

## FEATURES

- 3kVDC Isolation (1 minute)
- Single or Dual Output
- Industry Standard Pinout
- Power Sharing on Dual Output
- Efficiency to 80%
- Power Density up to 0.90W/cm<sup>3</sup>
- 24V & 48V Input
- 5V, 9V, 12V and 15V Output
- Footprint from 1.17cm<sup>2</sup>
- UL 94V-0 Package Material
- No Heatsink Required
- Internal SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- No External Components Required
- Custom Solutions Available
- No Electrolytic or Tantalum Capacitors

## DESCRIPTION

The NMV Series offers single or dual output versions in the same size package as the popular NMA series. The higher isolation is particularly useful in control type applications where the standard 1kV is not sufficient.

## SELECTION GUIDE

Order Code	Nominal Input Voltage	Output Voltage	Output Current	Load Regulation (Max)	Ripple & Noise (Max)	Efficiency	Isolation Capacitance	MTTF <sup>1</sup>	Package Style
	(V)	(V)	(mA)	%	mV p-p	(%)	(pF)	kHrs	
<b>NMV2405DA</b>	24	5	200	15	150	70	33	201	DIP
<b>NMV2409DA</b>	24	9	111	10	150	80	40	185	
<b>NMV2412DA</b>	24	12	84	10	150	80	55	163	
<b>NMV2415DA</b>	24	15	67	10	150	80	70	136	
<b>NMV2405SA</b>	24	5	200	15	150	70	33	201	SIP
<b>NMV2409SA</b>	24	9	111	10	150	80	40	185	
<b>NMV2412SA</b>	24	12	84	10	150	80	55	163	
<b>NMV2415SA</b>	24	15	67	10	150	80	70	136	
<b>NMV4805DA</b>	48	5	200	15	150	70	48	213	DIP
<b>NMV4809DA</b>	48	9	111	10	150	70	59	194	
<b>NMV4812DA</b>	48	12	84	10	150	70	70	169	
<b>NMV4815DA</b>	48	15	67	10	150	70	81	140	
<b>NMV4805SA</b>	48	5	200	15	150	70	48	213	SIP
<b>NMV4809SA</b>	48	9	111	10	150	70	59	194	
<b>NMV4812SA</b>	48	12	84	10	150	70	70	169	
<b>NMV4815SA</b>	48	15	67	10	150	70	81	140	
<b>NMV2405D</b>	24	5	±100	15	150	80	45	194	DIP
<b>NMV2409D</b>	24	9	±55	10	150	70	52	166	
<b>NMV2412D</b>	24	12	±42	10	150	70	65	134	
<b>NMV2415D</b>	24	15	±33	10	150	70	70	101	
<b>NMV2405S</b>	24	5	±100	15	150	80	45	194	SIP
<b>NMV2409S</b>	24	9	±55	10	150	70	52	166	
<b>NMV2412S</b>	24	12	±42	10	150	70	65	134	
<b>NMV2415S</b>	24	15	±33	10	150	70	70	101	
<b>NMV4805D</b>	48	5	±100	15	150	70	45	205	DIP
<b>NMV4809D</b>	48	9	±55	10	150	70	58	175	
<b>NMV4812D</b>	48	12	±42	10	150	70	68	137	
<b>NMV4815D</b>	48	15	±33	10	150	70	75	102	
<b>NMV4805S</b>	48	5	±100	15	150	70	45	205	SIP
<b>NMV4809S</b>	48	9	±55	10	150	70	58	175	
<b>NMV4812S</b>	48	12	±42	10	150	70	68	137	
<b>NMV4815S</b>	48	15	±33	10	150	70	75	102	

i When operated **without** additional external load capacitance, the output voltage of the devices is guaranteed to be within 95% of its steady state value within 100ms after the input voltage has reached 95% of its steady state value, **irrespective of the rise time of the input voltage.**

ii When operated **with** additional external load capacitance the rise time of the input voltage will determine the maximum external capacitance value for guaranteed start up. The slower the rise time of the input voltage the greater the maximum value of the additional external capacitance for reliable start up.

## INPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Voltage Range	Continuous operation, 24V input types	21.6	24	26.4	V
	Continuous operation, 48V input types	43.2	48	52.8	

## OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Rated Power <sup>2</sup>	T <sub>A</sub> = 0°C to 70°C			1	W
Voltage Set Point Accuracy	See tolerance envelope				
Line Regulation	High V <sub>IN</sub> to low V <sub>IN</sub>			1.2	%/%

## ABSOLUTE MAXIMUM RATINGS

Short-circuit duration <sup>3</sup>	1 second
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage V <sub>IN</sub> , NMV24 types	28V
Input voltage V <sub>IN</sub> , NMV48 types	54V

1 Calculated using MIL-HDBK-217F with nominal input voltage at full load.

2 See derating curve

3 Supply voltage must be discontinued at the end of the short circuit duration.

All specifications typical at T<sub>A</sub>=25°C, nominal input voltage and rated output current unless otherwise specified.

# NMV 24V & 48V SERIES

3kVDC Isolated 1W Single & Dual Output DC-DC Converters

## ISOLATION CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Isolation Test Voltage	For 1 minute	3000			VDC
Resistance	Viso=1000VDC	1			G

## GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	All input types		100		kHz

## TEMPERATURE CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Specification	All output types	0		70	°C
Storage		-55		150	°C
Cooling	Free air convection				

## PIN CONNECTIONS

Single Output Variants

14 Pin DIP	
PIN	
1	GND
7	NC
8	+V
10	0V
14	V <sub>IN</sub>

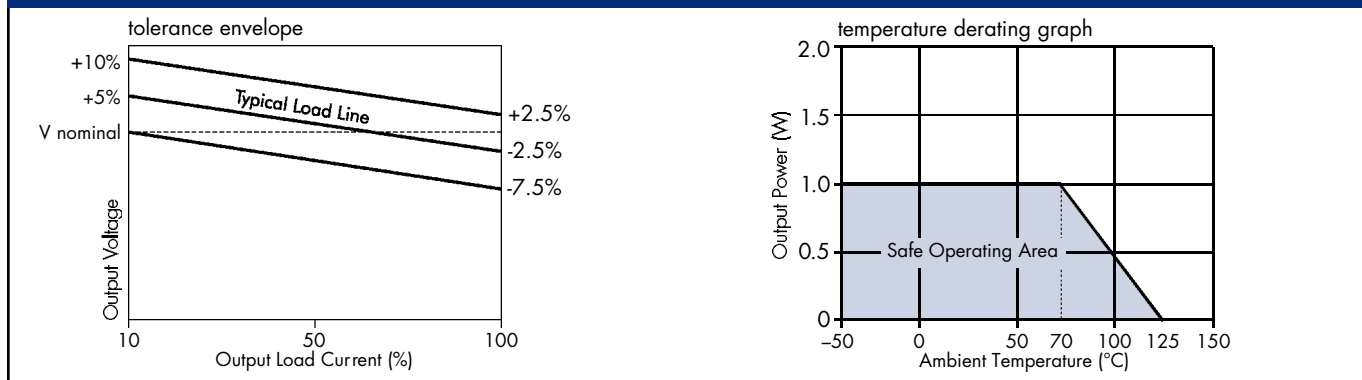
7 Pin SIP	
PIN	
1	V <sub>IN</sub>
2	GND
5	0V
7	+V

Dual Output Variants

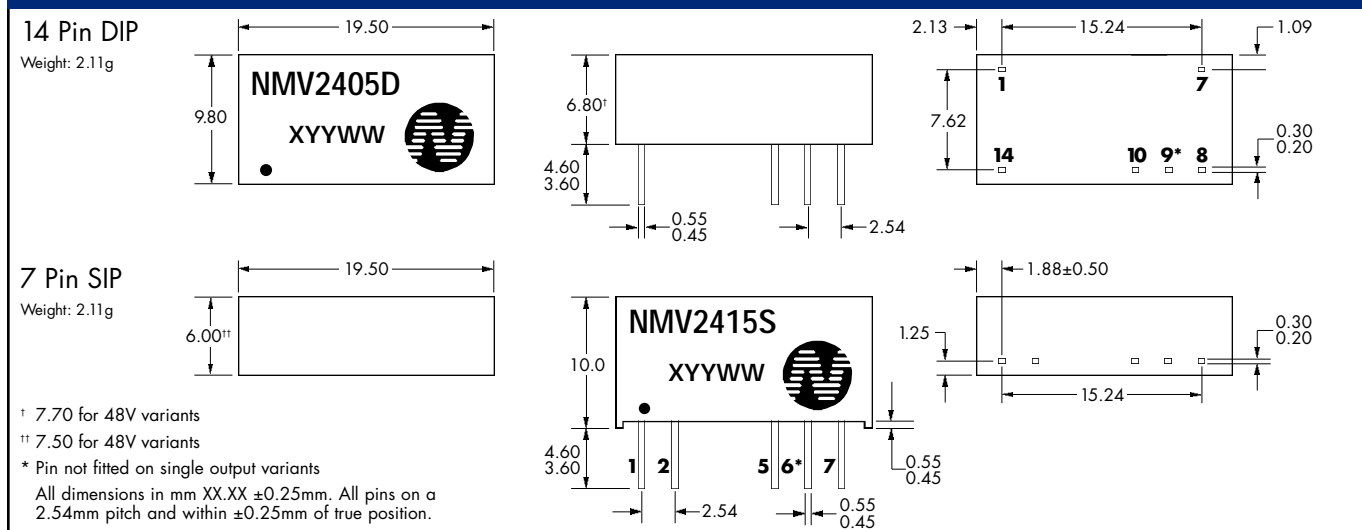
14 Pin DIP	
PIN	
1	GND
7	NC
8	+V
9	0V
10	-V
14	V <sub>IN</sub>

7 Pin SIP	
PIN	
1	V <sub>IN</sub>
2	GND
5	-V
6	0V
7	+V

## PERFORMANCE CHARACTERISTICS



## MECHANICAL DIMENSIONS



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