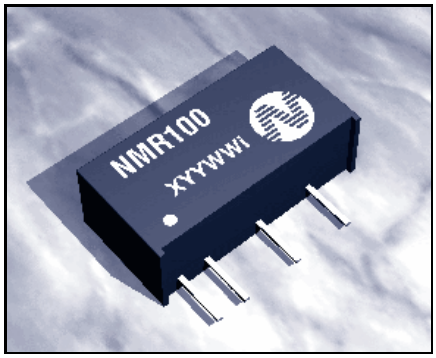
NMR SERIES

Isolated 1W Single Output DC-DC Converters



FEATURES

- Wide Temperature Performance at Full 1 Watt Load, –40°C to 85°C
- Industry Standard Pinout
- 1kVDC Isolation
- Efficiency to 79%
- Power Density up to 0.90W/cm^3
- 5V & 12V Input
- 5V, 12V & 15V Output
- Footprint of 1.17cm^2
- UL 94V-0 Package Material
- No Heatsink Required
- Internal SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- No External Components Required
- MTTF up to 1.6 Million Hours
- Custom Solutions Available
- No Electrolytic or Tantalum Capacitors

DESCRIPTION

The NMR series of industrial temperature range DC-DC converters are the standard building blocks for on-board distributed power systems. They are ideally suited for providing single rail supplies on primarily digital boards with the added benefit of galvanic isolation to reduce switching noise. Surface mount technology and advanced packaging materials produce rugged reliable performance over an extended temperature range from –40°C to 85°C.

SELECTION GUIDE

	Nominal Input Voltage	Output Voltage	Output Current	Input Current at Rated Load	Efficiency	Isolation Capacitance	MTTF[1]
Order Code	(V)	(V)	(mA)	(mA)	(%)	(pF)	kHrs
NMR100	5	5	200	290	69	28	1322
NMR101	5	12	83	260	77	33	235
NMR102	5	15	67	253	79	40	127
NMR106	12	5	200	121	69	36	515
NMR107	12	12	83	110	76	58	184
NMR108	12	15	67	110	76	56	111

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, 5V input types	4.5	5	5.5	V
	Continuous operation, 12V input types	10.8	12	13.2	
Reflected Ripple Current			40	60	mA p-p

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Rated Power[2]	T_A= –40°C to 85°C			1.0	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, 5V output types		12.5	13.4	%
	10% load to rated load, 12V output types		6.9	7.7	
	10% load to rated load, 15V output types		6.5	7.5	
Ripple & Noise	BW=DC to 20MHz		30	50	mV p-p

ABSOLUTE MAXIMUM RATINGS

Short-circuit duration[3]	1 second
Internal power dissipation	550mW
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage V_{IN}, NME05 types	7V
Input voltage V_{IN}, NME12 types	15V

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_A=25°C, nominal input voltage and rated output current unless otherwise specified.

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ISOLATION CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Isolation Test Voltage	Flash tested for 1 second	1000			VDC
Resistance	Viso=1000VDC		10		GΩ

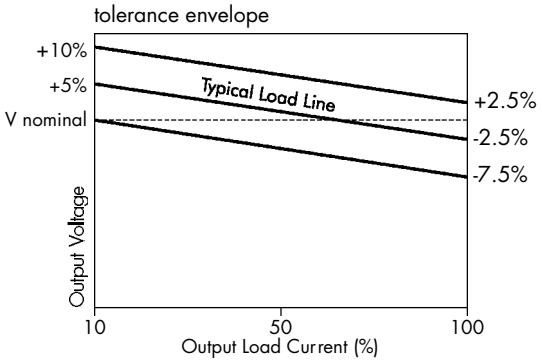
GENERAL CHARACTERISTICS

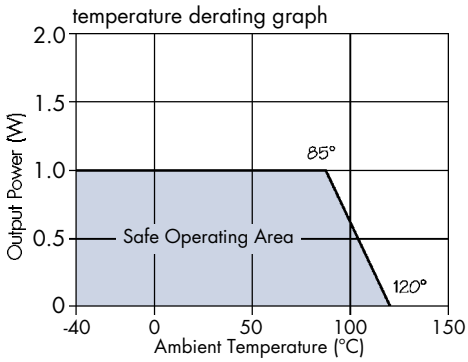
Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	5V input types		110		kHz
	12V input types		160		

TEMPERATURE CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Specification	All output types	-40		85	°C
Storage		-50		130	°C
Case Temperature Above Ambient	5V output types		33		°C
	All other output types		28		
Cooling	Free air convection				

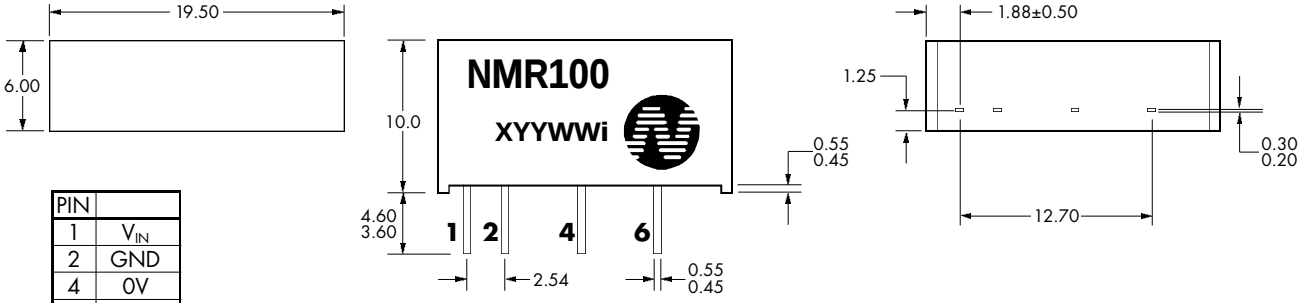
PERFORMANCE CHARACTERISTICS





MECHANICAL DIMENSIONS

7 Pin SIP



PIN	
1	V_{IN}
2	GND
4	0V
6	+V

Weight: 2.1g

All dimensions in mm XX.XX ±0.25mm. All pins on a 2.54mm pitch and within ±0.25mm of true position.

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