NUP4004M5

ESD Protection Diode Array

5−Pin, Bi−Directional, Quad

This 5−Pin bi−directional transient suppressor array is designed for applications requiring transient overvoltage protection capability. It is intended for use in transient voltage and ESD sensitive equipment such as computers, printers, cell phones, medical equipment, and other applications. Its integrated design provides bi−directional protection for four separate lines using a single TSOP−5 package. This device is ideal for situations where board space is a premium.

Features

- Bi−directional Protection for Four Lines in a Single TSOP−5 Package
- Low Leakage Current
- Low Capacitance
- Provides ESD Protection for JEDEC Standards JESD22
  - − Machine Model = Class C
  - − Human Body Model = Class 3B
- Provides ESD Protection for IEC 61000−4−2, 15 kV (Air), 8 kV (Contact)
- This is a Pb−Free Device

Mechanical Characteristics

- Void Free, Transfer−Molded, Thermosetting Plastic Case
- Corrosion Resistant Finish, Easily Solderable
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications

Applications

- LCD, Plasma TV Video Lines
- Other Telephone Sets
- Computers / Printers / Set−Top Boxes

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

Rating	Symbol	Value	Unit
Operating Junction Temperature Range	T_J	−40 to 125	°C
Storage Temperature Range	T_{STG}	−55 to 150	°C
Lead Solder Temperature – Maximum (10 sec)	T_L	260	°C
Human Body Model (HBM) Machine Model (MM) IEC 61000−4−2 Air (ESD) IEC 61000−4−2 Contact (ESD)	ESD	16 0.4 30 30	kV

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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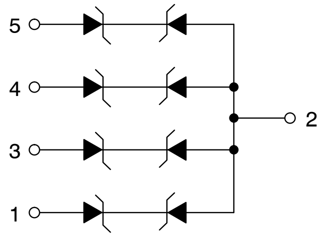
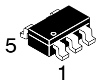
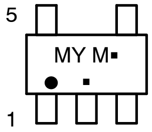




TSOP−5
CASE 483

MARKING DIAGRAM



MY = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
NUP4004M5T1G	TSOP−5 (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.

October, 2017 − Rev. 3

Publication Order Number:
NUP4004M5/D

ELECTRICAL CHARACTERISTICS (T_J=25°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 mA, (Note 2)	V_{BR}		7.0	8.0	V
Reverse Leakage Current	V_{RWM} = 5 V	I_R		100	1000	nA
Capacitance	V_R = –3 V, f = 1 MHz (Line to GND)	C_j		23		pF
Capacitance	V_R = 3 V, f = 1 MHz (Line to GND)	C_j		32		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.

TYPICAL PERFORMANCE CURVES

(T_J = 25°C unless otherwise specified)

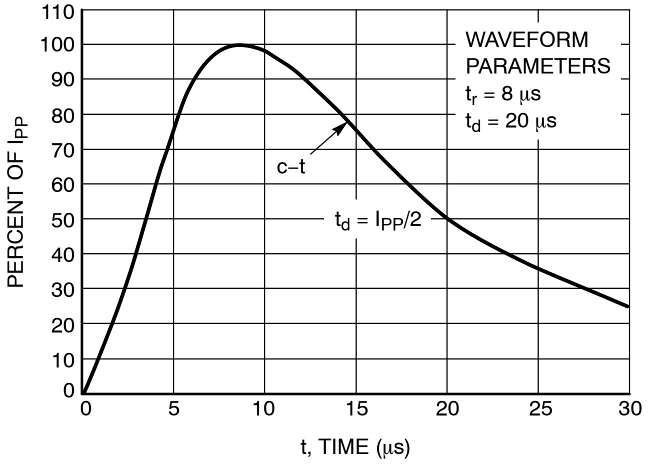


Figure 1. Pulse Waveform

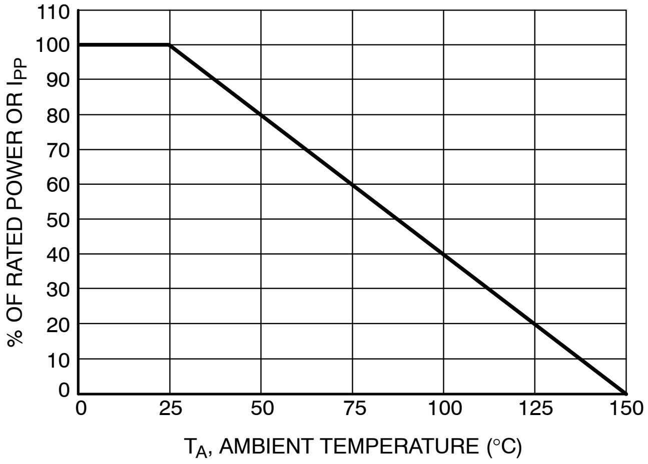
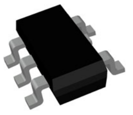


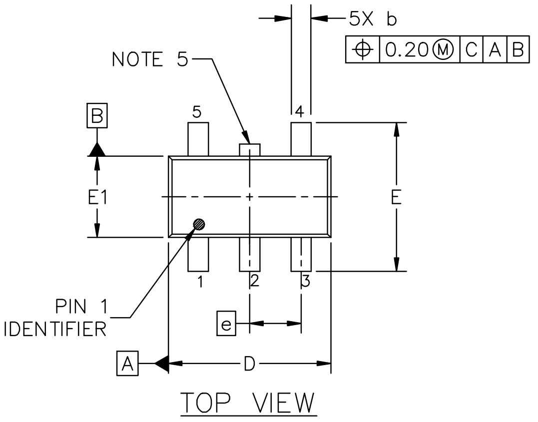
Figure 2. Power Derating Curve

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS



TSOP−5 3.00x1.50x0.95, 0.95P
CASE 483
ISSUE P

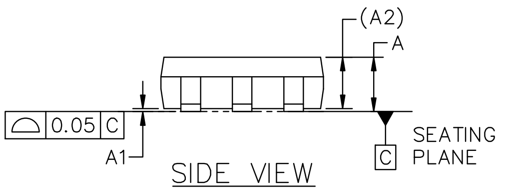
DATE 01 APR 2024

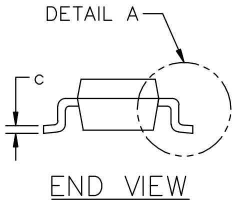


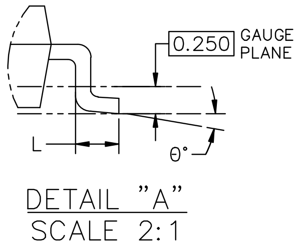
NOTES:

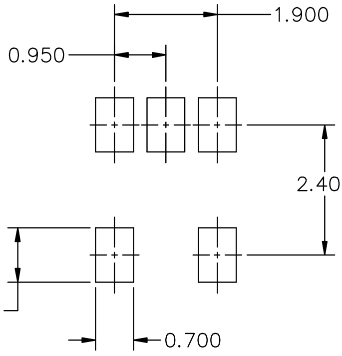
1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5−2018.
2. ALL DIMENSION ARE IN MILLIMETERS (ANGLES IN DEGREES).
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OF GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE. DIMENSION D.
5. OPTIONAL CONSTRUCTION: AN ADDITIONAL TRIMMED LEAD IS ALLOWED IN THIS LOCATION. TRIMMED LEAD NOT TO EXTEND MORE THAN 0.2 FROM BODY.

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.900	1.000	1.100
A1	0.010	0.055	0.100
A2	0.950 REF.		
b	0.250	0.375	0.500
c	0.100	0.180	0.260
D	2.850	3.000	3.150
E	2.500	2.750	3.000
E1	1.350	1.500	1.650
e	0.950 BSC		
L	0.200	0.400	0.600
θ	0°	5°	10°









RECOMMENDED MOUNTING 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.

**GENERIC
MARKING DIAGRAM***

Analog

Discrete/Logic

XXX = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
▪ = Pb−Free Package

XXX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*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. Some products may not follow the Generic Marking.

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DESCRIPTION:	**TSOP−5 3.00x1.50x0.95, 0.95P**	**PAGE 1 OF 1**

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