www.Dat**NUC2401MN**

Integrated Common Mode Choke with Integrated ESD Protection

Description

The NUC2401MN is an Integrated Common Mode Filter for the elimination of common mode noise in high speed data line applications such as IEEE1394, USB2.0 and other LVDS type applications. ESD protection is integrated into the Common mode filter for superior protection and significant part count reduction.

Features

- Common mode EMI Filtering and ESD Protection
- Integration of 5 Discrete components
- ±12 kV ESD Protection per IEC61000-4-2 (Contact Discharge)
- DFN: 2.0 x 2.2 mm Package
- Moisture Sensitivity Level 1
- ESD Rating: Machine Model (MM) = 1.6 kV; Human Body Model (HBM) = 16 kV
- This is a Pb–Free Device

Benefits

- Reduces EMI/RFI Emissions on a Data Line
- Integrated Solution offers Cost and Space Savings
- Reduces Parasitic Inductances Which Offer a More "Ideal" Common Mode Filtering
- Integrated Solution Improves System Reliability

Applications

- High Speed Differential Data Lines
- USB2.0
- IEEE1394
- LVDS
- MIPI
- MDDI



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http://onsemi.com









(Note: Microdot may be in either location)





***NOTE:** Pins 1 and 9, Pins 2 and 10, Pins 7 and 11, Pins 8 and 12 are internally connected in pairs. It is recommended not to solder to Pins 9, 10, 11, 12.

ORDERING INFORMATION	
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Device	Package	Shipping [†]
NUC2401MNTAG	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 Specification Brochure, BRD8011/D.

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www.Data MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

Parameter	Symbol	Value	Units	
ESD Discharge IEC61000-4-2	Contact Discharge	V _{PP}	±12	kV
Operating Temperature Range	T _{OP}	-40 to 85	°C	
Storage Temperature Range	T _{STG}	-55 to 125	°C	
Maximum Lead Temperature for Soldering Purposes (1/8" from 0	ΤL	260	°C	
DC Current per Line	I _{LINE}	100	mA	

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.

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

Parameter	Symbol	Test Conditions	Min	Тур	Max	Unit
Maximum Reverse Working Voltage	V _{RWM}				5.0	V
Breakdown Voltage	V _{BR}	I _R = 1 mA	6.0	7.6	8.6	V
Leakage Current	I _R	V _{RWM} = 5.5 V			2.0	μΑ
Maximum Peak Pulse Current	I _{PP}	$8x20 \ \mu s$ Waveform		10	19	А
Clamping Voltage	V _C	I _{PP} = 5 A			10	V
Resistance Pin 1 to Pin 8	R _A			2.2	5.0	Ω
Resistance Pin 2 to Pin 7	R _B			2.2	5.0	Ω
Capacitance (Note 1)	C _{LINE} 1			0.8	1.0	pF
Capacitance (Note 2)	C _{LINE} 2			0.8	1.0	pF
Common Mode Cut-Off Frequency (Note 3)	f _{3dB}	(Above this Frequency, Appreciable Common Mode Attenuation Occurs)		40		MHz
Common Mode Impedance	Z _C	@ 100 MHz		90		Ω

1. Measured at 25°C, $V_R = 0 V$, f = 1 MHz, Pins 1 or 4 to GND. 2. Measured at 25°C, $V_R = 0 V$, f = 1 MHz, Pins 8 or 5 to GND. 3. 50 Ω source and 50 Ω load termination.



Frequency



Frequency

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Normal (Differential) Mode

Figure 3. Normal (Differential) Mode Test Configuration





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PACKAGE DIMENSIONS



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