

FEATURES

- Wide Temperature Performance at Full 1Watt Load, -40°C to 85°C
- Lead Frame Technology
- Maximum Reflow Temperature 280°C
- Dual Isolated Output
- 1kVDC Isolation
- Efficiency to 78%
- Power Density 1.36W/cm³
- 5V & 12V Input
- 5V, 9V, 12V and 15V Output
- Footprint Over Pins 1.64cm²
- 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 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
Order Code ⁵	(V)	(V)	(mA)	(mA)	(%)	(pF)	kHrs
NTA0303M	3.3	3.3	±163	402	75	29	1005
NTA0305M	3.3	5.0	±100	388	78	30	399
NTA0309M	3.3	9.0	±55	405	75	34	827
NTA0312M	3.3	12	±42	390	77	40	375
NTA0315M	3.3	15	±33	392	77	42	206
NTA0503M	5	3.3	±163	259	77	31	964
NTA0505M	5	5	±100	290	69	33	1697
NTA0505ME	5	5	±100	251	80	42	367
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

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, 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	50	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, 0303M & 0503M		10	15	%
	10% load to rated load, 5V output types		10	12	
	10% load to rated load, 0309M		9.0	10	
	10% load to rated load, 0509M & 1209M		6.5	8.0	
	10% load to rated load, 0312M & 0315M		11	14	
	10% load to rated load, 0512M & 1212M		6.0	8.5	
	10% load to rated load, 0515M & 1215M		6.0	7.0	
Ripple and Noise	BW=DC to 20MHz, 3.3V output types, NTA0305 & NTA0505ME		40	80	mV p-p
	BW=DC to 20MHz, all other 5V output types		50	100	
	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	1 second
Internal power dissipation	700mW
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.

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.

NTA SERIES

Isolated 1W Dual Output SM DC/DC Converters

ISOLATION CHARACTERISTICS

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

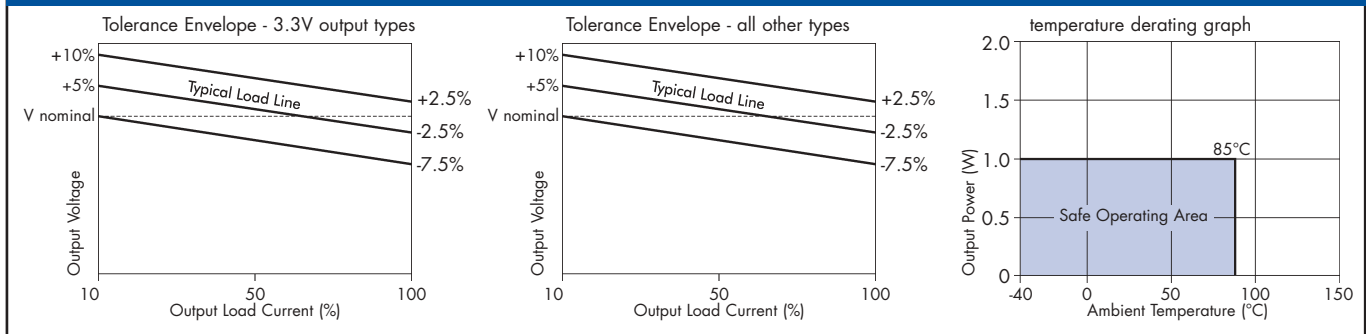
GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	0312M, 0315M		100		kHz
	0303M, 0305M, 0503M, 0505ME		110		
	All other variants		115		

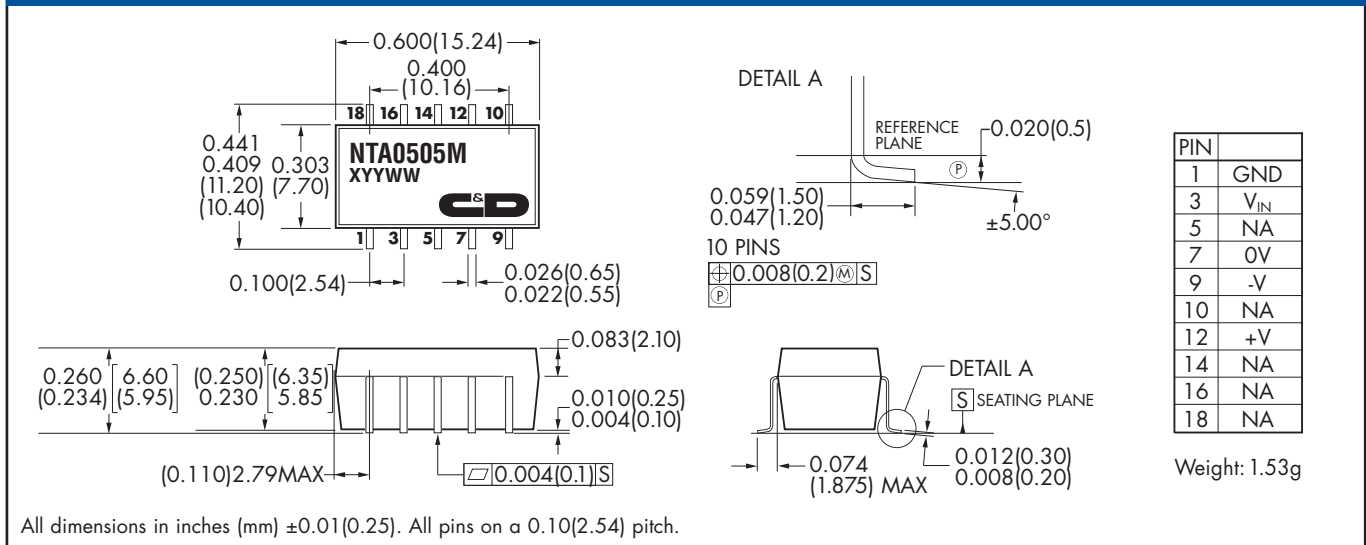
TEMPERATURE CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Specification	All output types	-40		85	°C
Storage		-55		125	°C
Case Temperature above ambient	0305M, 0505ME, 0312M, 0315M		19		°C
	0303M, 0309M, 0503M		25		
	0505M, 1205M		46		
	All other variants		35		
Cooling	Free air convection				

PERFORMANCE CHARACTERISTICS



MECHANICAL DIMENSIONS



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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