

# NUP4104X6

## 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 wireless phones, printers, automotive electronics, networking communication and other applications. This device features a monolithic common anode design which protects five independent lines in a single SOT-563 package.

### Features

- Protects Up to 4-Line in a Single SOT-563 Package
- Peak Power Dissipation – 150 Watts (8x20  $\mu$ sec Waveform)
- ESD Rating of Class 3B (Exceeding 8.0 KV) per Human Body Model and Class C (Exceeding 400 V) per Machine Model
- Compliance with IEC 61000-4-2 (ESD) 15 KV (Air), 8.0 KV (Contact)
- UL Flammability Rating of 94 V-0
- 100% Lead-Free, MSL1 @ 260°C Reflow Temperature

### Applications

- Hand-Held Portable Applications
- Networking and Telecom
- Automotive Electronics
- Serial and Parallel Ports
- Notebooks, Desktops, Servers

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

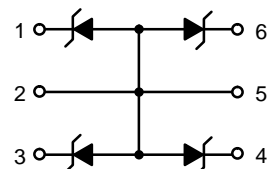
Rating	Symbol	Value	Unit
Peak Power Dissipation 8x20 $\mu$ s Double Exponential Waveform, (Note 1)	$P_{PK}$	150	W
Operating Temperature Range	$T_J$	-40 to 125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ\text{C}$
Lead Solder Temperature (10 s)	$T_L$	260	$^\circ\text{C}$
Electro-Static Discharge Human Body Model (HBM) Machine Model (MM) IEC 61000-4-2 (Air) IEC 61000-4-2 (Contact)	ESD	8000 400 30000 15000	V

1. Non-repetitive current pulse per Figure 1.



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### MARKING DIAGRAM



SOT-563  
CASE 463A  
PLASTIC



RR = Specific Device Code  
D = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
NUP4104X6T1	SOT-563	4000/Tape & Reel

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

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

Characteristic	Test Condition	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage	(Note 2)	$V_{RWM}$	–	–	3.0	V
Breakdown Voltage	$I_R = 1.0\text{ mA}$	$V_{BR}$	6.1	–	7.2	V
Reverse Leakage Current	$V_{RWM} = 3.0\text{ V}$	$I_R$	–	–	0.5	$\mu\text{A}$
Clamping Voltage	$I_{PP} = 1.0\text{ A}$ (8x20 $\mu\text{s}$ Waveform)	$V_C$	–	–	8.0	V
	$I_{PP} = 12\text{ A}$ (8x20 $\mu\text{s}$ Waveform)		–	–	13	
Peak Pulse Current	8x20 $\mu\text{s}$ Waveform	$I_{PP}$	–	–	13	A
Capacitance	$V_R = 0\text{ V}$ , $f = 1.0\text{ MHz}$ (Line to GND)	$C_J$	–	70	–	pF

- 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.
- $V_{BR}$  is measured at pulse test current  $I_T$ .

## TYPICAL PERFORMANCE CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

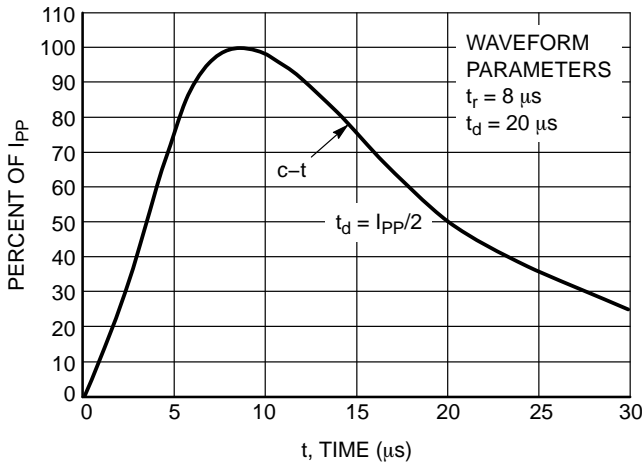


Figure 1. Pulse Waveform

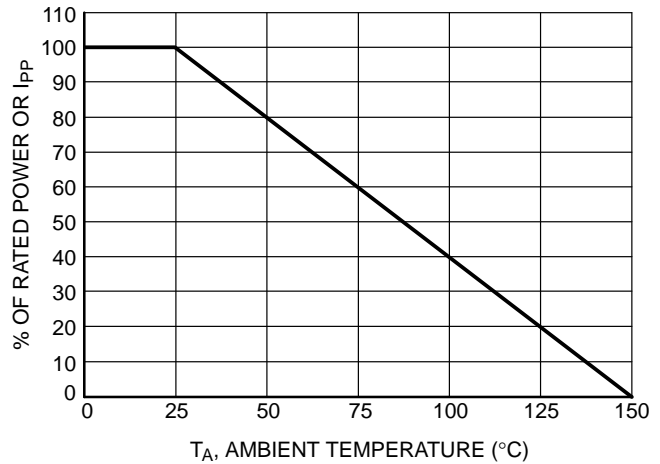


Figure 2. Power Derating Curve

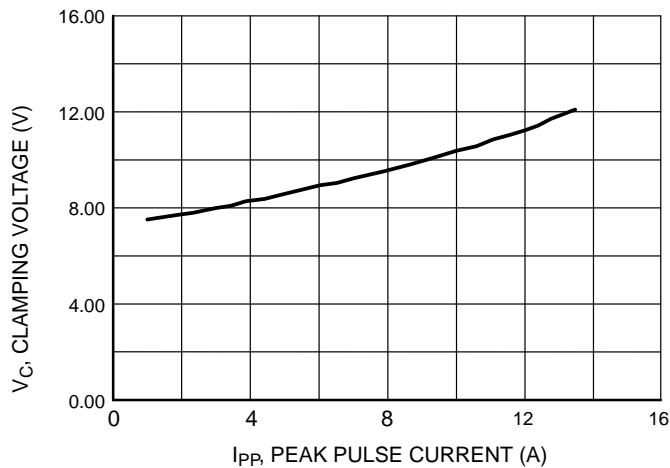
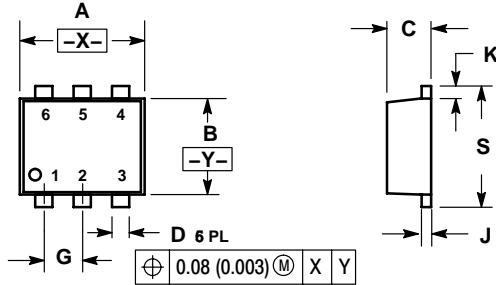


Figure 3. Clamping Voltage versus Peak Pulse Current

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## PACKAGE DIMENSIONS

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

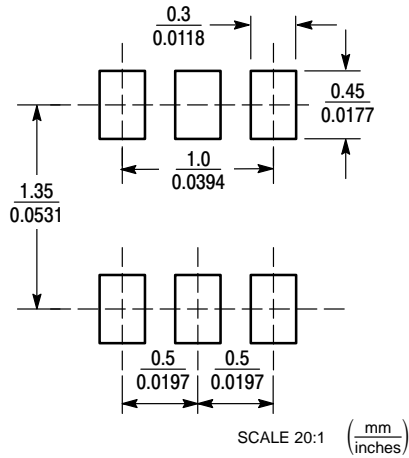


### NOTES:

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	MAX	MIN	MAX
A	1.50	1.70	0.059	0.067
B	1.10	1.30	0.043	0.051
C	0.50	0.60	0.020	0.024
D	0.17	0.27	0.007	0.011
G	0.50 BSC		0.020 BSC	
J	0.08	0.18	0.003	0.007
K	0.10	0.30	0.004	0.012
S	1.50	1.70	0.059	0.067

## 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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