

NUP4060AXV6

4-Line Transient Voltage Suppressor Array

This 4-line voltage transient suppressor array is designed for application requiring transient voltage 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 common cathode design which protects four independent lines in a single SOT-563 package.

Features

- Protects up to 4 Lines in a Single SOT-563 Package
- ESD Rating: IEC61000-4-2: Level 4 Contact (8 kV), Air (15 kV)
- V_{CC} Pin = 16 V Protection
D1, D2, and D3 Pins = 6.8 V Protection
- Low Capacitance (< 7 pF @ 3 V) for D1, D2, and D3
- This is a Pb-Free Device

Applications

- Hand Held Portable Applications
- USB Interface
- Notebooks, Desktops, Servers
- SIM Card Protection

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

| Symbol | Rating | Value | Unit |
|------------|---|---------------|------------------|
| P_{PK} 1 | Peak Power Dissipation V_{CC} Diode | 200 | W |
| | 8x20 μsec double exponential waveform, (Note 1) D1, D2, and D3 | 20 | W |
| T_J | Operating Junction Temperature Range | -40 to 125 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ\text{C}$ |
| T_L | Lead Solder Temperature – Maximum (10 seconds) | 260 | $^\circ\text{C}$ |
| ESD | IEC 61000-4-2 Air IEC 61000-4-2 Contact | 15000 8000 | V |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Nonrepetitive current pulse per Figure 1.

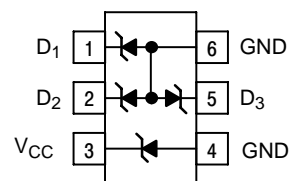


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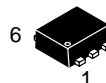
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SOT-563 4-LINE TRANSIENT VOLTAGE SUPPRESSOR

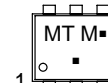
PIN ASSIGNMENT



MARKING DIAGRAM



SOT-563
CASE 463A
STYLE 6



MT = Specific Device Code
M = Date Code
▪ = Pb-Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

| Device | Package | Shipping† |
|----------------|-------------------|------------------|
| NUP4060AXV6T1G | SOT-563 (Pb-Free) | 4000/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.

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

| Parameter | Conditions | Symbol | Min | Typ | Max | Unit |
|---|---|-----------|------|------|------|---------------|
| Reverse Working Voltage (D_1 , D_2 , and D_3) | (Note 2) | V_{RWM} | – | – | 5.0 | V |
| Breakdown Voltage (D_1 , D_2 , and D_3) | $I_T = 1 \text{ mA}$, (Note 3) | V_{BR} | 6.2 | 6.8 | 7.2 | V |
| Breakdown Voltage (V_{CC}) | $I_T = 5 \text{ mA}$, (Note 3) | V_{BR2} | 15.3 | 16 | 17.1 | V |
| Reverse Leakage Current (D_1 , D_2 , and D_3) | $V_{RWM} = 3 \text{ V}$ | I_R | – | 0.01 | 0.5 | μA |
| Reverse Leakage Current (V_{CC}) | $V_{BR} = 11 \text{ V}$ | I_R | – | – | 0.05 | μA |
| Capacitance (D_1 , D_2 , and D_3) | $V_R = 3 \text{ V}$, $f = 1 \text{ MHz}$ (Line to GND) | C_J | – | 7 | 10 | pF |

2. TVS 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.
3. V_{BR} is measured at pulse test current I_T .

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TYPICAL ELECTRICAL CHARACTERISTICS

(Diode D₁, D₂, and D₃ only)

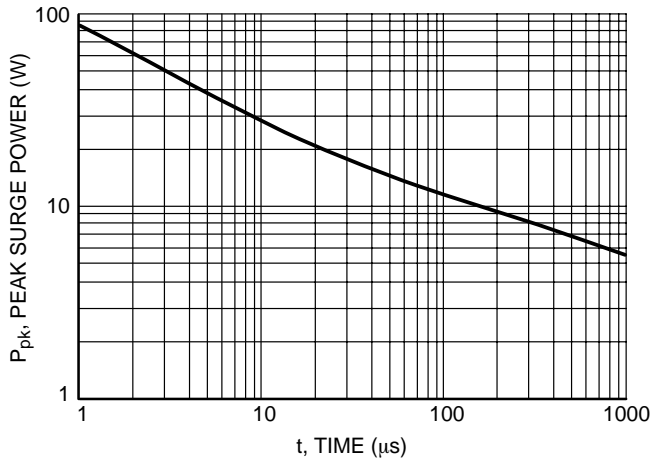


Figure 1. Pulse Width

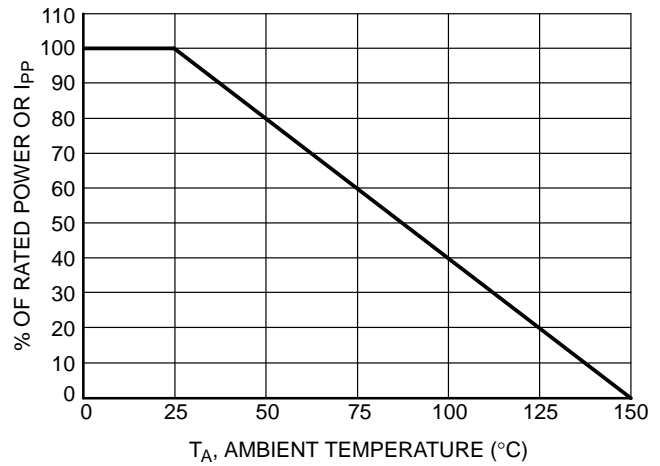


Figure 2. Power Derating Curve

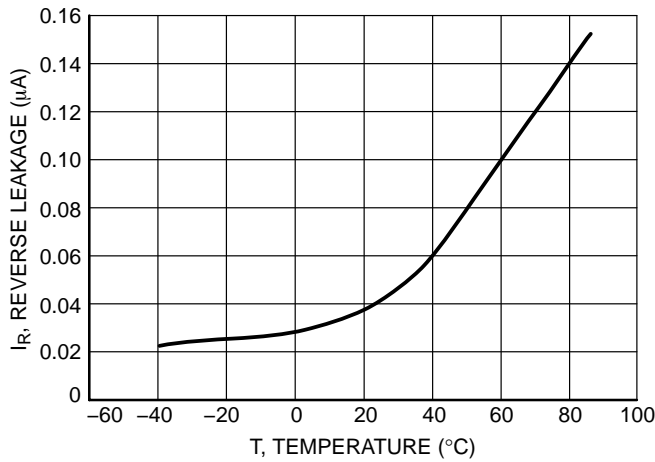


Figure 3. Reverse Leakage versus Temperature

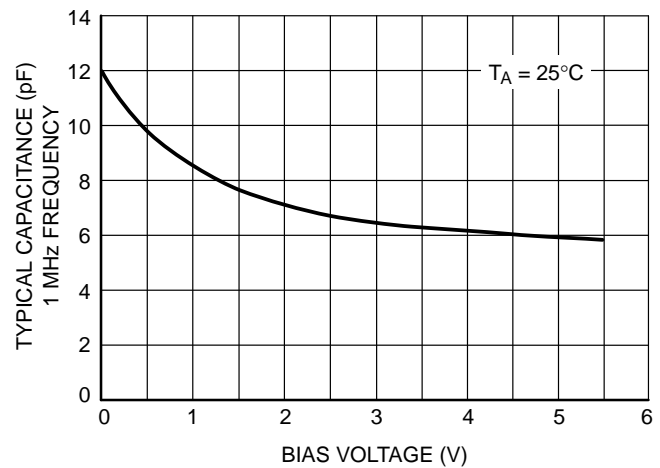


Figure 4. Capacitance

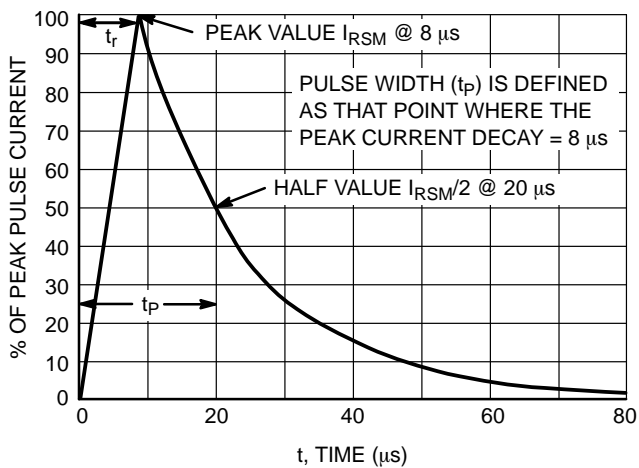


Figure 5. 8 × 20 μs Pulse Waveform

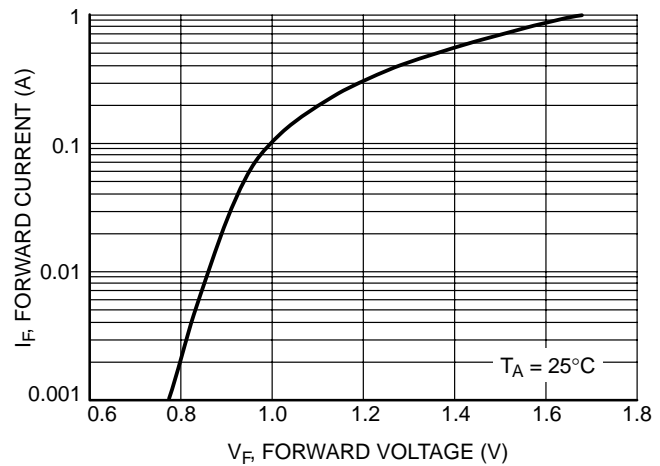
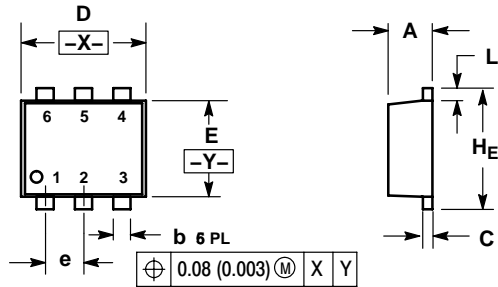


Figure 6. Forward Voltage

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PACKAGE DIMENSIONS

SOT-563, 6 LEAD
CASE 463A-01
ISSUE F

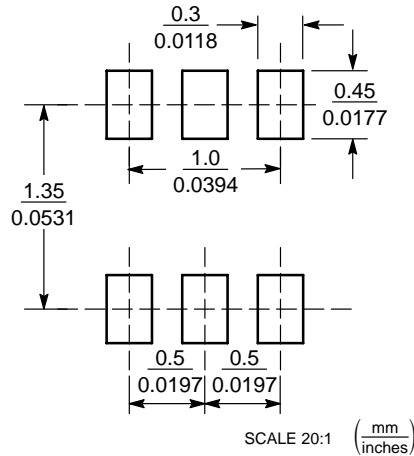


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

| DIM | MILLIMETERS | | | INCHES | | |
|----------------|-------------|------|------|----------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.50 | 0.55 | 0.60 | 0.020 | 0.021 | 0.023 |
| b | 0.17 | 0.22 | 0.27 | 0.007 | 0.009 | 0.011 |
| C | 0.08 | 0.12 | 0.18 | 0.003 | 0.005 | 0.007 |
| D | 1.50 | 1.60 | 1.70 | 0.059 | 0.062 | 0.066 |
| E | 1.10 | 1.20 | 1.30 | 0.043 | 0.047 | 0.051 |
| e | 0.5 BSC | | | 0.02 BSC | | |
| L | 0.10 | 0.20 | 0.30 | 0.004 | 0.008 | 0.012 |
| H _E | 1.50 | 1.60 | 1.70 | 0.059 | 0.062 | 0.066 |

SOLDERING FOOTPRINT*



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

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