

ON Semiconductor

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NUP5150MU

ESD Protection Diode Array, 5-Line

This 5-line surge protection array is designed for applications requiring surge protection capability. It is intended for use in over-transient voltage and ESD sensitive equipment such as cell phones, portables, computers, printers and other applications. This device features a monolithic common anode design which protects five independent lines in a single UDFN package. This device is ideal for situations where board space is at a premium.

Features

- Protects up to 5 Lines in a Single UDFN Package
- ESD Rating of Class 3B (Exceeding 8 kV) per Human Body Model
- Compliance with IEC 61000-4-2
- This is a Pb-Free Device

Applications

- Hand Held Portable Applications
- Serial and Parallel Ports
- Notebooks, Desktops, Servers

MAXIMUM RATINGS (T_J = 25°C, unless otherwise specified)

| Symbol | Rating | Value | Unit |
|------------------|---|---------------|------|
| T _J | Operating Junction Temperature Range | -40 to 125 | °C |
| T _{STG} | Storage Temperature Range | -55 to 150 | °C |
| T _L | Lead Solder Temperature – Maximum (10 seconds) | 260 | °C |
| ESD | Human Body Model (HBM) IEC 61000-4-2 Contact (ESD) | 16000 8000 | V |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

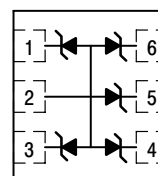


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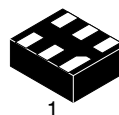
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UDFN6 5-LINE SURGE PROTECTION

PIN ASSIGNMENT



- PIN 1. CATHODE
- 2. ANODE
- 3. CATHODE
- 4. CATHODE
- 5. CATHODE
- 6. CATHODE



MARKING DIAGRAM

UDFN6
CASE 517AA



- 5 = Specific Device Code
- M = Month Code

*Specific Device Code orientation may vary depending upon manufacturing location.

ORDERING INFORMATION

| Device | Package | Shipping† |
|--------------|--------------------|------------------|
| NUP5150MUTBG | UDFN6 (Pb-Free) | 3000/Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

NUP5150MU

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise specified)

| Parameter | Conditions | Symbol | Min | Typ | Max | Unit |
|-------------------------|---|-----------|-----|-----|-----|---------------|
| Reverse Working Voltage | (Note 1) | V_{RWM} | | – | 5.0 | V |
| Breakdown Voltage | $I_T = 1 \text{ mA}$, (Note 2) | V_{BR} | 6.2 | 6.8 | 7.2 | V |
| Reverse Leakage Current | $V_{RWM} = 3 \text{ V}$ | I_R | – | | 0.1 | μA |
| Capacitance | $V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$ (Line to GND) | C_J | – | 12 | 15 | pF |

1. Surge protection devices are normally selected according to the working peak reverse voltage (V_{RWM}), which should be equal or greater than the DC or continuous peak operating voltage level.
2. V_{BR} is measured at pulse test current I_T .

NUP5150MU

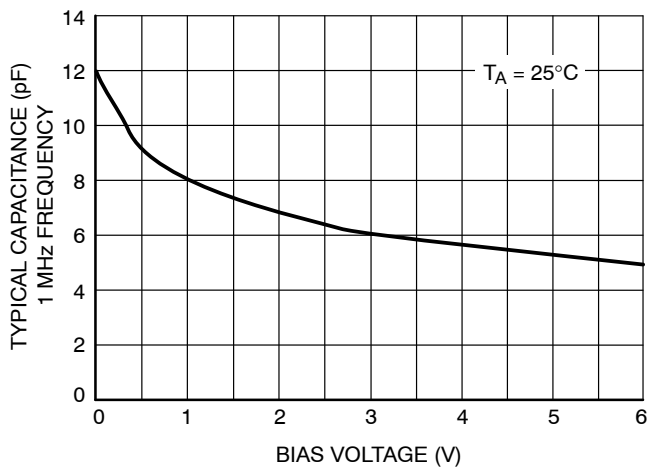


Figure 1. Capacitance

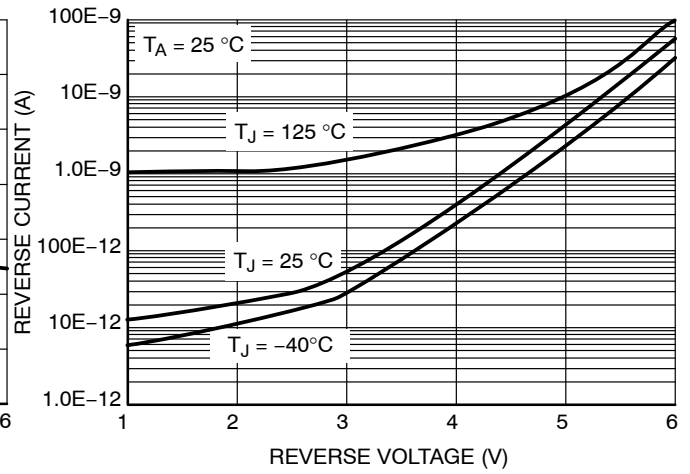


Figure 2. Typical Reverse Current vs. Reverse Voltage

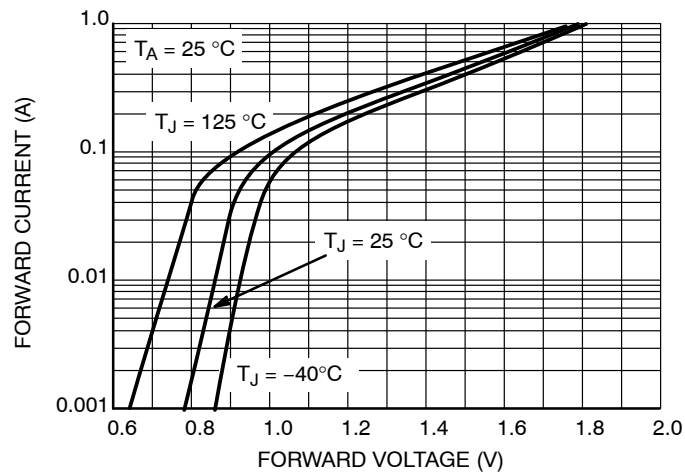


Figure 3. Typical Forward Current vs. Forward Voltage

MECHANICAL CASE OUTLINE

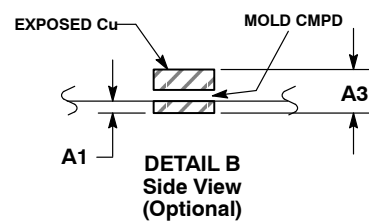
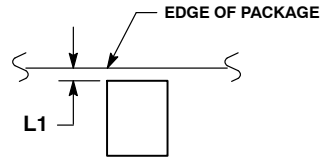
PACKAGE DIMENSIONS

ON Semiconductor®



UDFN6, 1.2x1.0, 0.4P
CASE 517AA-01
ISSUE D

DATE 03 SEP 2010



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.25 AND 0.30 mm FROM TERMINAL.
 4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

| MILLIMETERS | | |
|-------------|-------|------|
| DIM | MIN | MAX |
| A | 0.45 | 0.55 |
| A1 | 0.00 | 0.05 |
| A3 | 0.127 | REF |
| b | 0.15 | 0.25 |
| D | 1.20 | BSC |
| E | 1.00 | BSC |
| e | 0.40 | BSC |
| L | 0.30 | 0.40 |
| L1 | 0.00 | 0.15 |
| L2 | 0.40 | 0.50 |

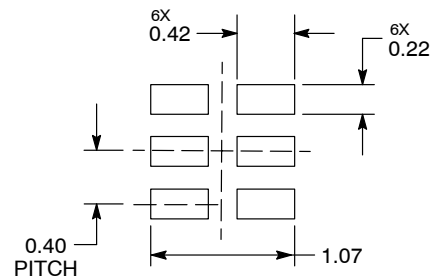
GENERIC MARKING DIAGRAM*



X = Specific Device Code
M = Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present.

MOUNTING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

| | | |
|-------------------------|----------------------------------|--|
| DOCUMENT NUMBER: | 98AON22068D | Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| DESCRIPTION: | 6 PIN UDFN, 1.2X1.0, 0.4P | PAGE 1 OF 1 |

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