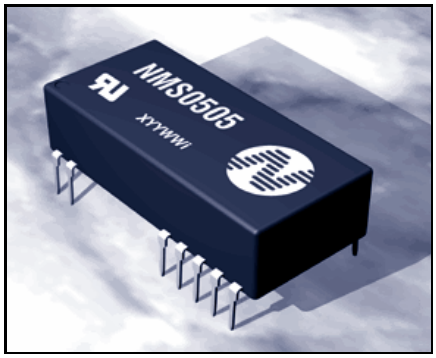
C&D TECHNOLOGIES
Power Solutions

NMS SERIES

6kVDC Isolated 2W Dual Output DC-DC Converters



FEATURES

- BS EN 60950 Certified
- UL 1950 Recognised
- 6kVDC Isolation
- Dual Outputs
- Low Profile Package
- Efficiency to 80%
- Power Density 0.48W/cm^3
- 5V & 12V Input
- 5V, 9V, 12V & 15V Output
- Footprint 4.75cm^2
- UL 94V-0 Package Material
- No Heatsink required
- Internal SMD Construction
- Toroidal Magnetics
- Fully Encapsulated
- MTTF up to 1.0 Million Hours
- PCB Mounting
- Custom Solutions Available

DESCRIPTION

The NMS Series of DC-DC Converters are UL 1950 recognised and fully certified to BS EN 60950, this makes them ideal for all Telecom and safety applications where approved isolation is required. The low profile package allows mounting in rack systems without risk of touching other boards. The output configuration allows all of the rated power to be drawn from a single pin provided the total load does not exceed 2 Watts. The devices feature low noise and low isolation capacitance suitable for applications in high noise enviroments, eg heavy electrical machine interface.

SELECTION GUIDE

	Nominal Input Voltage	Output Voltage	Output Current	Efficiency	Isolation Capacitance	MTTF[1]
Order Code	(V)	(V)	(mA)	(%)	(pF)	kHrs
NMS0505	5	±5	±200	74	1.8	747
NMS0509	5	±9	±111	76	1.9	327
NMS0512	5	±12	±83	77	2.0	169
NMS0515	5	±15	±67	78	2.1	93
NMS1205	12	±5	±200	78	1.9	365
NMS1209	12	±9	±111	81	2.0	224
NMS1212	12	±12	±83	82	2.1	136
NMS1215	12	±15	±67	82	2.2	82

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	

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Rated Power[2]	T_A= 0°C to 70°C			2	W
Voltage Set Point Accuracy	See tolerance envelope	–7.5		10	%
Line Regulation	High V_{IN} to low V_{IN}		1.0	1.2	%/%
Load Regulation	10% load to rated load, 5V output types		10	15	%
	10% load to rated load, 9V output types		6	15	
	10% load to rated load, 12V output types		6	15	
	10% load to rated load, 15V output types		6	15	
Ripple & Noise	BW=DC to 20MHz, all output types			200	mV p-p

ABSOLUTE MAXIMUM RATINGS

Short-circuit duration[3]	1 second
Internal power dissipation	900mW
Lead temperature 1.5mm from case for 10 seconds	300°C
Input voltage V_{IN}, NMS05 types	7V
Input voltage V_{IN}, NMS12 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	6000			VDC
Resistance	Viso=500VDC		10		GΩ

GENERAL CHARACTERISTICS

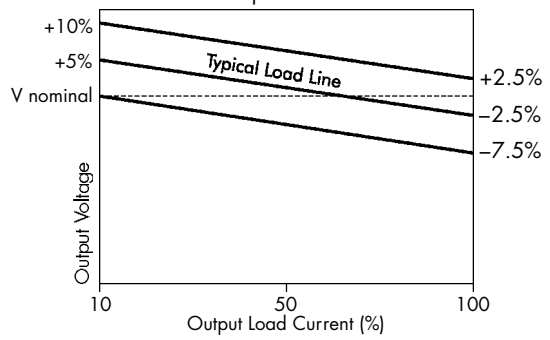
Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	All input types		35		kHz

TEMPERATURE CHARACTERISTICS

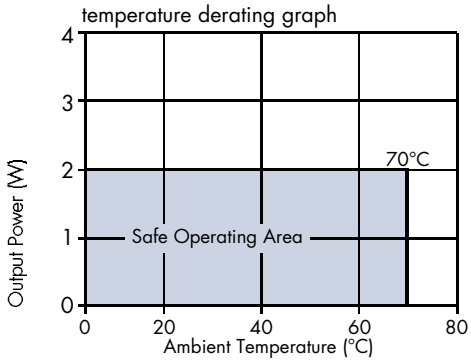
Parameter	Conditions	MIN	TYP	MAX	Units
Specification	All output types	0		70	°C
Storage		-50		130	°C
Case Temperature Above Ambient	All output types			32	°C
Cooling	Free air convection				

PERFORMANCE CHARACTERISTICS

tolerance envelope



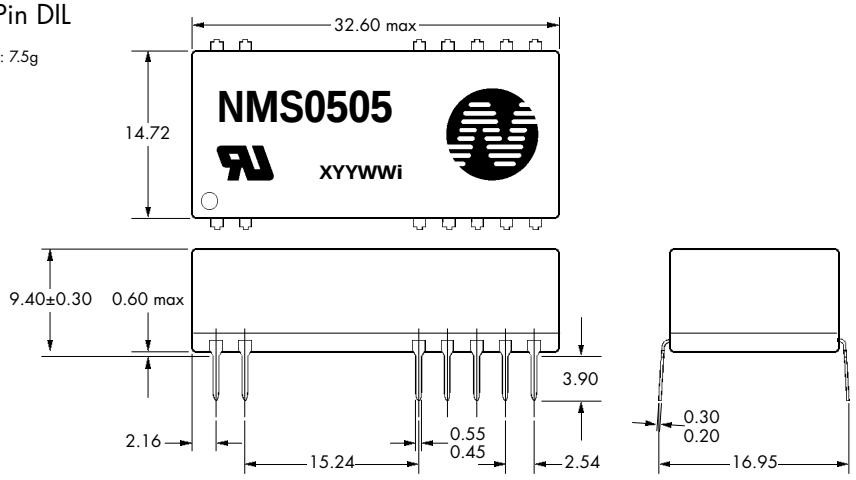
temperature derating graph



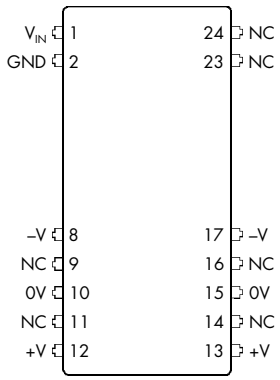
MECHANICAL DIMENSIONS

24 Pin DIL

Weight: 7.5g



Pin Connections (Top View)



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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