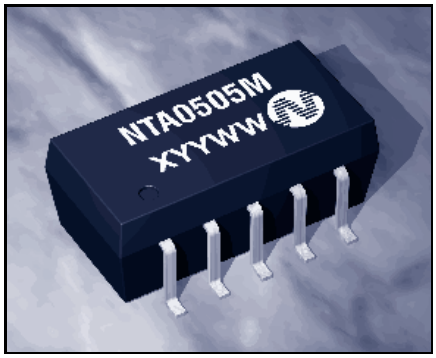
NTA SERIES

Isolated 1W Dual Output SM DC-DC Converters



FEATURES

- Wide Temperature Performance at Full 1Watt Load, -40°C to 85°C
- Lead Frame Technology
- CECC00802 Reflow (280°C)
- Dual Isolated Output
- 1kVDC Isolation
- Efficiency to 78%
- Power Density 1.36W/cm^3
- 3.3V, 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 1.69 Million Hours
- Custom Solutions Available
- Multi Layer Ceramic Capacitors
- Lead Free Compatible

DESCRIPTION

The NTA 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 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]
OrderCode[5]	(V)	(V)	(mA)	(mA)	(%)	(pF)	kHrs
NTA0312M	3.3	12	±42	390	77	40	375
NTA0315M	3.3	15	±33	392	77	42	206
NTA0505M	5	5	±100	290	69	33	1697
NTA0509M	5	9	±55	267	75	38	682
NTA0512M	5	12	±42	260	77	44	343
NTA0515M	5	15	±33	256	78	43	188
NTA1205M	12	5	±100	121	69	50	559
NTA1209M	12	9	±55	113	74	72	375
NTA1212M	12	12	±42	111	75	89	243
NTA1215M	12	15	±33	110	76	100	154

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, 3.3V input types	2.97	3.3	3.63	V
	Continuous operation, 5V input types	4.5	5	5.5	
	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, NTA0312M, NTA0315M		11	14	%
	10% load to rated load, 5V output types		10	12	
	10% load to rated load, 9V output types		6.5	8	
	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	100	mV p-p
	BW=DC to 20MHz, 9V output types		35	80	
	BW=DC to 20MHz, 12V output types		50	110	
	BW=DC to 20MHz, 15V output types		65	110	

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} , NTA03 types	5.5V
Input Voltage V_{IN} , NTA05 types	7V
Input voltage V_{IN} , NTA12 types	15V

1 Calculated using MIL-HDBK-217F with nominal input voltage at full load at 25°C.
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. NTA0505M-R
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

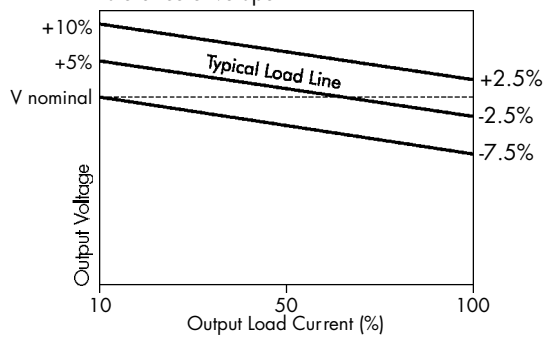
Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	3V input types		100		kHz
	5V & 12V input types		115		

TEMPERATURE CHARACTERISTICS

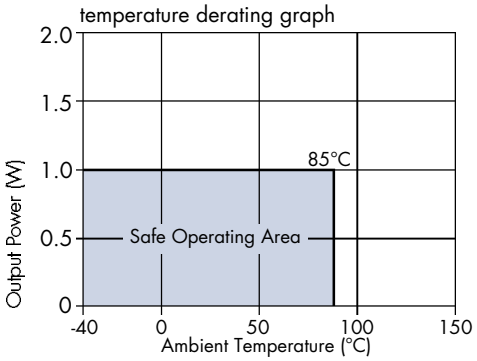
Parameter	Conditions	MIN	TYP	MAX	Units
Specification	All output types	-40		85	°C
Storage		-55		125	°C
Case Temperature above ambient	NTA312M, NTA0315M		19		°C
	5V output types		46		
	All other output types		35		
Cooling	Free air convection				

PERFORMANCE CHARACTERISTICS

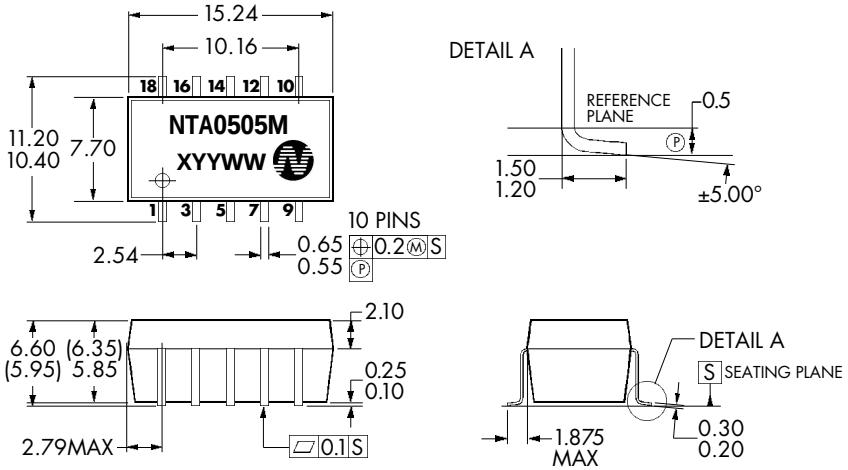
tolerance envelope



temperature derating graph



MECHANICAL DIMENSIONS



PIN	
1	GND
3	V_{IN}
5	NA
7	0V
9	-V
10	NA
12	+V
14	NA
16	NA
18	NA

NA –Not for electrical connection

Weight: 1.53g

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

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

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