1500 WATT TVS COMPONENT

DO-214AB PACKAGE

APPLICATIONS

- Automotive

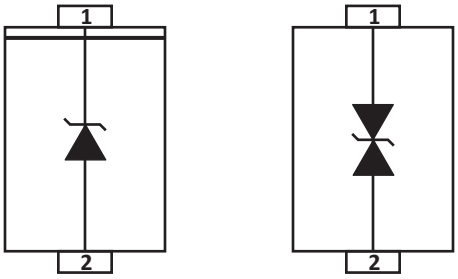
FEATURES

- **AEC-Q101 Qualified**
- UL Registered
- 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): 8/20µs Waveform
- Glass Passivated Chip
- 1500 Watts Peak Pulse Power per Line (tp = 10/1000µs)
- Low Leakage Current
- Unidirectional & Bidirectional Configurations
- Excellent Clamping Capability
- Very Fast Response Time
- RoHS Compliant
- REACH Compliant

MECHANICAL CHARACTERISTICS

- Molded JEDEC DO-214AB Package
- Approximate Weight: 0.262 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°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 TA = 25°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 < 3.5V .

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	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
							@ I_P		@V_{RWM}
	UNI	BI	V_{RWM} VOLTS	MIN	MAX	@ I_T mA	V_C VOLTS	@I_{PP} AMPS	I_R µA
PAM31DOAB5.0A	GDE	BDE	5.0	6.40	7.00	10	9.2	163	800
PAM31DOAB6.0A	GDG	BDG	6.0	6.67	7.37	10	10.3	146	800
PAM31DOAB6.5A	GDK	BDK	6.5	7.22	7.98	10	11.2	135	500
PAM31DOAB7.0A	GDM	BDM	7.0	7.78	8.60	10	12.0	125	200
PAM31DOAB7.5A	GDP	BDP	7.5	8.33	9.21	1	12.9	116	100
PAM31DOAB8.0A	GDR	BDR	8.0	8.89	9.83	1	13.6	110	50
PAM31DOAB8.5A	GDT	BDT	8.5	9.44	10.40	1	14.4	104	20
PAM31DOAB9.0A	GDV	BDV	9.0	10.00	11.10	1	15.4	97.4	10
PAM31DOAB10A	GDX	BDX	10.0	11.10	12.30	1	17.0	88.2	5
PAM31DOAB11A	GDZ	BDZ	11.0	12.20	13.50	1	18.2	82.4	1
PAM31DOAB12A	GEE	BEE	12.0	13.30	14.70	1	19.9	75.4	1
PAM31DOAB13A	GEG	BEG	13.0	14.40	15.90	1	21.5	69.8	1
PAM31DOAB14A	GEK	BEK	14.0	15.60	17.20	1	23.2	64.7	1
PAM31DOAB15A	GEM	BEM	15.0	16.70	18.50	1	24.4	61.5	1
PAM31DOAB16A	GEP	BEP	16.0	17.80	19.70	1	26.0	57.7	1
PAM31DOAB17A	GER	BER	17.0	18.90	20.90	1	27.6	54.4	1
PAM31DOAB18A	GET	BET	18.0	20.00	22.10	1	29.2	51.4	1
PAM31DOAB20A	GEV	BEV	20.0	22.20	24.50	1	32.4	46.3	1
PAM31DOAB22A	GEX	BEX	22.0	24.4	26.90	1	35.5	42.3	1
PAM31DOAB24A	GEZ	BEZ	24.0	26.70	29.50	1	38.9	38.6	1
PAM31DOAB26A	GFE	BFE	26.0	28.90	31.90	1	42.1	35.6	1
PAM31DOAB28A	GFG	BFG	28.0	31.10	34.40	1	45.4	33.0	1

TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	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 @V_{RWM}
	UNI	BI	V_{RWM} VOLTS	MIN	MAX	@ I_T mA	V_C VOLTS	@I_{PP} AMPS	I_R µA
PAM31DOAB30A	GFK	BFK	30.0	33.30	36.8	1	48.4	31.0	1
PAM31DOAB33A	GFM	BFM	33.0	36.7	40.6	1	53.3	28.1	1
PAM31DOAB36A	GFP	BFP	36.0	40.00	44.20	1	58.1	25.8	1
PAM31DOAB40A	GFR	BFR	40.0	44.4	49.10	1	64.5	23.3	1
PAM31DOAB43A	GFT	BFT	43.0	47.80	52.80	1	69.4	21.6	1
PAM31DOAB45A	GFV	BFV	45.0	50.0	55.30	1	72.7	20.6	1
PAM31DOAB48A	GFX	BFX	48.0	53.30	58.90	1	77.4	19.4	1
PAM31DOAB51A	GFZ	BFZ	51.0	56.70	62.70	1	82.4	18.2	1
PAM31DOAB54A	GGE	BGE	54.0	60.00	66.30	1	87.1	17.2	1
PAM31DOAB58A	GGG	BGG	58.0	64.40	71.20	1	93.6	16.0	1
PAM31DOAB60A	GGK	BGK	60.0	66.70	73.70	1	96.8	15.5	1
PAM31DOAB64A	GGM	BGM	64.0	71.10	78.60	1	103.0	14.6	1
PAM31DOAB70A	GGP	BGP	70.0	77.80	86.00	1	113.0	13.3	1
PAM31DOAB75A	GGR	BGR	75.0	83.30	92.10	1	121.0	12.4	1
PAM31DOAB78A	GGT	BGT	78.0	86.70	95.80	1	126.0	11.9	1
PAM31DOAB85A	GGV	BGV	85.0	94.40	104.00	1	137.0	11.0	1
PAM31DOAB90A	GGX	BGX	90.0	100.00	111.00	1	146.0	10.3	1
PAM31DOAB100A	GGZ	BGZ	100.0	111.00	123.00	1	162.0	9.3	1
PAM31DOAB110A	GHE	BHE	110.0	122.00	135.00	1	177.0	8.5	1
PAM31DOAB120A	GHG	BHG	120.0	133.0	147.0	1	193.0	7.8	1
PAM31DOAB130A	GHK	BHK	130.0	144.00	159.00	1	209.0	7.2	1
PAM31DOAB150A	GHM	BHM	150.0	167.00	185.00	1	243.0	6.2	1
PAM31DOAB160A	GHP	BHP	160.0	178.00	197.00	1	259.0	5.8	1
PAM31DOAB170A	GHR	BHR	170.0	189.00	209.00	1	275.0	5.5	1
PAM31DOAB180A	GHT	BHT	180.0	200.00	220.00	1	291.6	5.1	1
PAM31DOAB190A	GHV	BHV	190.0	211.00	232.00	1	307.8	4.9	1
PAM31DOAB200A	GHW	BHW	200.0	224.00	247.00	1	324.0	4.6	1
PAM31DOAB220A	GHX	BHX	220.0	246.00	272.00	1	356.0	4.2	1
PAM31DOAB250A	GHZ	BHZ	250.0	279.00	309.00	1	405.0	3.7	1
PAM31DOAB300A	GJE	BJE	300.0	335.00	371.00	1	486.0	3.1	1

TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1-2)	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 @V_{RWM}
	UNI	BI	V_{RWM} VOLTS	MIN	MAX	@ I_T mA	V_C VOLTS	@I_{PP} AMPS	I_R µA
PAM31DOAB350A	GJG	BJG	350.0	391.00	432.00	1	567.0	2.6	1
PAM31DOAB400A	GJK	BJK	400.0	447.00	494.00	1	648.0	2.5	1
PAM31DOAB440A	GJM	BJM	440.0	492.00	543.00	1	713.0	2.1	1

NOTE
1. 5% tolerance.
2. Add suffix 'C' to specify a bidirectional device, i.e., PAM31DOABxxCA.

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

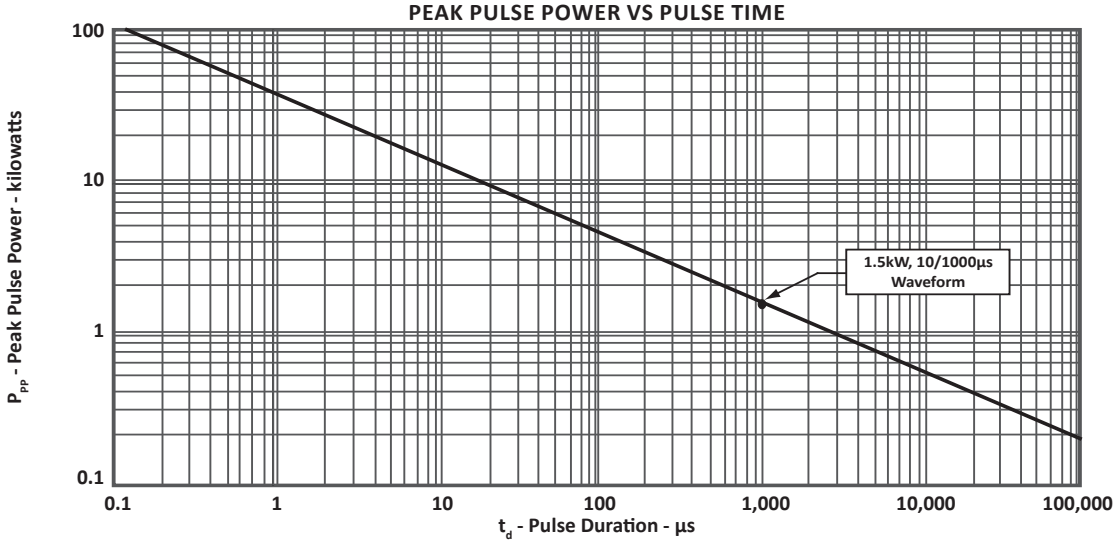


FIGURE 2
PULSE WAVEFORM

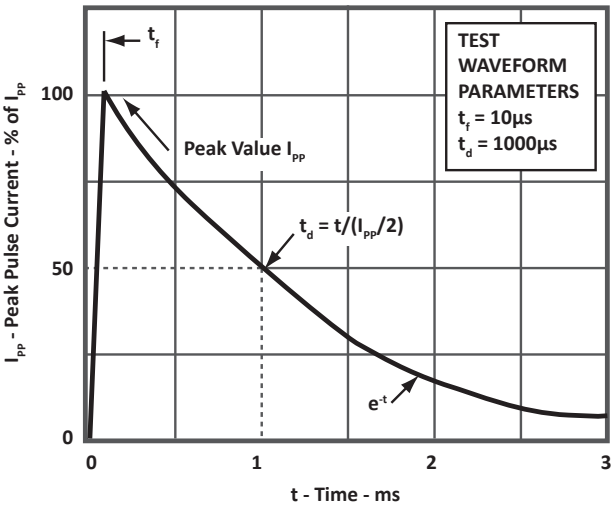
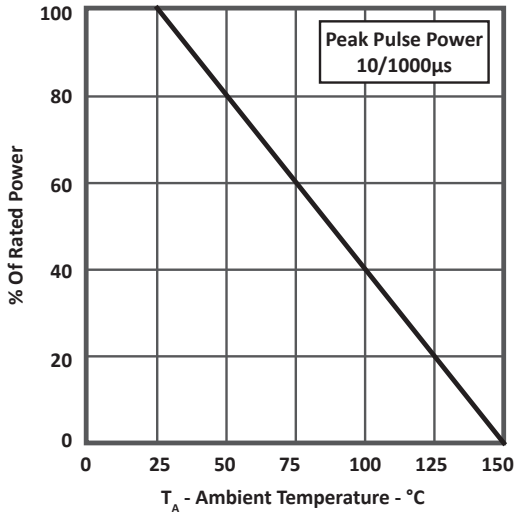


FIGURE 3
POWER DERATING CURVE



TYPICAL DEVICE CHARACTERISTICS

FIGURE 4
TYPICAL JUNCTION CAPACITANCE

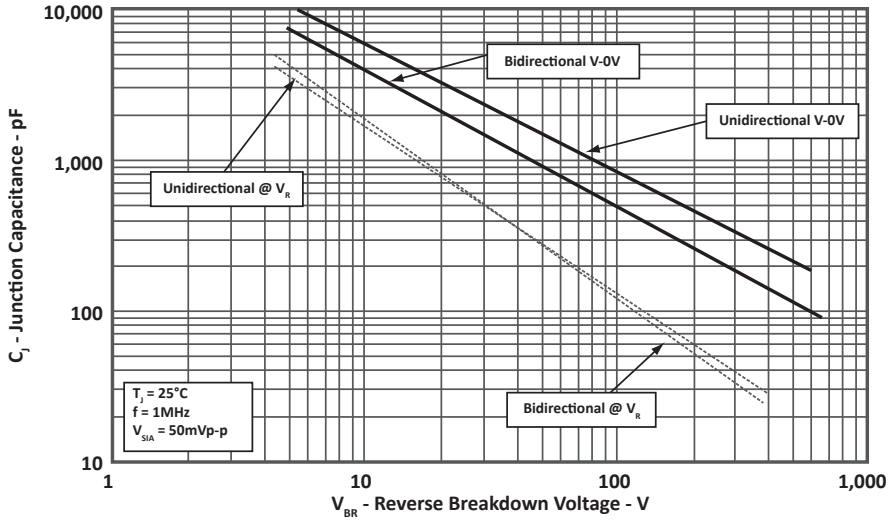


FIGURE 5
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

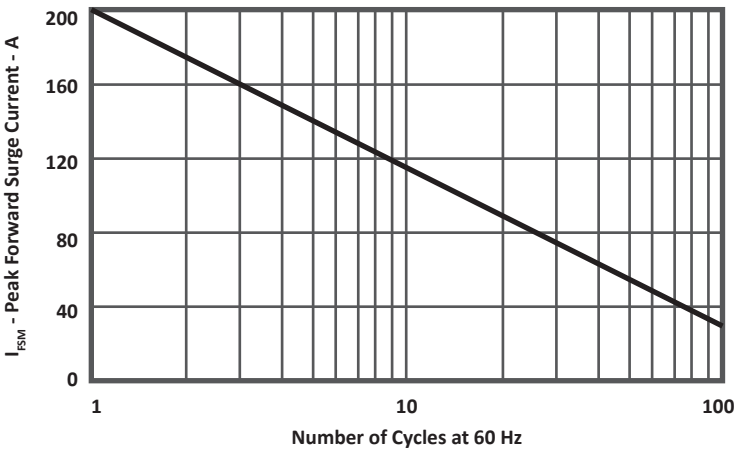
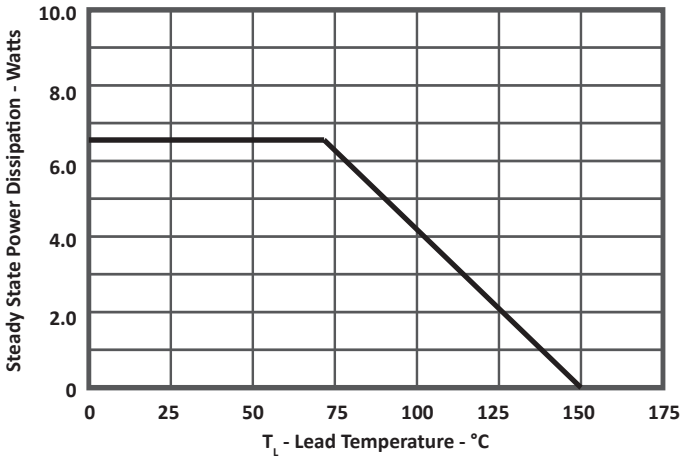


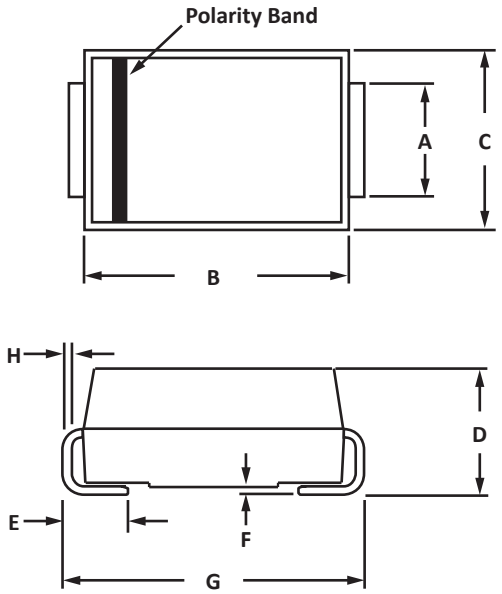
FIGURE 6
STEADY STATE POWER DERATING CURVE



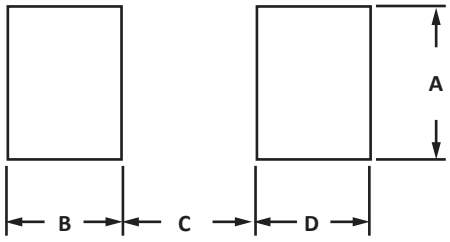
DO-214AB PACKAGE INFORMATION

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.75	3.25	0.108	0.128
B	6.90	7.40	0.272	0.291
C	5.75	6.25	0.226	0.246
D	2.15	2.62	0.085	0.103
E	0.95	1.52	0.037	0.060
F	0.051	0.203	0.002	0.008
G	7.70	8.20	0.303	0.323
H	0.15	0.31	0.006	0.012

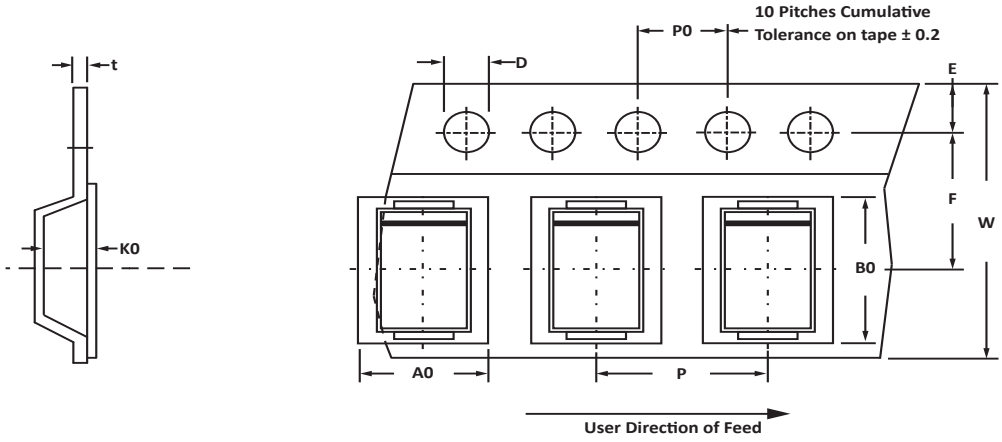
NOTES
1. Dimensions are exclusive of mold flash and metal burrs.



PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.30	-	0.130	-
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	6.05 ± 0.30	8.31 ± 0.30	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
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	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PAM31DOABxxA/CA	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 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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