NUP8028MN

Low Capacitance Transient Voltage Suppressor Array

This integrated transient voltage suppressor device (TVS) is designed for applications requiring transient overvoltage protection. It is intended for use in sensitive equipment such as computers, printers, business machines, communication systems, medical equipment, and other applications. Its integrated design provides very effective and reliable protection for eight separate lines using only one package. These devices are ideal for situations where board space is at a premium.

Features

- Low Capacitance
- Low Leakage Current < 1 μA @ 3 V
- ESD Ratings:
  - IEC61000−4−2, 18 kV (Contact)
  - IEC61000−4−2, 30 kV (Air)
  - Machine Model = Class C, 400 V
  - Human Body Model = Class 3B, 8 kV
- DFN Package, 1.6 x 1.6 mm
- Moisture Sensitivity Level 1
- This is a Pb−Free Device

Benefits

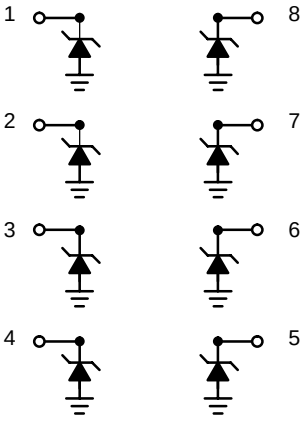
- Provides Protection for ESD Industry Standards: IEC 61000, HBM
- Protects the Line Against Transient Voltage Conditions in Either Direction
- Minimize Power Consumption of the System
- Minimize PCB Board Space

Applications

- ESD Protection for Data Lines
- Wireless Phones
- Handheld Products
- Notebook Computers
- LCD Displays

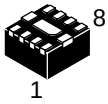
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(Top View)

MARKING DIAGRAM

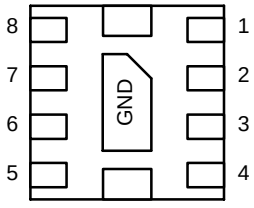


DFN8
CASE 506AK



5S = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

PIN CONNECTIONS



(Bottom View)

ORDERING INFORMATION

Device	Package	Shipping†
NUP8028MNT1G	DFN8 (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 Specifications Brochure, BRD8011/D.

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MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
ESD Discharge IEC61000−4−2 Air Discharge Contact Discharge	V_{PP}	 15 8.0	kV
Peak Power Dissipation (8 x 20 μS @ T_A = 25°C)	P_{pk} (Note 1)	20	W
Operating Temperature Range	T_{OP}	−40 to 85	°C
Storage Temperature Range	T_{STG}	−55 to 150	°C
Maximum Lead Temperature for Soldering Purposes (1.8 in from case for 10 seconds)	T_L	260	°C

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 per Figure 4.

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Maximum Reverse Working Voltage	V_{RWM}				3.0	V
Breakdown Voltage	V_{BR}	I_R = 1.0 mA	5.3	5.6	5.9	V
Leakage Current	I_R	V_{RWM} = 3.3 V		0.01	1.0	μA
Clamping Voltage	V_c	I_{PP} = 1.6 A			13	V
Capacitance	C_d	f = 1 MHz, V_R = 0 V		13	17	pF
Capacitance	C_d	f = 1 MHz, V_R = 3.0 V		7.0	11.5	pF

TYPICAL PERFORMANCE CURVES (T_A= 25°C unless otherwise specified)

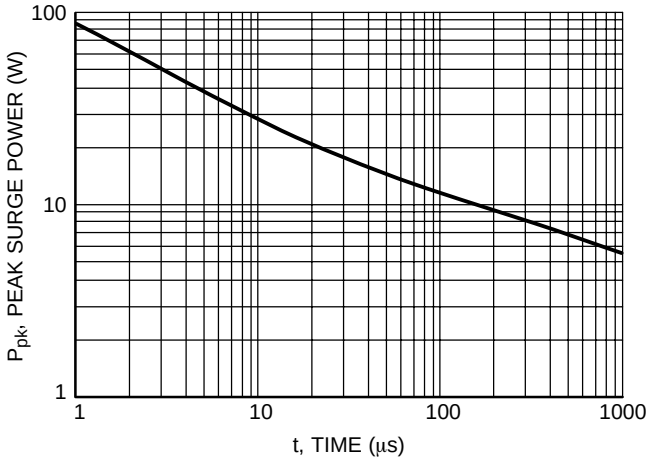


Figure 1. Pulse Width

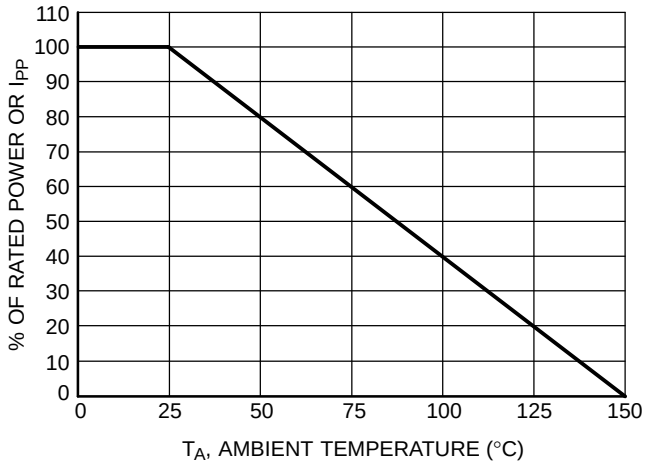


Figure 2. Power Derating Curve

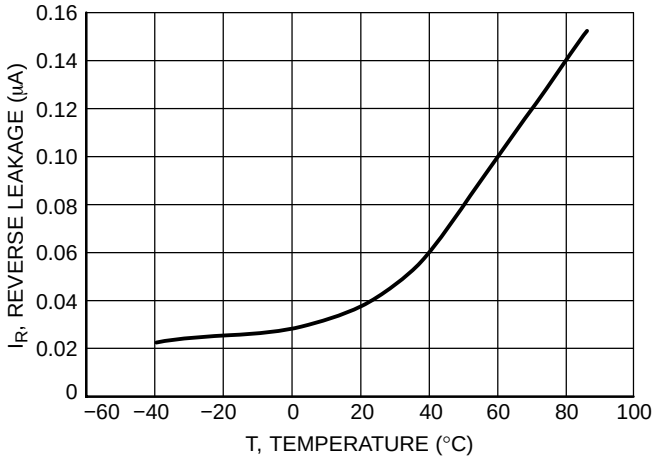


Figure 3. Reverse Leakage versus Temperature

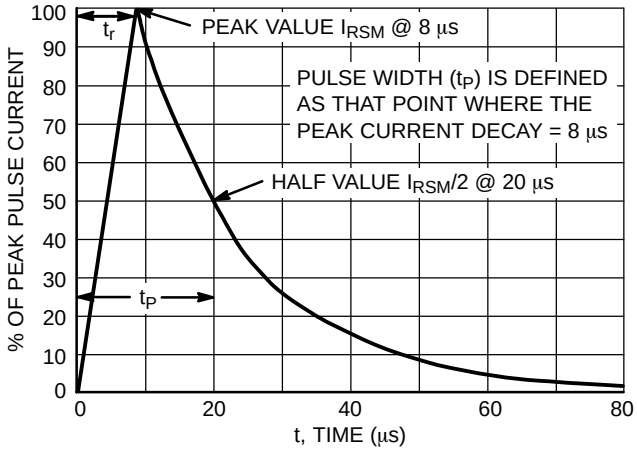


Figure 4. 8 × 20 μs Pulse Waveform

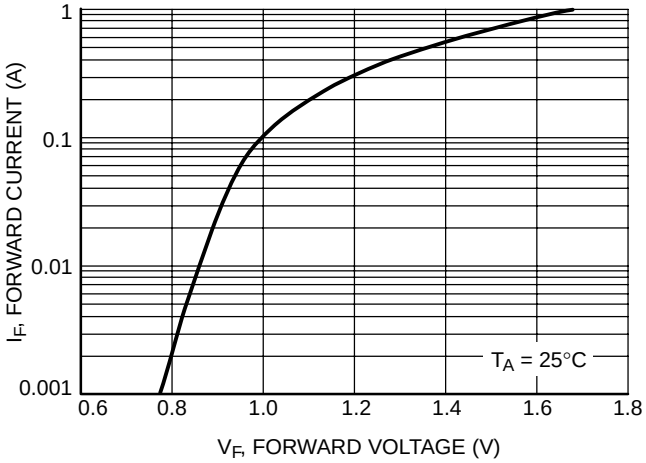
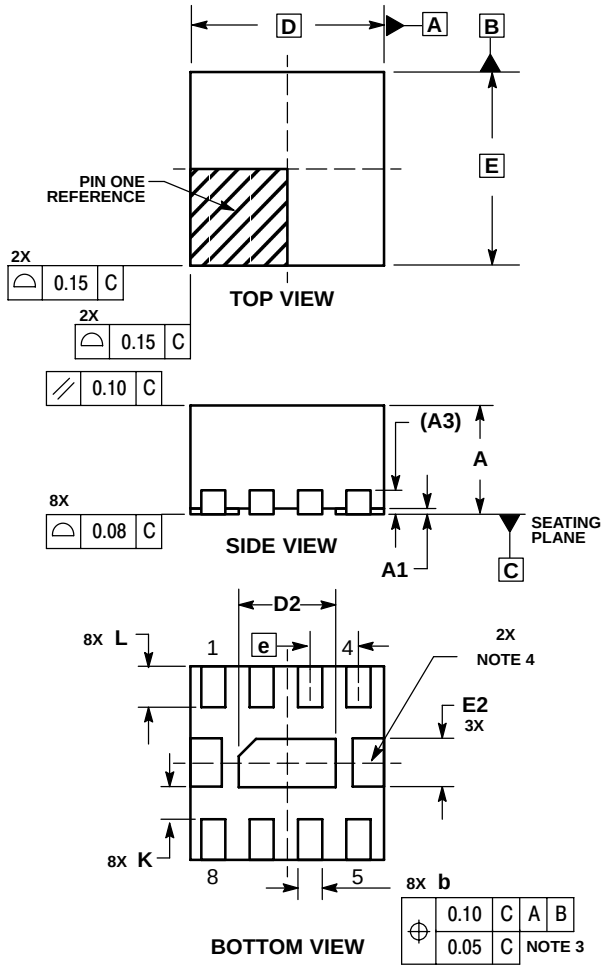


Figure 5. Forward Voltage

NUP8028MN

PACKAGE DIMENSIONS

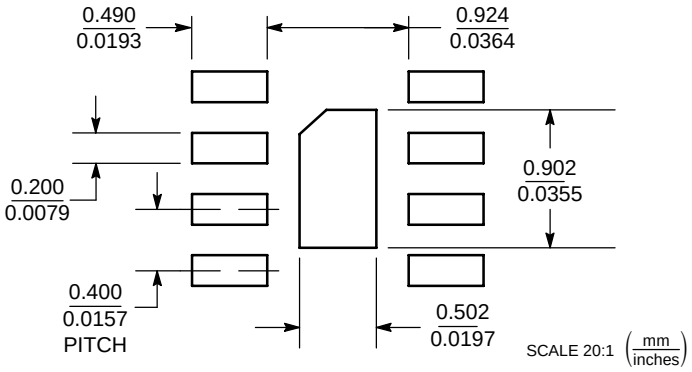
DFN8
CASE 506AK−01
ISSUE C



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.
4. EXPOSED PADS CONNECTED TO DIE FLAG. USED AS TEST CONTACTS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.80	1.00
A1	0.00	0.05
A3	0.20 REF	
b	0.15	0.25
D	1.60 BSC	
D2	0.70	0.90
E	1.60 BSC	
E2	0.30	0.50
e	0.40 BSC	
K	0.20	−−−
L	0.20	0.40

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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