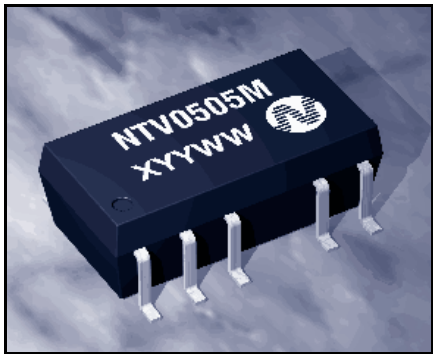
NTV SERIES

3kVDC Isolated 1W Dual Output SM DC-DC Converters



FEATURES

- 3kVDC Isolation (1 Minute)
- Wide Temperature Performance at Full 1 Watt Load, -40°C to 85°C
- Lead Frame Technology
- CECC00802 Reflow (280°C)
- Dual Isolated Output
- Efficiency to 82%
- Power Density 1.5W/cm^3
- 5V & 12V Input
- 5V, 9V, 12V and 15V Output
- Footprint Over Pins 1.64cm^2
- UL 94V-0 Package Material
- No Heatsink Required
- Internal SMD Construction
- Toroidal Magnetics
- Plastic Encapsulated
- MTTF up to 2.1 Million Hours
- Custom Solutions Available
- Multi Layer Ceramic Capacitors
- Lead Free Compatibility
- Tape and Reel Option

DESCRIPTION

The NTV series of 3kV isolation 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 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. The co-planarity of the pin 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]
OrderCode[5]	(V)	(V)	(mA)	(mA)	(%)	(pF)	kHrs
NTV0505M	5	5	±100	282	71	33	1697
NTV0509M	5	9	±55	260	77	38	682
NTV0512M	5	12	±42	253	79	44	343
NTV0515M	5	15	±33	250	80	43	188
NTV1205M	12	5	±100	114	73	50	559
NTV1209M	12	9	±55	105	79	72	375
NTV1212M	12	12	±42	104	80	89	243
NTV1215M	12	15	±33	101	82	100	154

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			41	47	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[3]	10% load to rated load, 5V output types		10	12	%
	10% load to rated load, 9V output types		6.5	8.0	
	10% load to rated load, 12V output types		6.0	8.5	
	10% load to rated load, 15V output types		6.0	7.0	
Ripple and Noise	BW=DC to 20MHz, 5V output types		50	75	mV p-p
	BW=DC to 20MHz, 9V output types		40	65	
	BW=DC to 20MHz, 12V output types		40	60	
	BW=DC to 20MHz, 15V output types		40	60	

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} , NTV05 types	7V
Input voltage V_{IN} , NTV12 types	15V

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. NTV0505M-R.
All specifications typical at T_A=25°C, nominal input voltage and rated output current unless otherwise specified.

NTV SERIES

3kVDC Isolated 1W Dual Output SM DC-DC Converters

ISOLATION CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Isolation Test Voltage	For 1 Minute	3000			VDC
Resistance	Viso=1000VDC	10			GΩ

GENERAL CHARACTERISTICS

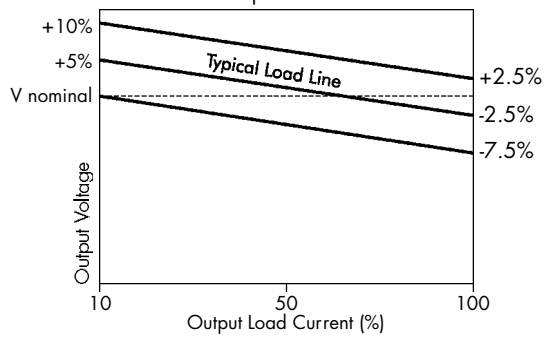
Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	5V input types		115		kHz
	12V input types		115		

TEMPERATURE CHARACTERISTICS

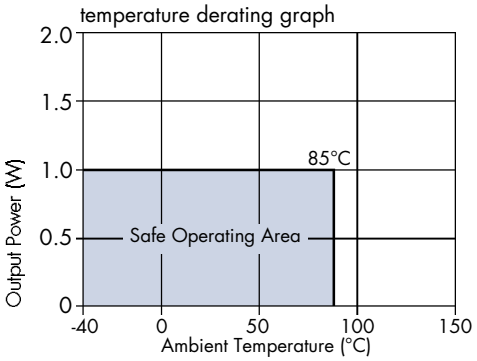
Parameter	Conditions	MIN	TYP	MAX	Units
Specification	All output types	-40		85	°C
Storage		-55		125	°C
Case Temperature above ambient	5V output types		46		°C
	All other output types		35		
Cooling	Free air convection				

PERFORMANCE CHARACTERISTICS

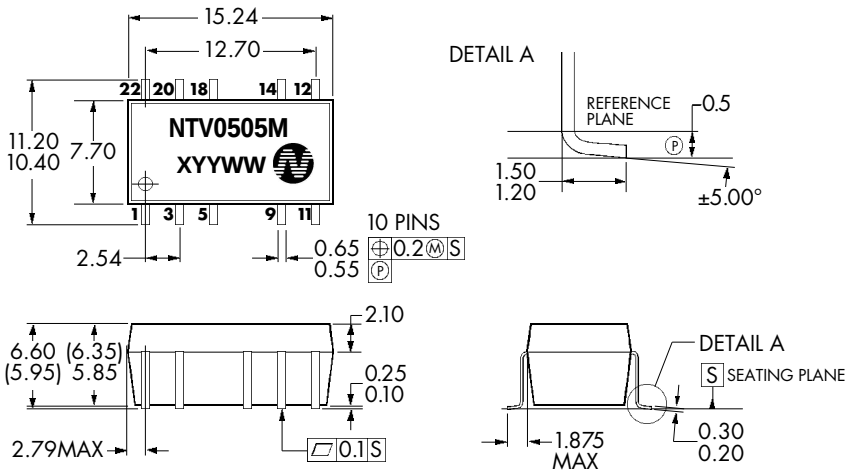
tolerance envelope



temperature derating graph



MECHANICAL DIMENSIONS



PIN	
1	GND
3	V_{IN}
5	NA
9	0V
11	-V
12	NA
14	+V
18	NA
20	NA
22	NA

Weight: 1.53g

For tape and reeling packaging details refer to datasheet NDCAN002.1

All dimensions in mm XX.XX ±0.25mm. All pins on a 2.54mm pitch.

C&D Technologies (NCL) Limited reserve the right to alter or improve the specification, internal design or manufacturing process at any time, without notice. Please check with your supplier or visit our web site to ensure that you have the current and complete specification for your product before use.

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