



# D22V0S1U6LP2018

#### **1 CHANNEL UNIDIRECTIONAL TVS**

#### **Product Summary**

| I <sub>PP</sub> Max | С <sub>Т</sub> Тур                |
|---------------------|-----------------------------------|
| 130A                | 900pF                             |
|                     | <b>І<sub>РР</sub> Мах</b><br>130А |

### Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in portable applications such as cellular phones, digital cameras, and MP3 players.

## **Applications**

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

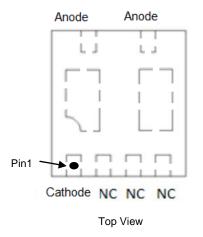
#### Features

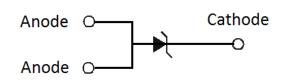
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- Provides ESD Protection Per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- One Channel of ESD Protection
- Low Channel Input Capacitance
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

## **Mechanical Data**

- Case: U-DFN1820-6
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiPdAu over Copper Leadframe (Lead Free Plating).
  Solderable per MIL-STD-202, Method 208 @4
- Weight: 0.004 grams (Approximate)





Device Schematic The two anode pins should be electrically connected at the PCB.

## Ordering Information (Note 4)

Notes:

| Part Number       | Compliance | Marking | Reel Size (inches) | Tape Width (mm) | Quantity Per Reel |
|-------------------|------------|---------|--------------------|-----------------|-------------------|
| D22V0S1U6LP2018-7 | Standard   | PA3     | 7                  | 8               | 3,000/Tape & Reel |

No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.</p>

4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.



### **Marking Information**



PA3 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: F = 2018) M = Month (ex: 9 = September)

| Date | Code | Key |
|------|------|-----|
|------|------|-----|

| Year  | 20  | 18  | 20  | 19  | 20  | 20  | 20  | 21  | 20  | 22  | 20  | 23  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | F   | -   | (   | 3   | ł   | 4   |     |     |     | J   | ł   | <   |
|       |     |     |     |     |     |     |     |     |     |     |     |     |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 0   | Ν   | D   |

#### Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol          | Value | Unit | Conditions             |
|------------------------------------|-----------------|-------|------|------------------------|
| Peak Pulse Power Dissipation       | P <sub>PP</sub> | 5460  | W    | 8/20µs, Per Figure 2   |
| Peak Pulse Current                 | IPP             | 130   | А    | 8/20µs, Per Figure 2   |
| ESD Protection – Contact Discharge | Vesd_contact    | ±30   | kV   | Standard IEC 61000-4-2 |
| ESD Protection – Air Discharge     | Vesd_air        | ±30   | kV   | Standard IEC 61000-4-2 |

## **Thermal Characteristics**

| Characteristic                                   | Symbol           | Value       | Unit |
|--------------------------------------------------|------------------|-------------|------|
| Package Power Dissipation (Note 5)               | PD               | 900         | mW   |
| Thermal Resistance, Junction to Ambient (Note 5) | R <sub>θJA</sub> | 150         | °C/W |
| Operating Temperature Range                      | TJ               | -55 to +150 | °C   |
| Storage Temperature Range                        | T <sub>STG</sub> | -65 to +150 | °C   |

# Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

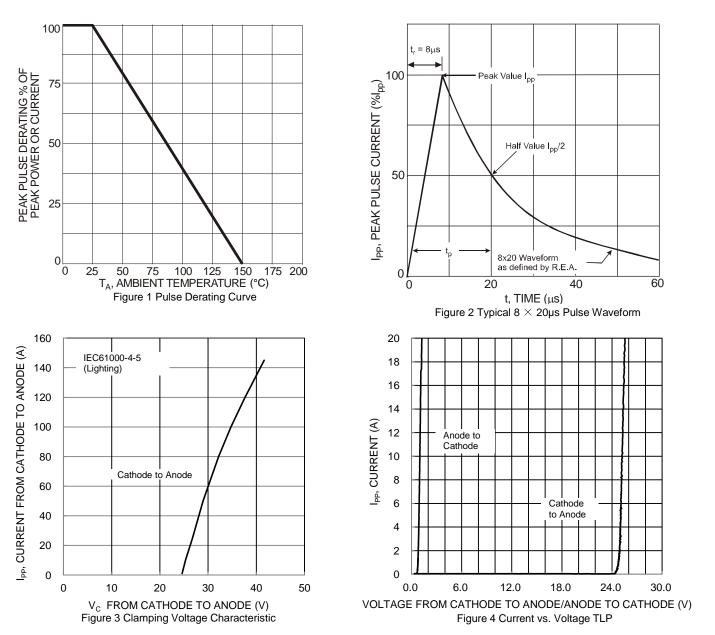
| Characteristic            | Symbol           | Min | Тур | Max | Unit | Test Conditions                                 |
|---------------------------|------------------|-----|-----|-----|------|-------------------------------------------------|
| Reverse Working Voltage   | V <sub>RWM</sub> | _   | —   | 22  | V    | —                                               |
| Reverse Current (Note 6)  | I <sub>R</sub>   | _   | —   | 1   | μA   | $V_R = V_{RWM}$                                 |
| Reverse Breakdown Voltage | V <sub>BR</sub>  | 24  | —   | 27  | V    | I <sub>R</sub> = 1mA                            |
|                           |                  | _   | —   | 30  |      | I <sub>PP</sub> = 10A, t <sub>P</sub> = 8/20µs  |
|                           | Ň                | _   | —   | 32  | V    | I <sub>PP</sub> = 50A, t <sub>P</sub> = 8/20µs  |
| Reverse Clamping Voltage  | V <sub>CL</sub>  | _   | —   | 35  | v    | I <sub>PP</sub> = 100A, t <sub>P</sub> = 8/20µs |
|                           |                  | —   | —   | 42  |      | I <sub>PP</sub> = 130A, t <sub>P</sub> = 8/20µs |
| Capacitance               | CT               | _   | 900 | _   | pF   | $V_R = 0V$ , f = 1MHz                           |

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.

Short duration pulse test used to minimize self-heating effect.

# D22V0S1U6LP2018

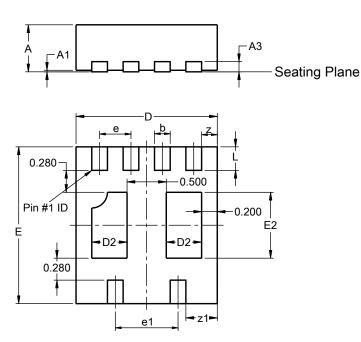






# **Package Outline Dimensions**

Please see http://www.diodes.com/package-outlines.html for the latest version.

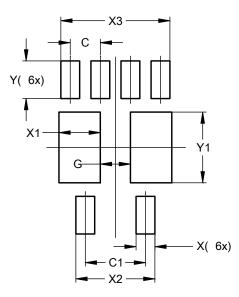


|          | U-DFN1820-6 |         |       |  |  |  |  |  |
|----------|-------------|---------|-------|--|--|--|--|--|
| (Туре А) |             |         |       |  |  |  |  |  |
| Dim      | Min         | Max     | Тур   |  |  |  |  |  |
| Α        | 0.525       | 0.625   | 0.575 |  |  |  |  |  |
| A1       | 0.00        | 0.05    | 0.02  |  |  |  |  |  |
| A3       |             |         | 0.13  |  |  |  |  |  |
| b        | 0.15        | 0.25    | 0.20  |  |  |  |  |  |
| D        | 1.75        | 1.85    | 1.80  |  |  |  |  |  |
| D2       | 0.35        | 0.55    | 0.45  |  |  |  |  |  |
| E        | 1.95        | 2.05    | 2.00  |  |  |  |  |  |
| E2       | 0.74        | 0.94    | 0.84  |  |  |  |  |  |
| е        |             |         | 0.40  |  |  |  |  |  |
| e1       |             |         | 0.80  |  |  |  |  |  |
| L        | 0.25        | 0.35    | 0.30  |  |  |  |  |  |
| z        |             |         | 0.20  |  |  |  |  |  |
| z1       |             |         | 0.40  |  |  |  |  |  |
| All D    | imens       | ions ir | mm    |  |  |  |  |  |

## **Suggested Pad Layout**

Please see http://www.diodes.com/package-outlines.html for the latest version.

#### U-DFN1820-6 (Type A)



| Dimensions | Value<br>(in mm) |
|------------|------------------|
| С          | 0.40             |
| C1         | 0.80             |
| G          | 0.40             |
| Х          | 0.25             |
| X1         | 0.55             |
| X2         | 1.05             |
| X3         | 1.45             |
| Y          | 0.50             |
| Y1         | 0.94             |

#### U-DFN1820-6 (Type A)



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