

FEATURES

- RoHS compliant
- Power density 1.36W/cm³
- UL 94V-0 package material
- No heatsink required
- Industry standard pinout
- 1kVDC isolation
- Internal SMD construction
- Fully encapsulated with toroidal magnetics
- No external components required
- No electrolytic or tantalum capacitors

DESCRIPTION

The NMH0524DC DC/DC converter is ideally suited for providing dual rail supplies on single rail boards with the added benefit of galvanic isolation to reduce circuit noise.

SELECTION GUIDE								
Order Code	Nominal Input Voltage	Output Voltage	Output Current	Input Current at Rated Load	Efficiency	Isolation Capacitance	Package Style	Recommended Alternative
	V	V	mA	mA	%	pF		
NMH0524DC	5	±24	±42	476	84	TBD	DIP	NMG0524SC

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Voltage range	Continuous operation, 5V input types	4.5	5	5.5	V

OUTPUT CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Rated Power ¹	T _A =-40°C to 70°C			2	W
Voltage Set Point Accuracy	See tolerance envelope				
Line regulation	High V _{IN} to low V _{IN}		1.0	1.2	%/%
Load Regulation	10% load to rated load		3.5	10	%
Ripple and Noise	BW=DC to 20MHz		180	300	mV p-p

ISOLATION CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Isolation test voltage	Flash tested for 1 second	1000			VDC
Resistance	Viso= 500V	1	10		GΩ

GENERAL CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Switching frequency	5V input types		75		kHz

TEMPERATURE CHARACTERISTICS

Parameter	Conditions	Min.	Typ.	Max.	Units
Specification	All output types	-40		70	°C
Storage		-50		130	
Case Temperature above ambient			30		
Cooling	Free air convection				

ABSOLUTE MAXIMUM RATINGS

Lead temperature 1.5mm from case for 10 seconds	300°C
Internal power dissipation	850mW
Input voltage V _{IN}	7V

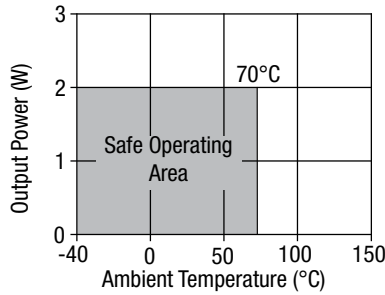
1. See derating graph.

All specifications typical at T_A=25°C, nominal input voltage and rated output current unless otherwise specified.

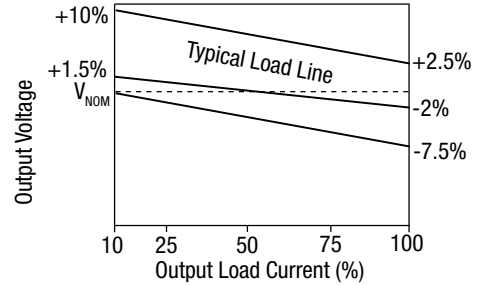


For full details go to www.murata-ps.com/rohs

TEMPERATURE DERATING GRAPH



TOLERANCE ENVELOPE



TECHNICAL NOTES

ISOLATION VOLTAGE

'Hi Pot Test', 'Flash Tested', 'Withstand Voltage', 'Proof Voltage', 'Dielectric Withstand Voltage' & 'Isolation Test Voltage' are all terms that relate to the same thing, a test voltage, applied for a specified time, across a component designed to provide electrical isolation, to verify the integrity of that isolation.

Murata Power Solutions NMH0524DC DC/DC converter is 100% production tested at their stated isolation voltage. This is 1kVDC for 1 second.

A question commonly asked is, "What is the continuous voltage that can be applied across the part in normal operation?"

For a part holding no specific agency approvals, such as the NMH0524DC, both input and output should normally be maintained within SELV limits i.e. less than 42.4V peak, or 60VDC. The isolation test voltage represents a measure of immunity to transient voltages and the part should never be used as an element of a safety isolation system. The part could be expected to function correctly with several hundred volts offset applied continuously across the isolation barrier; but then the circuitry on both sides of the barrier must be regarded as operating at an unsafe voltage and further isolation/insulation systems must form a barrier between these circuits and any user-accessible circuitry according to safety standard requirements.

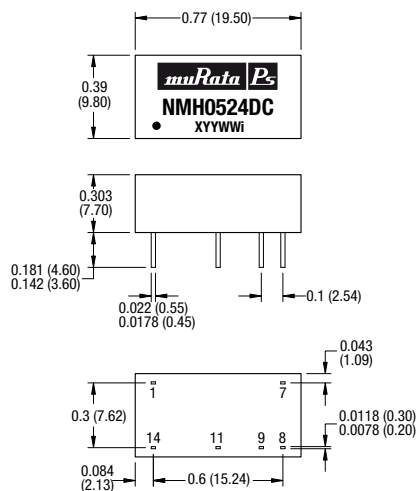
REPEATED HIGH-VOLTAGE ISOLATION TESTING

It is well known that repeated high-voltage isolation testing of a barrier component can actually degrade isolation capability, to a lesser or greater degree depending on materials, construction and environment. The NMH0524DC has a toroidal isolation transformer, with no additional insulation between primary and secondary windings of enameled wire. While parts can be expected to withstand several times the stated test voltage, the isolation capability does depend on the wire insulation. Any material, including this enamel (typically polyurethane) is susceptible to eventual chemical degradation when subject to very high applied voltages thus implying that the number of tests should be strictly limited. We therefore strongly advise against repeated high voltage isolation testing, but if it is absolutely required, that the voltage be reduced by 20% from specified test voltage.

This consideration equally applies to agency recognized parts rated for better than functional isolation where the wire enamel insulation is always supplemented by a further insulation system of physical spacing or barriers.

PACKAGE SPECIFICATIONS

MECHANICAL DIMENSIONS



All dimensions in inches ± 0.01 (mm ± 0.25 mm). All pins on a 0.1 (2.54) pitch and within ± 0.01 (0.25) of true position.

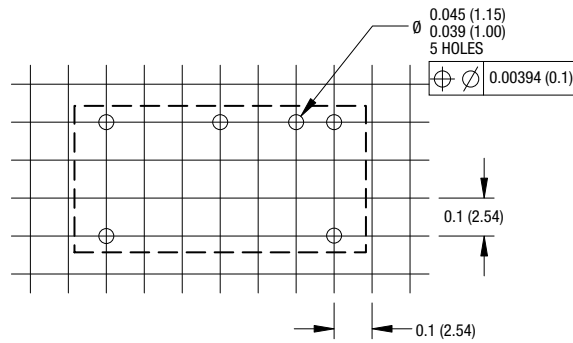
Weight: 2.85g

PIN CONNECTIONS

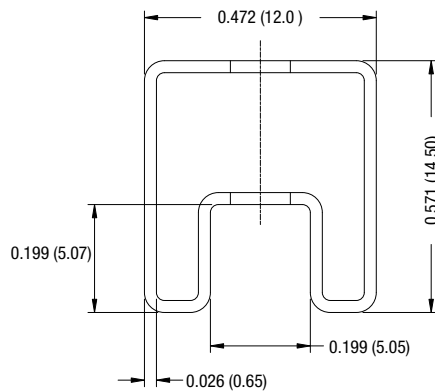
Pin	Function
1	-V _{IN}
7	NC
8	OV
9	+V _{OUT}
11	-V _{OUT}
14	+V _{IN}

PACKAGE SPECIFICATIONS (continued)

RECOMMENDED FOOTPRINT DETAILS



TUBE OUTLINE DIMENSIONS



Unless otherwise stated all dimensions in inches (mm) ± 0.5 mm.
Tube length (14 Pin DIP) : 20.47 (520mm ± 2 mm).

Tube Quantity : 25

RoHS COMPLIANCE INFORMATION



The NMH0524DC is compatible with RoHS soldering systems with a peak wave solder temperature of 300°C for 10 seconds. The pin termination finish on the SIP package type is Tin Plate, Hot Dipped over Matte Tin with Nickel Preplate. The DIP types are Matte Tin over Nickel Preplate. Both types in this series are backward compatible with Sn/Pb soldering systems. For further information, please visit www.murata-ps.com/rohs

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This product is subject to the following **operating requirements** and the **Life and Safety Critical Application Sales Policy**:
Refer to: <http://www.murata-ps.com/requirements/>

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