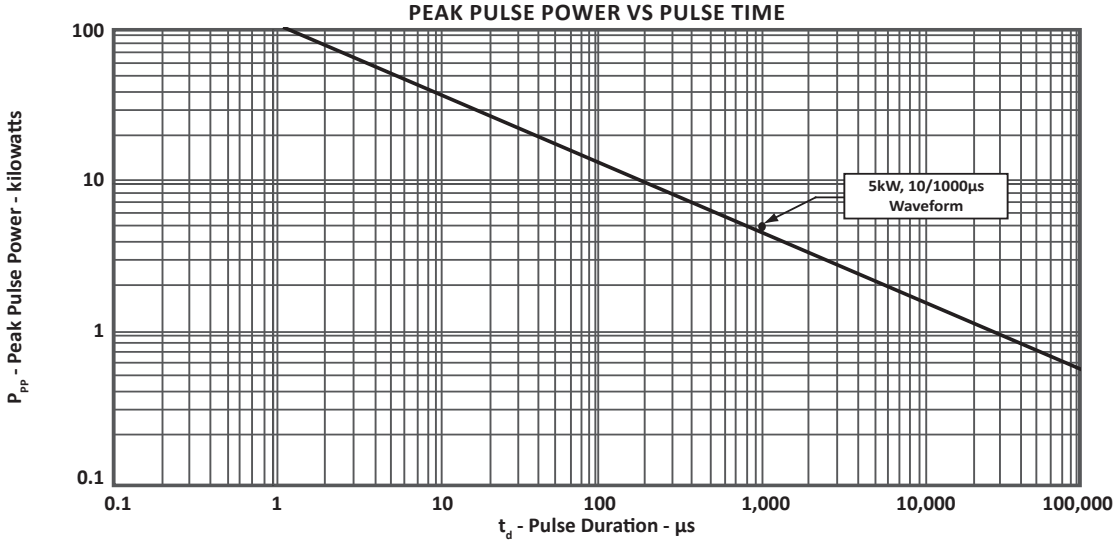


FIGURE 2
PULSE WAVEFORM

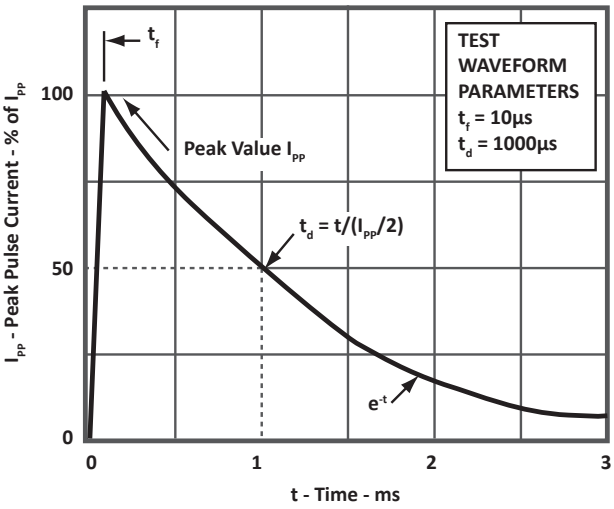
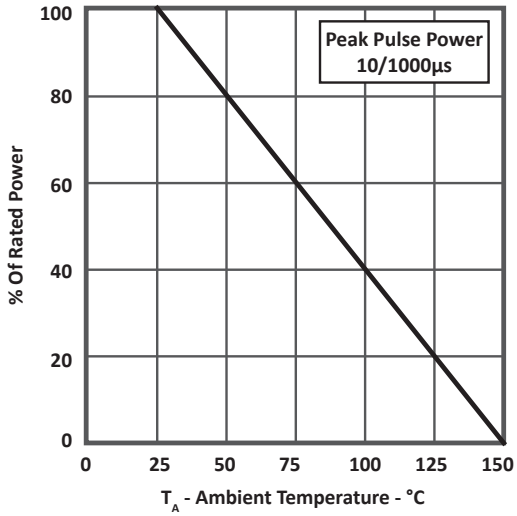


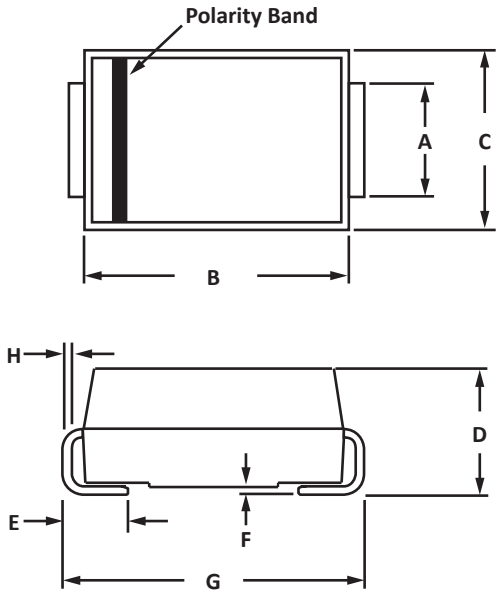
FIGURE 3
POWER DERATING CURVE



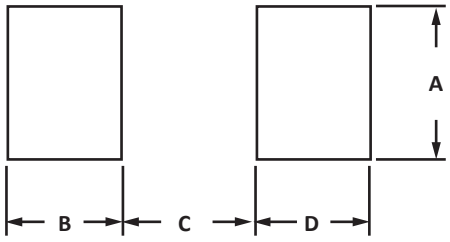
PACKAGE INFORMATION

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.06	2.62	0.079	0.103
E	0.76	1.52	0.030	0.060
F	-	0.203	-	0.008
G	7.75	8.13	0.305	0.320
H	0.152	0.305	0.006	0.012

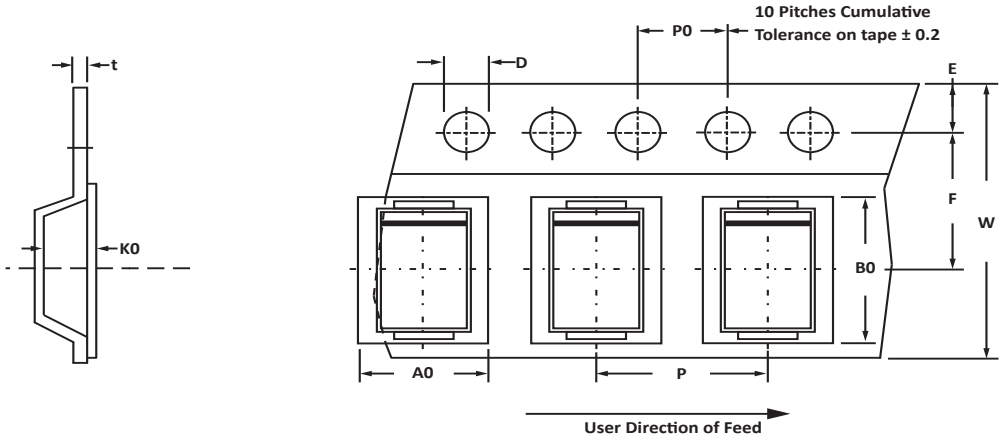
NOTES
1. Dimensions are exclusive of mold flash and metal burrs.
2. Controlling dimensions in millimeters.



PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.30	-	0.129	-
B	2.40	-	0.094	-
C	-	4.20	-	0.165
D	2.40	-	0.094	-



TAPE AND REEL



SPECIFICATIONS											
REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P	tmax
330mm (13”)	16mm	6.15 ± 0.10	8.30 ± 0.10	2.48 ± 0.10	1.55 ± 0.10	1.75 ± 0.20	7.5 ± 0.10	16.00 ± 0.30	4.00 ± 0.20	8.00 ± 0.10	0.30 ± 0.10

NOTES
1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Marking on Part - marking code (see page 2), date code, logo and cathode defined by polarity band.

ORDERING INFORMATION					
BASE PART NUMBER (Voltage = xx)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
5.0SMDJxxA-S	N/A	-T13	3,000	13”	N/A
5.0SMDJxxCA-S	N/A	-T13	3,000	13”	N/A
5.0SMDJxxA-S	N/A	-T500	500	7”	N/A
5.0SMDJxxCA-S	N/A	-T500	500	7”	N/A

COMPANY INFORMATION

COMPANY PROFILE

In business more than 30 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection that include Transient Voltage Suppressor (TVS) Arrays, Steering Diode Array Hybrids, High-power Components and Modules, as well as Steering Diodes, EMI Filter/TVS Arrays and Thyristor Surge Suppressors. These components deliver circuit protection in electronic systems from numerous overvoltage events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices is an ISO 9001 certified company.

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