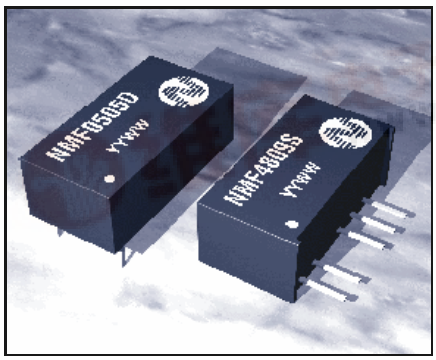
C&D TECHNOLOGIES
Power Solutions

NMF SERIES

Isolated 1W Regulated Single Output DC-DC Converters



FEATURES

- Output Regulation <1.5%
- Controllable Output
- 1kVDC Isolation
- Single Isolated Output
- SIP & DIP Package Styles
- Efficiency to 62%
- Power Density 0.85W/cm^3
- 5V, 12V, 24V & 48V Input
- 5V, 9V, 12V & 15V Output
- Footprint from 1.17cm^2
- UL 94V-0 Package Material
- No Heatsink Required
- SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- No External Components
- MTTF up to 2.4 Million hours
- PCB Mounting
- Custom Solutions Available

DESCRIPTION

The NMF series of DC-DC Converters is used where a tightly regulated supply is required. They are ideal for situations where the input voltage is not tightly controlled. The output control pin makes the device particularly suitable for Flash PROM applications where an on/off controlled voltage source is required.

SELECTION GUIDE

	Nominal Input Voltage	Output Voltage	Output Current	Power Out	Efficiency	Isolation Capacitance	MTTF[1]	Package Style[4]
Order Code	(V)	(V)	(mA)	(mW)	(%)	(pF)	kHrs	
NMF0505S	5	5	100	500	50	28	1307	SIP
NMF0509S	5	9	100	900	62	32	825	
NMF0512S	5	12	83	1000	62	33	512	
NMF0515S	5	15	67	1000	62	39	316	
NMF1205S	12	5	100	500	50	48	456	SIP
NMF1209S	12	9	100	900	62	63	379	
NMF1212S	12	12	83	1000	62	68	290	
NMF1215S	12	15	67	1000	62	69	218	
NMF2405S	24	5	100	500	50	84	843	SIP
NMF2409S	24	9	100	900	62	106	613	
NMF2412S	24	12	83	1000	62	132	422	
NMF2415S	24	15	67	1000	62	152	279	
NMF4805S	48	5	100	500	50	54	200	SIP
NMF4809S	48	9	100	900	62	75	283	
NMF4812S	48	12	83	1000	62	92	162	
NMF4815S	48	15	67	1000	62	109	135	

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	4.75	5	5.25	V
	Continuous operation, 12V input types	11.4	12	12.6	
	Continuous operation, 24V input types	22.8	24	25.2	
	Continuous operation, 48V input types	45.6	48	50.4	

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Rated Power[2]	T_A= 0°C to 70°C			1	W
Line Regulation	High V_{IN} to low V_{IN}		0.25		%/%
Load Regulation	10% load to rated load, 5V output types		0.9	1.5	%
Ripple & Noise	BW=DC to 20MHz, all output types		60		mVp-p

ABSOLUTE MAXIMUM RATINGS

Short-circuit duration[3]	1 second
Internal power dissipation	450mW
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage V_{IN}, NMF05 types	7V
Input voltage V_{IN}, NMF12 types	15V
Input voltage V_{IN}, NMF24 types	28V
Input voltage V_{IN}, NMF48 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.
4 Replace suffix "S" with "D" for DIP package style.

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=500VDC	0.1			GΩ

GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	All input types		80		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

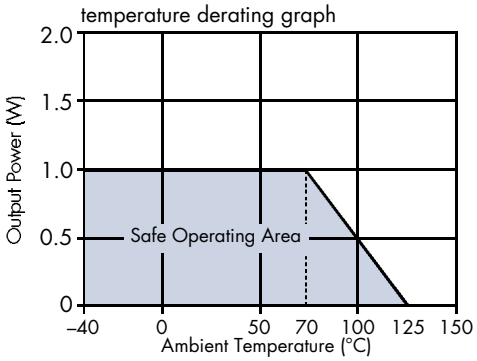
14 Pin DIP

PIN	
1	GND
9	+V REG
10	CTRL
11	0V
14	V_{IN}

7 Pin SIP

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

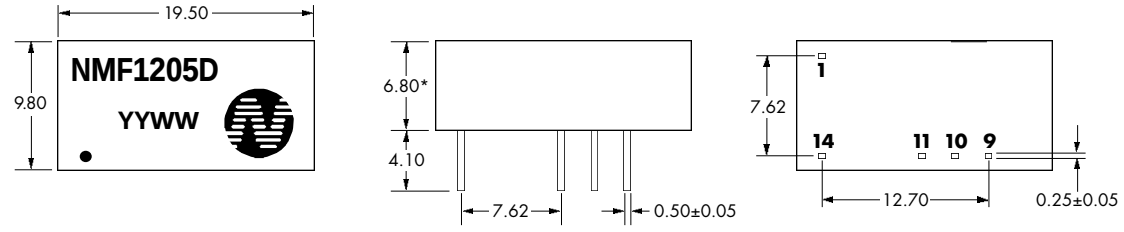
PERFORMANCE CHARACTERISTICS



MECHANICAL DIMENSIONS

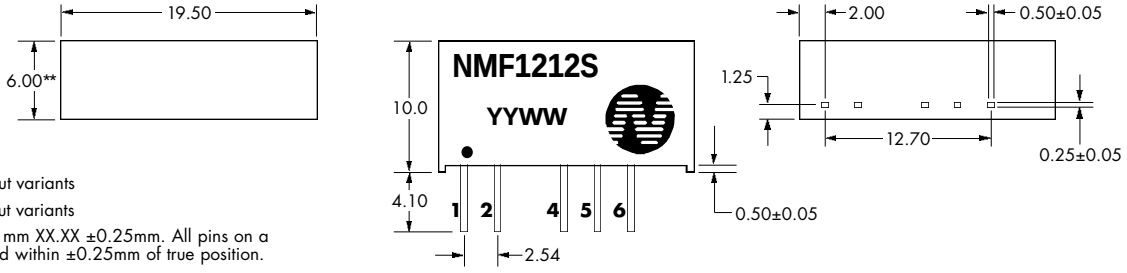
14 Pin DIP

Weight: 2.9g



7 Pin SIP

Weight: 2.3g



* 7.70 for 48V input variants

** 7.50 for 48V input variants

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

Instructions for use are available from www.dc-dc.com

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