

NUP2114UCMR6

Ultra Low Capacitance Diode-TVS Array for High Speed Data Line Protection

The NUP2114UCMR6 transient voltage suppressor is designed to protect high speed data lines from ESD. Ultra-low capacitance and high level of ESD protection makes this device well suited for use in USB 2.0 high speed applications.

Features

- Low Capacitance (0.8 pF Maximum Between I/O Lines)
- ESD Rating of Class 3B (Exceeding 8 kV) per Human Body model and Class C (Exceeding 400 V) per Machine Model
- Protection for the Following IEC Standards:
IEC 61000-4-2 13 kV (contact)
- UL Flammability Rating of 94 V-0
- This is a Pb-Free Device

Typical Applications

- High Speed Communication Line Protection
- USB 2.0 High Speed Data Line and Power Line Protection
- Gigabit Ethernet
- Notebook Computers

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

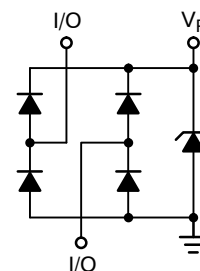
Rating	Symbol	Value	Unit
Operating Junction Temperature Range	T _J	-40 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C
Lead Solder Temperature – Maximum (10 Seconds)	T _L	260	°C
Human Body Model (HBM) Machine Model (MM) IEC 61000-4-2 Contact (ESD)	ESD	16000 400 13000	V

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.



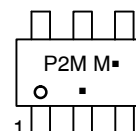
ON Semiconductor®

<http://onsemi.com>



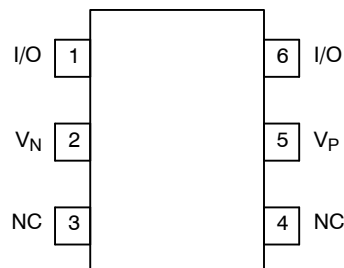
TSOP-6
CASE 318G

MARKING DIAGRAM



P2M = Specific Device Code
M = Date Code
■ = Pb-Free Package
(Note: Microdot may be in either location)

PIN CONNECTIONS



ORDERING INFORMATION

Device	Package	Shipping
NUP2114UCMR6T1G	TSOP-6 (Pb-Free)	3000/Tape & Reel

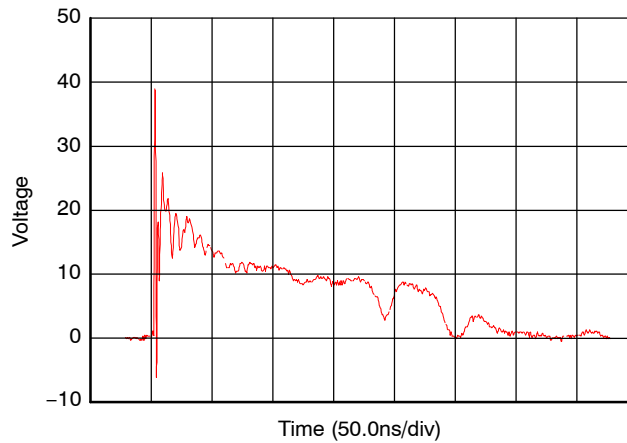
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

NUP2114UCMR6

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM}	(Note 1)			5.0	V
Breakdown Voltage	V _{BR}	I _T = 1 mA, (Note 2)	6.0	7.5		V
Reverse Leakage Current	I _R	V _{RWM} = 5 V			1.0	μA
Clamping Voltage	V _C	I _{PP} = 5 A (Note 3)		9.0		V
Clamping Voltage	V _C	I _{PP} = 8 A (Note 3)		10		V
Maximum Peak Pulse Current	I _{PP}	8x20 μs Waveform			19	A
Junction Capacitance	C _J	V _R = 0 V, f = 1 MHz between I/O Pins and GND		0.8	1.0	pF
Junction Capacitance	C _J	V _R = 0 V, f = 1 MHz between I/O Pins			0.5	pF

1. 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.
2. V_{BR} is measured at pulse test current I_T.
3. Nonrepetitive current pulse (Pin 5 to Pin 2)



**Figure 1. ESD Clamping Voltage
(8 kV Contact per IEC61000-4-2)**

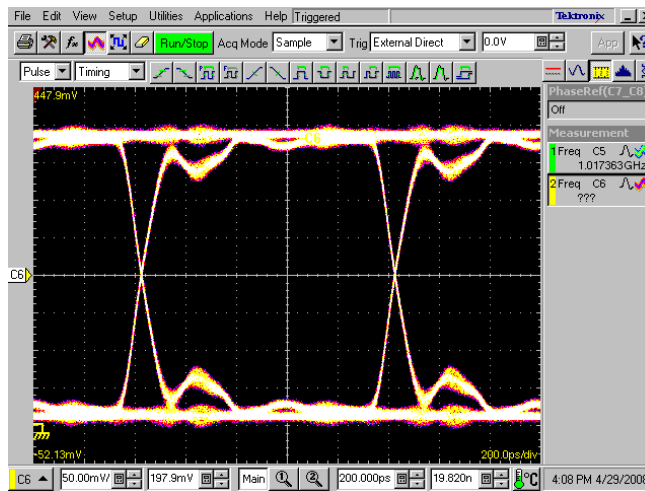
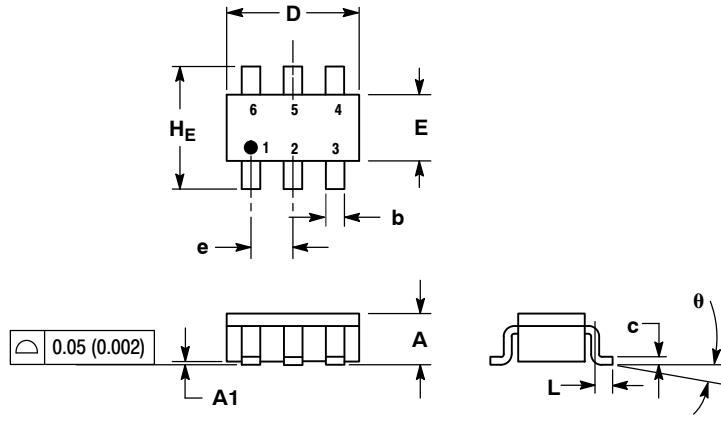


Figure 2. 500 MHz Data Pattern

NUP2114UCMR6

PACKAGE DIMENSIONS

TSOP-6
CASE 318G-02
ISSUE T

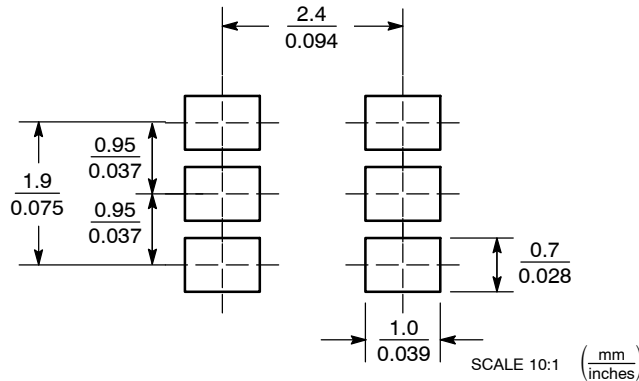


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.00	1.10	0.035	0.039	0.043
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.25	0.38	0.50	0.010	0.014	0.020
c	0.10	0.18	0.26	0.004	0.007	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	0.85	0.95	1.05	0.034	0.037	0.041
L	0.20	0.40	0.60	0.008	0.016	0.024
HE	2.50	2.75	3.00	0.099	0.108	0.118
θ	0°	-	10°	0°	-	10°

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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