

## ULTRA LOW CAPACITANCE TVS ARRAY



### DESCRIPTION

The PAM18DF2L0521 is an ultra low capacitance transient voltage suppressor array, designed to protect automotive applications from the damaging effects of Electrostatic Discharge and Electrical Fast Transients.

The PAM18DF2L0521 meets IEC 61000-4-2 (ESD) Level 4 and IEC 61000-4-4 (EFT) requirements. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This device offers an ultra low capacitance and low leakage current in a miniature DFN-2-0402 package.

### FEATURES

- **AEC-Q101 Qualified**
- Compatible with IEC 61000-4-2 (ESD): Level 4 Air  $\pm 15\text{kV}$ , Contact  $\pm 8\text{kV}$
- Compatible with IEC 61000-4-4 (EFT)
- Compatible with IEC 61000-4-5 (Surge)
- 80 Watts Peak Pulse Power per Line ( $t_p = 8/20\mu\text{s}$ )
- ESD Protection
- Low Clamping Voltage
- Protects One Bidirectional Line
- Ultra Low Capacitance: 0.4 pF (Typical)
- RoHS Compliant
- REACH Compliant

### APPLICATIONS

- Automotive Applications

### MECHANICAL CHARACTERISTICS

- Molded JEDEC DFN-2-0402 Package
- Approximate Weight: 2 milligrams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- 8mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0

### PIN CONFIGURATION



**TYPICAL DEVICE CHARACTERISTICS**
**MAXIMUM RATINGS @ 25°C Unless Otherwise Specified**

| PARAMETER                                     | SYMBOL    | VALUE      | UNITS |
|---|-----------|------------|-------|
| Peak Pulse Power (tp = 8/20μs) - See Figure 1 | $P_{PP}$  | 80         | Watts |
| Operating Temperature                         | $T_A$     | -55 to 150 | °C    |
| Storage Temperature                           | $T_{STG}$ | -55 to 150 | °C    |

**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified**

| PART NUMBER   | DEVICE MARKING | RATED STAND-OFF VOLTAGE<br><br>$V_{WM}$<br>VOLTS | MINIMUM BREAKDOWN VOLTAGE<br><br>@ 1mA<br>$V_{(BR)}$<br>VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br><br>@ $I_p = 1A$<br>$V_c$<br>VOLTS | MAXIMUM CLAMPING VOLTAGE (Fig. 2)<br><br>@ 8/20μs<br>$V_c @ I_{PP}$ | MAXIMUM LEAKAGE CURRENT<br><br>@ $V_{WM}$<br>$I_D$<br>μA | TYPICAL CAPACITANCE<br><br>@ 0V, 1MHz<br>$C_j$<br>pF |
|---------------|----------------|--|---|---|---|--|--|
| PAM18DF2L0521 | H              | 5.0  | 6.0   | 14.0  | 20.0V @ 3.0A  | 1  | 0.4  |

## TYPICAL DEVICE CHARACTERISTICS

FIGURE 1  
PEAK PULSE POWER VS PULSE TIME

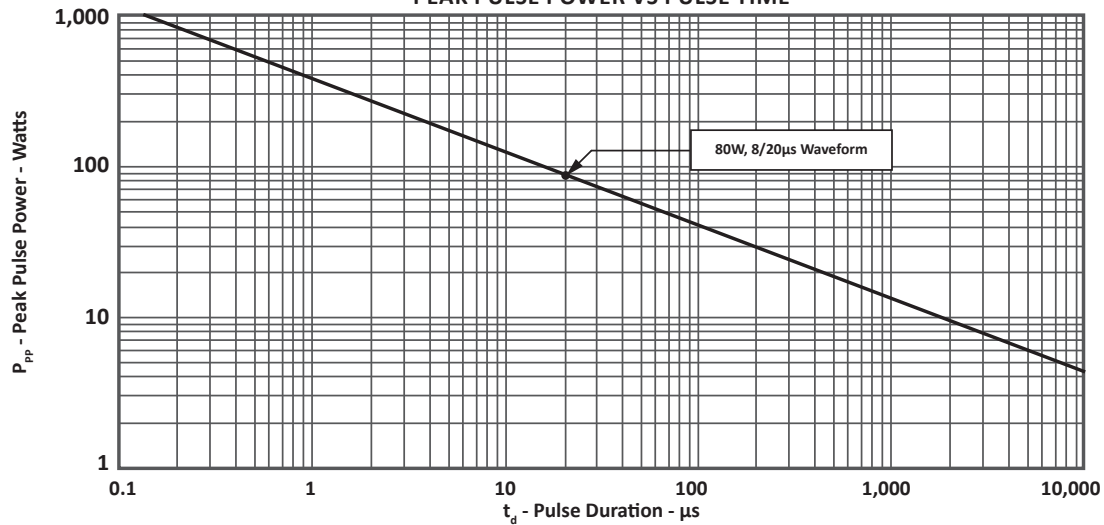
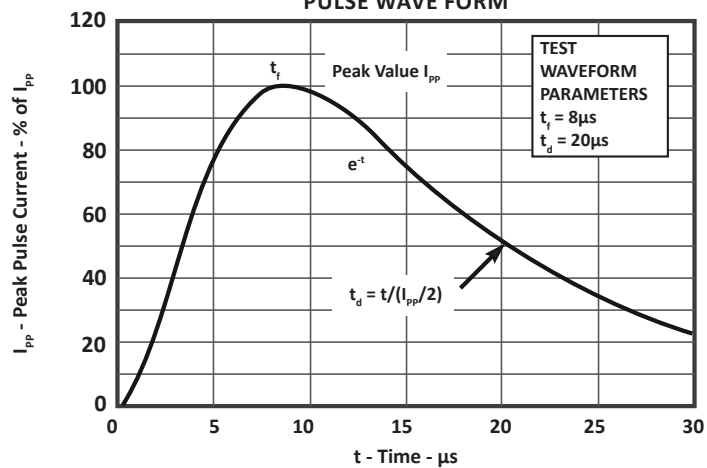


FIGURE 2  
PULSE WAVE FORM



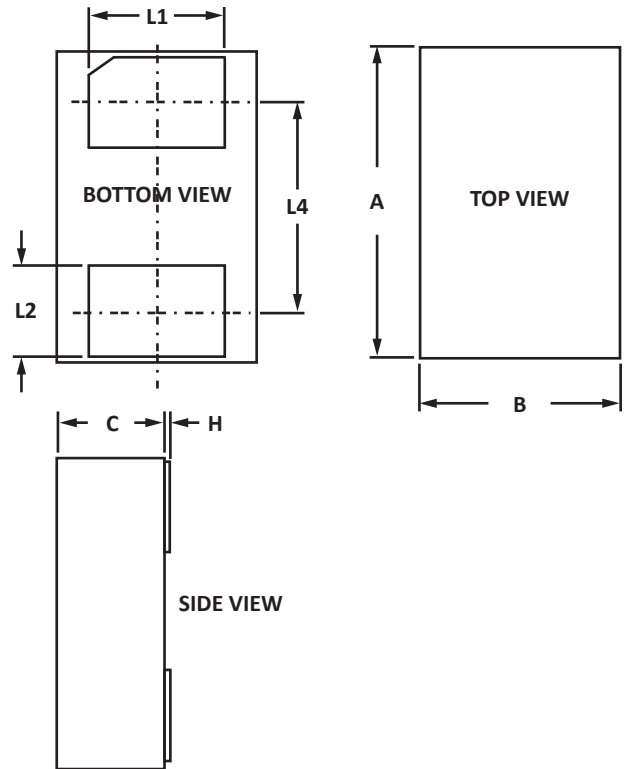
## DFN-2-0402 PACKAGE INFORMATION

## OUTLINE DIMENSIONS

| DIM | MILLIMETERS |        | INCHES    |         |
|-----|-------------|--------|-----------|---------|
|     | MIN         | MAX    | MIN       | MAX     |
| A   | 0.914       | 1.06   | 0.036     | 0.042   |
| B   | 0.533       | 0.660  | 0.021     | 0.026   |
| C   | 0.553       | 0.635  | 0.021     | 0.025   |
| H   | 0~0.10      | 0~0.10 | 0~0.004   | 0~0.004 |
| L1  | 0.254       | 0.355  | 0.010     | 0.014   |
| L2  | 0.279       | 0.406  | 0.011     | 0.016   |
| L4  | 0.660 BSC   |        | 0.026 BSC |         |

## NOTES

1. Dimensioning and tolerances per ANSI Y14.M, 1985.
2. Controlling dimension: inches.
3. Dimensions are exclusive of mold flash and metal burrs.

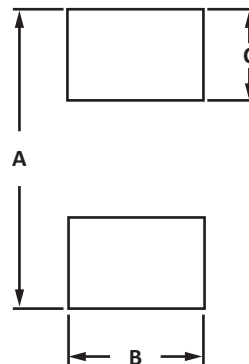


## PAD LAYOUT DIMENSIONS

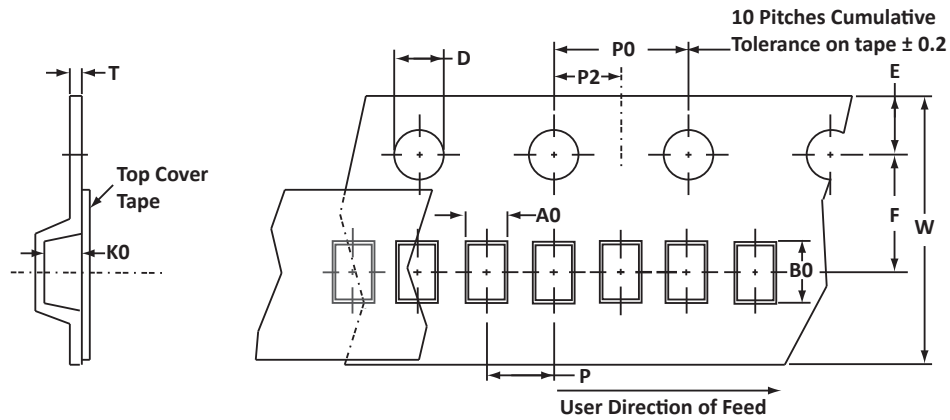
| DIM | MILLIMETERS |       | INCHES |       |
|-----|-------------|-------|--------|-------|
|     | MIN         | MAX   | MIN    | MAX   |
| A   | 1.39        | 1.60  | 0.055  | 0.063 |
| B   | 0.457       | 0.558 | 0.018  | 0.022 |
| C   | 0.558       | 0.660 | 0.022  | 0.026 |

## NOTES

1. Controlling dimension: inches.



## TAPE AND REEL



## SPECIFICATIONS

| REEL DIA.  | TAPE WIDTH | A0          | B0          | K0          | D           | E           | F           | W           | P0          | P2          | P           | tmax |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| 178mm (7") | 8mm        | 0.70 ± 0.05 | 1.15 ± 0.10 | 0.56 ± 0.05 | 1.55 ± 0.10 | 1.75 ± 0.10 | 3.50 ± 0.05 | 8.00 ± 0.30 | 4.00 ± 0.10 | 2.00 ± 0.05 | 2.00 ± 0.05 | 0.25 |

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T710 = 7" Reel - 10,000 pieces per 8mm tape.
- Marking on Part - marking code (see page 2).

## ORDERING INFORMATION

| BASE PART NUMBER | LEADFREE SUFFIX | TAPE SUFFIX | QTY/REEL | REEL SIZE | TUBE QTY |
|------------------|-----------------|-------------|----------|-----------|----------|
| PAM18DF2L0521    | n/a             | -T710       | 10,000   | 7"        | n/a      |

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

## COMPANY INFORMATION

---

### 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.

### CONTACT US

#### Corporate Headquarters

2929 South Fair Lane  
Tempe, Arizona 85282  
USA

#### By Telephone

General: 602-431-8101  
Sales: & Marketing: 602-414-5109  
Customer Service: 602-414-5114  
Product Technical Support: 602-414-5107

#### By Fax

General: 602-431-2288

#### By E-mail:

Asia Sales: [asiasales@protekdevices.com](mailto:asiasales@protekdevices.com)  
Europe Sales: [europesales@protekdevices.com](mailto:europesales@protekdevices.com)  
U.S. Sales: [ussales@protekdevices.com](mailto:ussales@protekdevices.com)  
Distributor Sales: [distysales@protekdevices.com](mailto:distysales@protekdevices.com)  
Customer Service: [service@protekdevices.com](mailto:service@protekdevices.com)  
Technical Support: [support@protekdevices.com](mailto:support@protekdevices.com)

#### ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19  
Zervex  
Singapore - 408538  
Tel: +65-67488312  
Fax: +65-67488313

#### Web

[www.protekdevices.com](http://www.protekdevices.com)

COPYRIGHT © ProTek Devices 2011 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. ProTek assumes no responsibility with respect to the selection or specifications of such products. ProTek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ProTek assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: ProTek Devices products are not authorized for use in life support systems without written consent from the factory.