

## 1500 WATT TVS COMPONENT



### APPLICATIONS

- Automotive

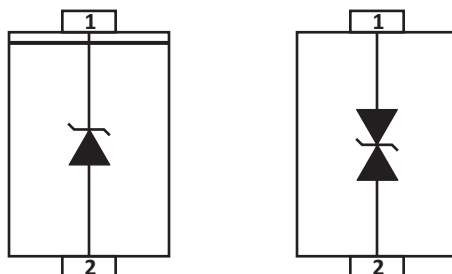
### FEATURES

- AEC-Q101 Qualified
- UL File Recognition #E208219
- 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 $\mu$ s Waveform
- Glass Passivated Chip
- 1500 Watts Peak Pulse Power per Line ( $t_p = 10/1000\mu$ s)
- 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: 0.248 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

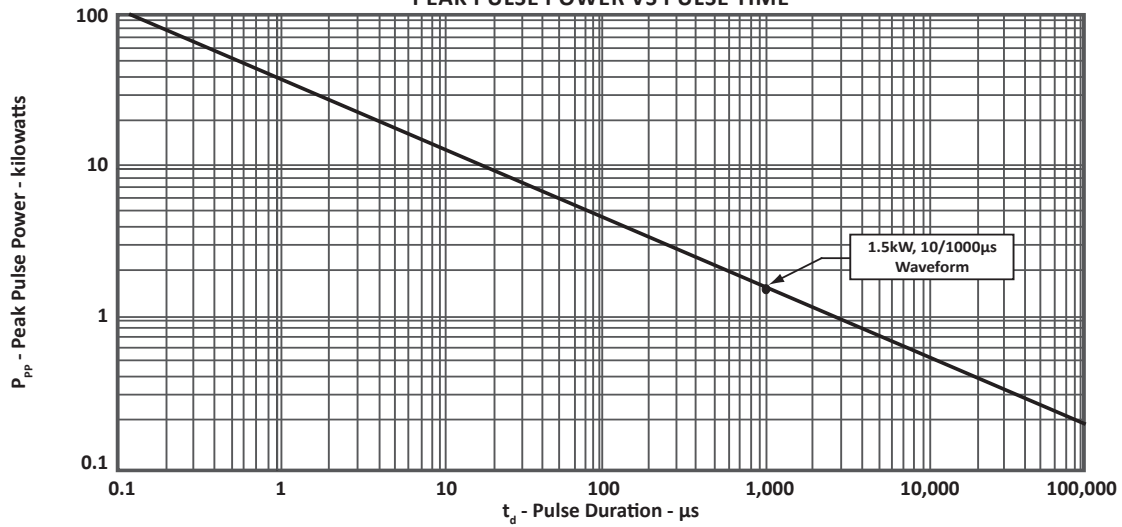
PART NUMBER (Notes 1-2)	DEVICE MARKING		REVERSE STAND-OFF VOLTAGE  $V_{RWM}$ VOLTS	BREAKDOWN VOLTAGE  $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT  $@ I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  $@ I_P$ $V_C$ VOLTS	MAXIMUM REVERSE SURGE CURRENT  $@ I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT  $@ V_{RWM}$ $I_R$ µA
	UNI	BI		MIN	MAX				
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
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
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
PAM31DOAB120A	GHG	BHG	120.0	133.0	147.0	1	193.0	7.8	1

## NOTE

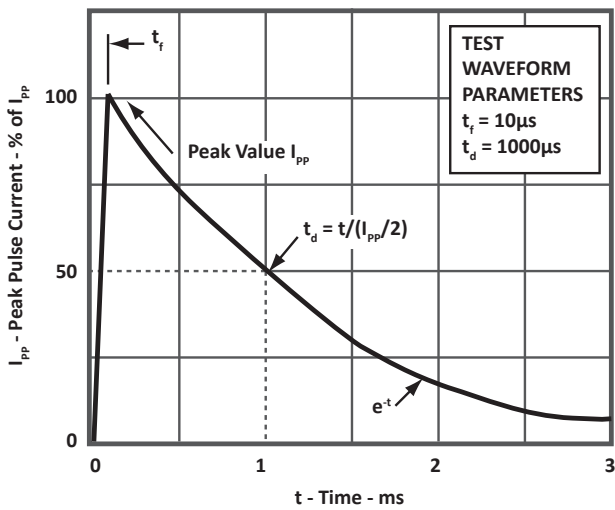
1. 5% tolerance.
2. Add suffix 'C' to specify a bidirectional device, i.e., PAM31DOABxxCA.

**TYPICAL DEVICE CHARACTERISTICS**

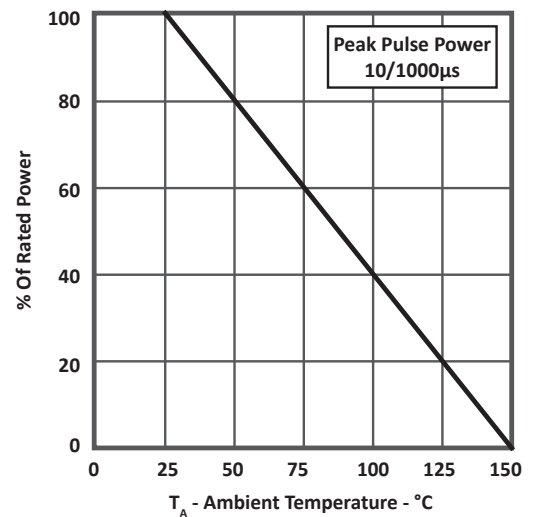
**FIGURE 1**  
**PEAK PULSE POWER VS PULSE TIME**



**FIGURE 2**  
**PULSE WAVEFORM**

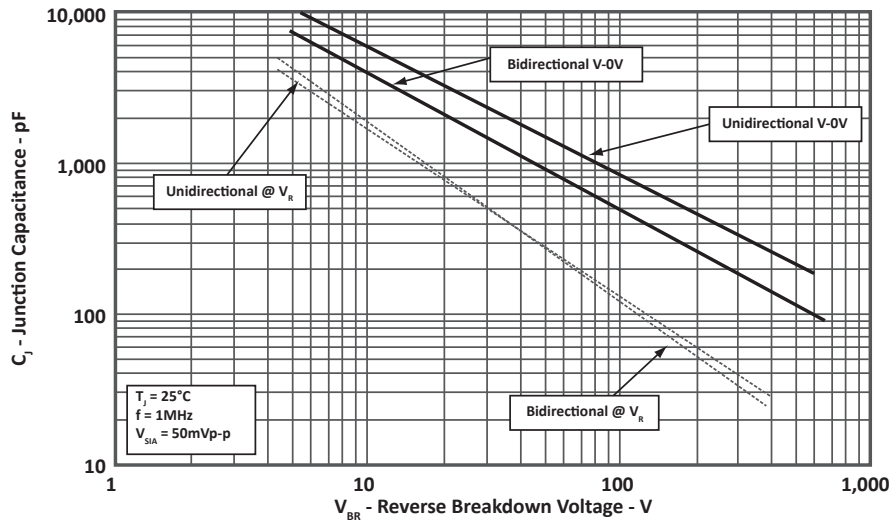


**FIGURE 3**  
**POWER DERATING CURVE**

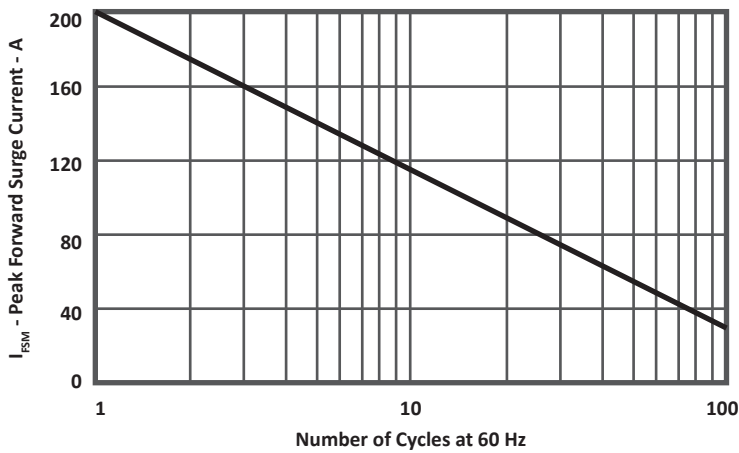


**TYPICAL DEVICE CHARACTERISTICS**

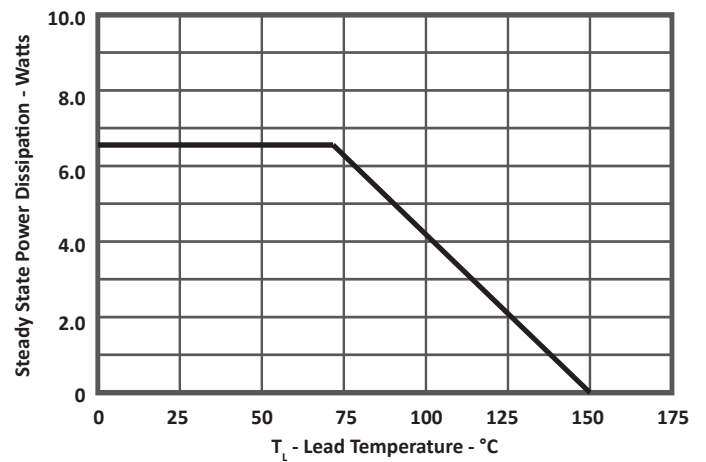
**FIGURE 4  
TYPICAL JUNCTION CAPACITANCE**



**FIGURE 5  
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT**



**FIGURE 6  
STEADY STATE POWER DERATING CURVE**



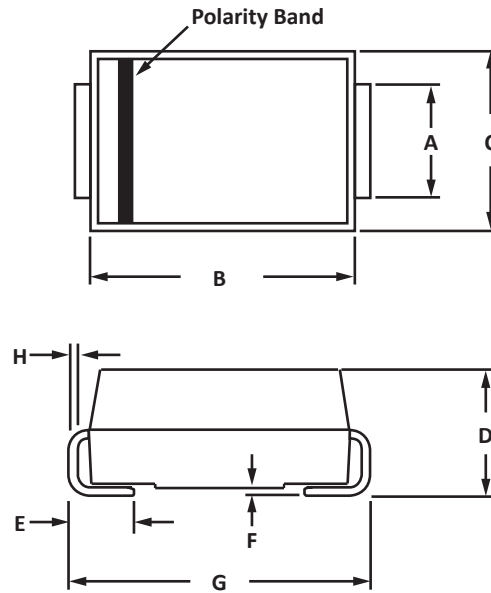
## DO-214AB PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.86	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

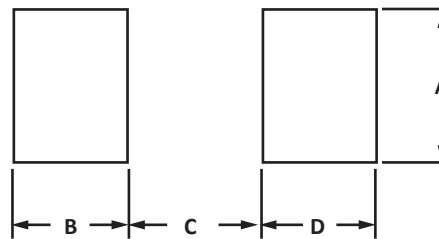
## NOTES

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

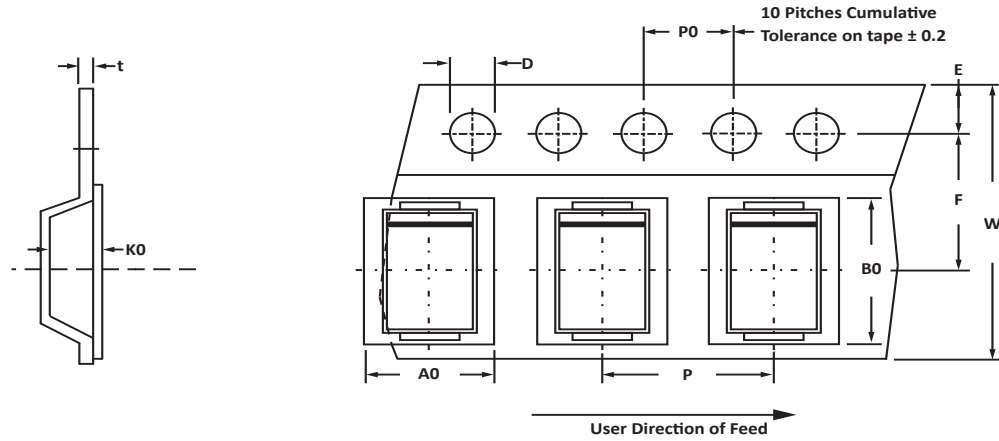


## PAD LAYOUT DIMENSIONS

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 and T500 = 7" Reel - 500 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	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
PAM31DOABxxA/CA	N/A	-T13	3,000	13"	N/A
PAM31DOABxxA/CA	N/A	-T500	500	7"	N/A

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

## COMPANY INFORMATION

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### COMPANY PROFILE

In business more than 25 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 LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001:2015 certified.

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