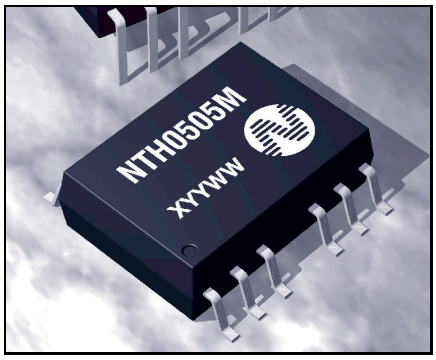
C&D TECHNOLOGIES
Power Solutions

NTH SERIES

Isolated 2W Dual Output SM DC-DC Converters



FEATURES

- Wide Temperature Performance at Full 2 Watt Load, –40°C to 85°C
- Lead Frame Technology
- CECC00802 Reflow (280°C)
- Dual Isolated Output
- 1kVDC Isolation
- Efficiency to 84%
- Power Density 1.54W/cm^3
- 5V & 12V Input
- 5V, 9V, 12V and 15V Output
- Footprint Over Pins 3.16cm^2
- UL 94V-0 Package Material
- No Heatsink Required
- Internal SMD Construction
- MTTF up to 2.1 Million Hours
- Custom Solutions Available
- Multi Layer Ceramic Capacitors
- Lead Free Compatible

DESCRIPTION

The NTH series of miniature surface mounted DC-DC Converters employ leadframe technology and transfer moulding techniques to bring all of the benefits of IC style packaging to hybrid circuitry. The component lead termination of this product range is lead-free compatible, therefore the converter can be soldered in a lead-free soldering process. The devices are fully compatible with CECC00802 to 280°C which allows them to be placed and reflowed with IC's, thus reducing time and cost in production. Co-planarity of the lead positions is based upon IEC 191-6:1990. The devices are suitable for all applications where high volume production is envisaged.

SELECTION GUIDE

	Nominal Input Voltage	Output Voltage	Output Current	Input Current at Rated Load	Efficiency	Isolation Capacitance	MTTF[1]
Order Code[5]	(V)	(V)	(mA)	(mA)	(%)	(pF)	kHrs
NTH0505M	5	5	±200	500	80	24	1547
NTH0509M	5	9	±111	494	81	28	663
NTH0512M	5	12	±83	488	82	30	338
NTH0515M	5	15	±67	476	84	33	187
NTH1205M	12	5	±200	208	80	35	490
NTH1209M	12	9	±111	201	83	55	343
NTH1212M	12	12	±83	198	84	63	229
NTH1215M	12	15	±67	198	84	66	148

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	5V input types		50		mA p-p
	12V input types		70		

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Rated Power[2]	T_A = – 40°C to 85°C			2.0	W
Output Voltage Accuracy	NTH0505	–5.0		7.5	%
	All other variants	–5.0		5.0	
Line regulation	High V_{IN} to low V_{IN}		1.0	1.2	%/%
Load Regulation[3]	10% load to rated load, 5V output types		5.0	10	%
	10% load to rated load, 9V,12V & 15V output types		3.0	10	
Ripple and Noise	BW=DC to 20MHz, 5V output types		150	200	mV p-p
	BW=DC to 20MHz, 9V output types		100	150	
	BW=DC to 20MHz, 12V output types		80	150	
	BW=DC to 20MHz, 15V output types		70	150	

ABSOLUTE MAXIMUM RATINGS

Short circuit duration[4]	1second
Internal power dissipation	550mW
Lead temperature 1.5mm from case for 10 seconds	300°C
Input Voltage V_{IN} , NTH05 types	7V
Input voltage V_{IN} , NTH12 types	15V

ISOLATION CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Isolation Test Voltage	Flash tested for 1 second	1000			VDC
Resistance	Viso=500VDC	1	10		GΩ

GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	All 5V input types		95		kHz
	All 12V input types		90		

1 Calculated using MIL-HDBK-217F with nominal input voltage at full load.
2 See derating curve.
3 12V input types have typically 3% less load regulation change.
4 Supply voltage must be discontinued at the end of the short circuit duration.
5 If components are required in tape and reel format suffix order code with -R, e.g. NTH0505M-R
All specifications typical at T_A=25°C, nominal input voltage and rated output current unless otherwise specified.