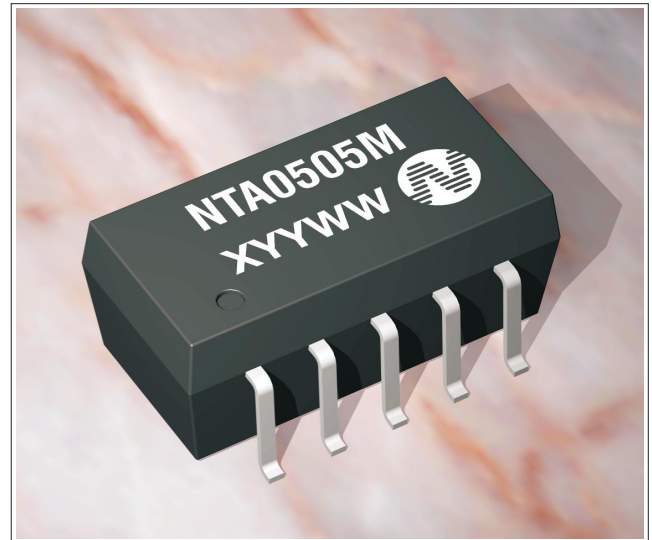


features

- Wide Temperature Performance at Full 1 Watt Load, -40°C to 85°C
- Lead Frame Technology
- CECC00802 Reflow (280°C)
- Dual Isolated Output
- 1kVDC Isolation
- Efficiency to 78%
- Power Density $1.36\text{W}/\text{cm}^3$
- 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
- MTF up to 2.1 Million Hours
- Custom Solutions Available
- Multi Layer Ceramic Capacitors

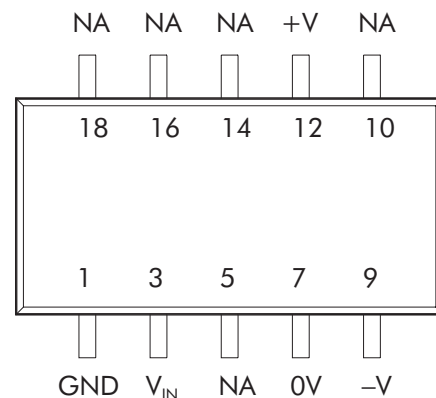
description

The NTA series of miniature surface mounted DC-DC Converters employ lead-frame 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



pin connections

18 Pin SMD (top view)



NA - Not available for electrical connection

PRELIMINARY

Notice : This is not a final specification.
Some parametric limits may be subject to change.

NTA SERIES

Isolated 1W Dual Output SM DC-DC Converters

absolute maximum ratings

Short circuit duration ¹ · · · · ·	1 second
Internal power dissipation · · · · ·	550mW
Lead temperature 1.5mm from case for 10 seconds · · · · ·	300°C
Input Voltage V_{IN} , NMA05 types · · · · ·	7V
Input voltage V_{IN} , NMA12 types · · · · ·	15V

family characteristics - input

Specifications typical at $T_A=25^\circ\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	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

family characteristics - output

Specifications typical at $T_A=25^\circ\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Rated Power ²	$T_A = -40^\circ\text{C}$ 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	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	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	

1 Supply voltage must be discontinued at the end of the short circuit duration.
 2 See derating curve.

family characteristics - isolation

Specifications typical at $T_A=25^{\circ}\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Isolation Voltage	Flash tested for 1 second	1000			VDC
Test Voltage	50Hz, 10 seconds	1000			V _{pk}
Resistance	Viso=1000V	10			GΩ

family characteristics - general

Specifications typical at $T_A=25^{\circ}\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	MAX	Units
Switching Frequency	V _{IN} 5V types		115		kHz
	V _{IN} 12V types		115		
Package Weight			1.53		g

family characteristics - temperature

Specifications typical at $T_A=25^{\circ}\text{C}$, nominal input voltage and rated output current unless otherwise specified

Parameter	Conditions	MIN	NOM	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		
Temperature Cycling	MIL-STD 883E method 1010 200 cycles, -55°C to 125°C			0	Failures

NTA SERIES

Isolated 1W Dual Output SM DC-DC Converters

family characteristics - mean time to failure (MTTF)¹

Part Number	-40°C	25°C	85°C	Units
NTA0505M	2068	1697	1368	kHrs
NTA0509M	652	682	567	
NTA0512M	412	343	287	
NTA0515M	226	188	158	
NTA1205M	675	559	464	kHrs
NTA1209M	452	375	314	
NTA1212M	292	243	204	
NTA1215M	184	154	129	

electrical specifications

Specifications typical at T_A=25°C, nominal input voltage and rated output current unless otherwise specified

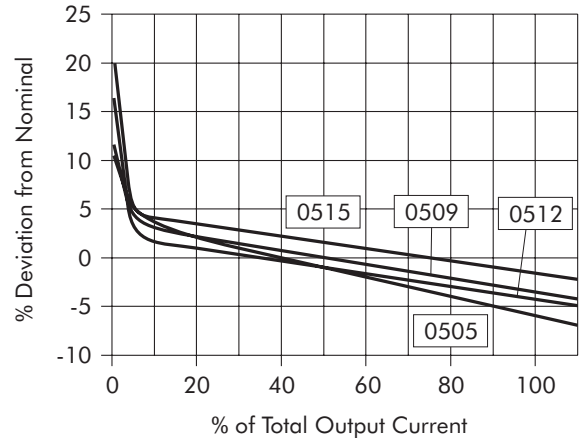
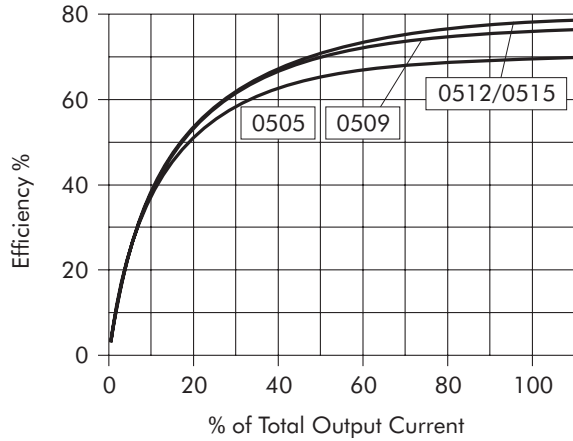
Order Code	Nominal Input Voltage	Output Voltage	Output Current	Input Current at Rated Load	Efficiency	Isolation Capacitance
	(V)	(V)	(mA)	(mA)	(%)	(pF)
NTA0505M	5	5	±100	290	69	33
NTA0509M	5	9	±55	267	75	38
NTA0512M	5	12	±42	260	77	44
NTA0515M	5	15	±33	256	78	43
NTA1205M	12	5	±100	121	69	50
NTA1209M	12	9	±55	113	74	72
NTA1212M	12	12	±42	111	75	89
NTA1215M	12	15	±33	110	76	100

- i When operated **without** additional external load capacitance, the output voltage of the NTA 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.

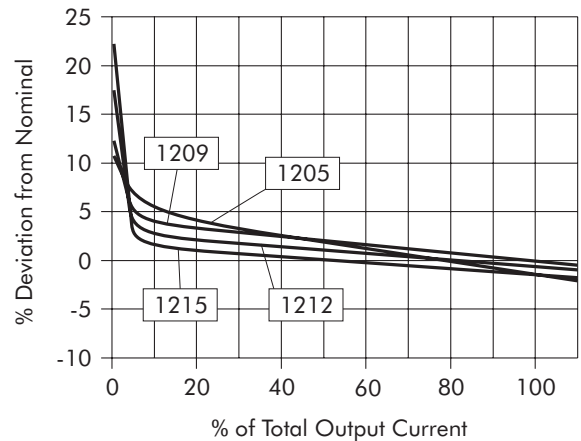
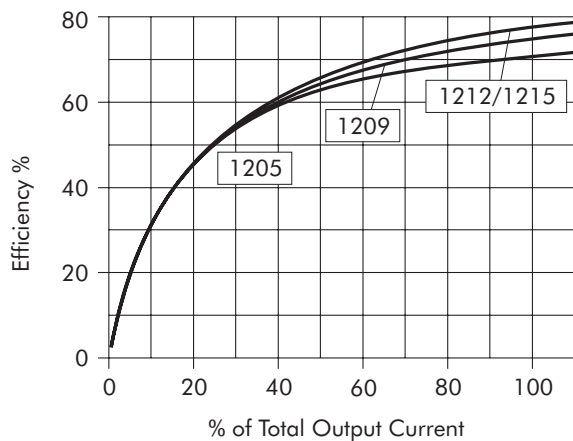
¹ Calculated using MIL-HDBK-217F with nominal input voltage at full load.

typical characteristics¹

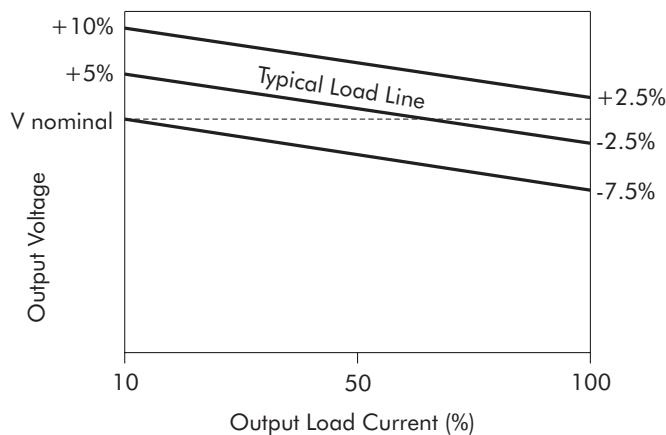
NTA05 series



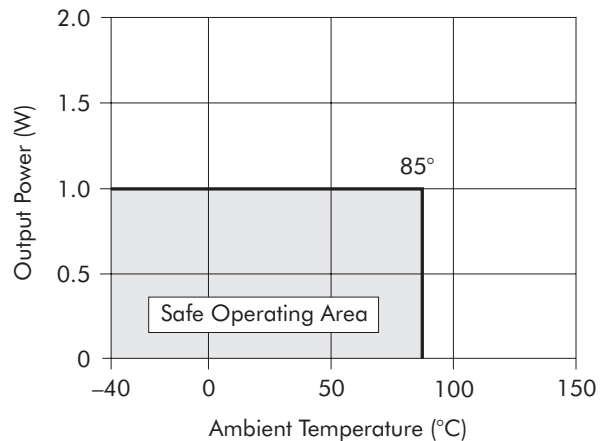
NTA12 series



tolerance envelope



temperature derating graph



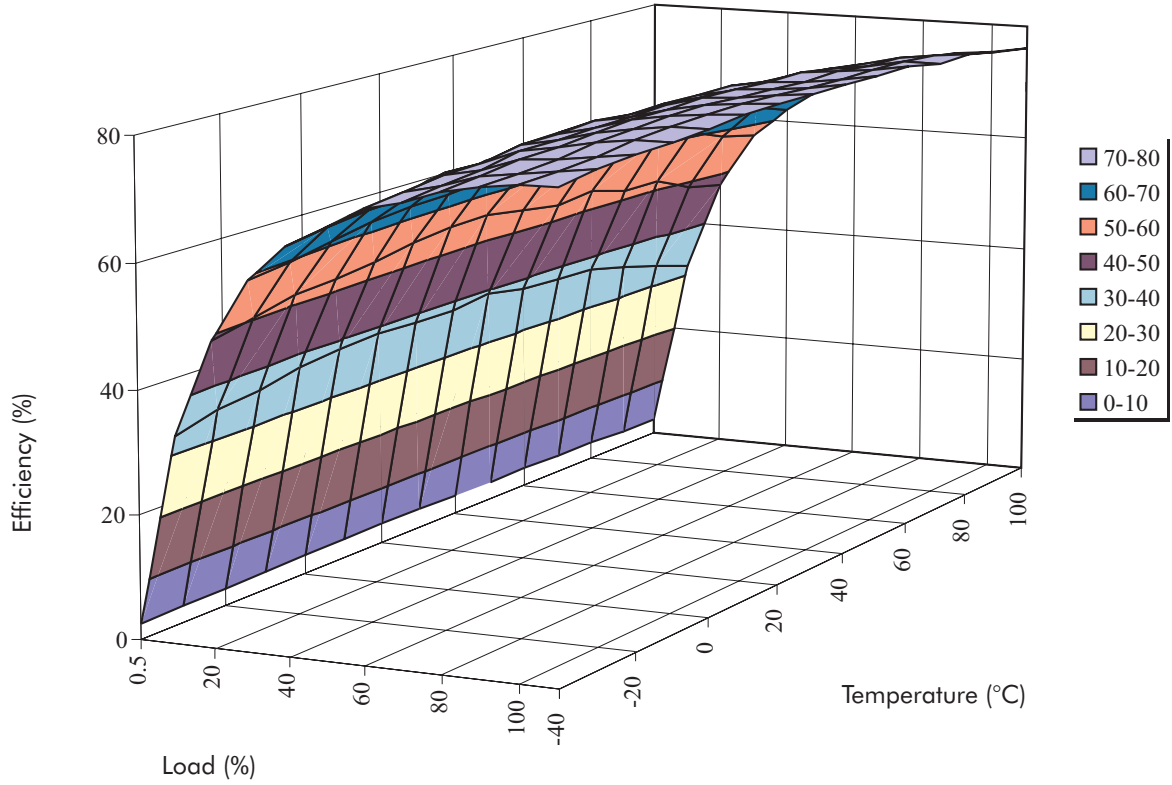
¹ All data taken at $T_A=25^\circ\text{C}$

NTA SERIES

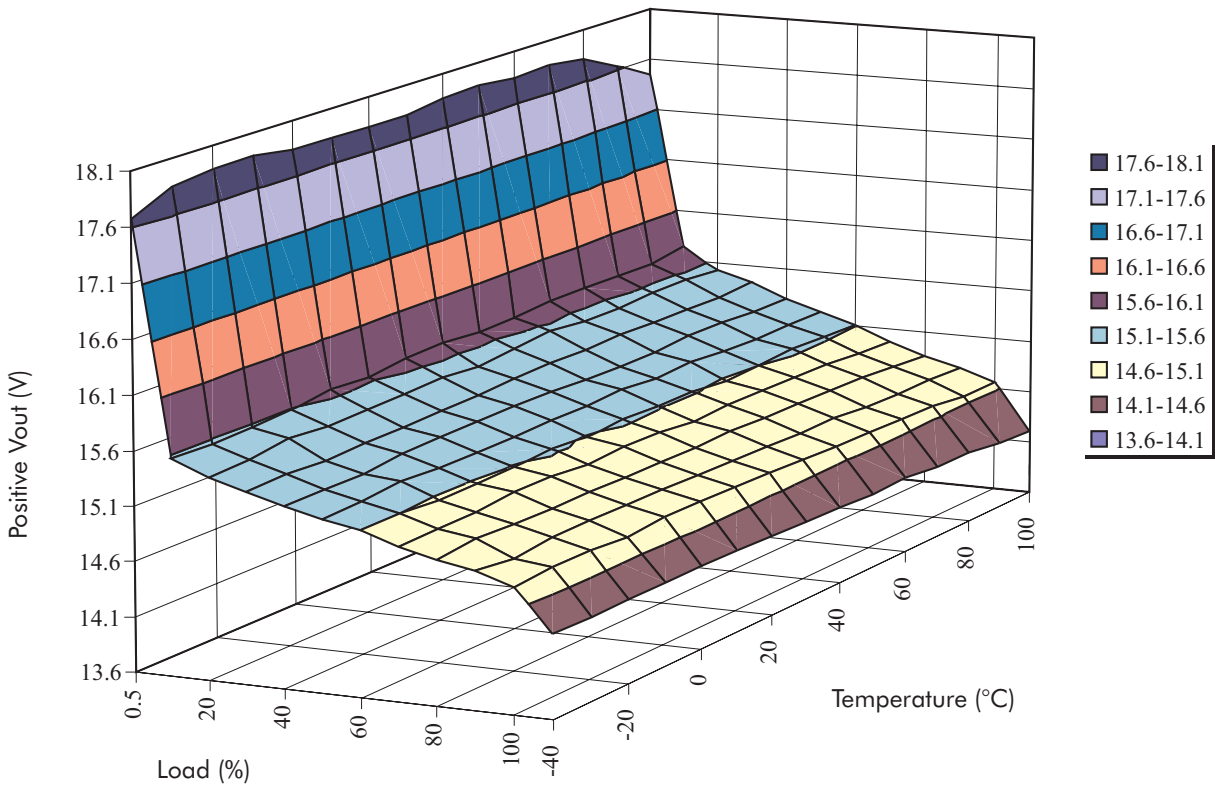
Isolated 1W Dual Output SM DC-DC Converters

typical characteristics

efficiency versus load - temperature surface

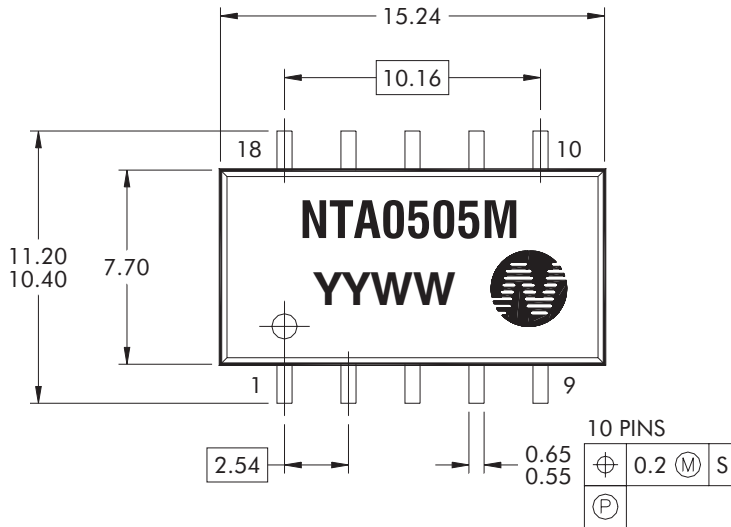


output voltage versus load - temperature surface

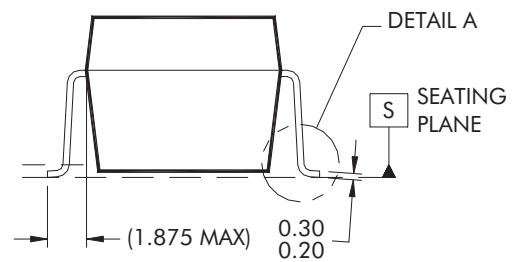
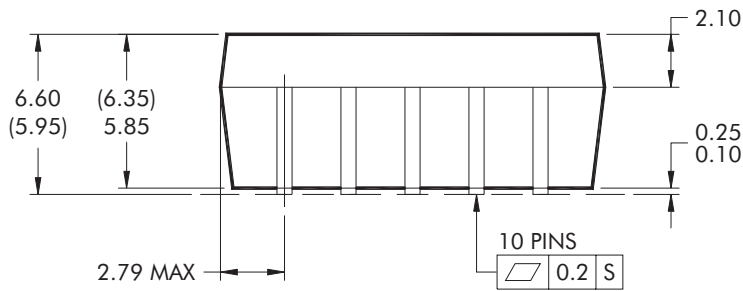
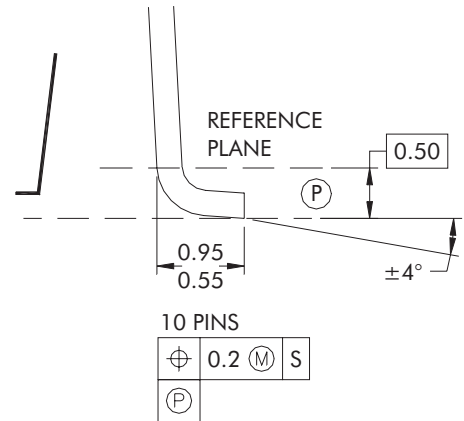


outline dimensions¹

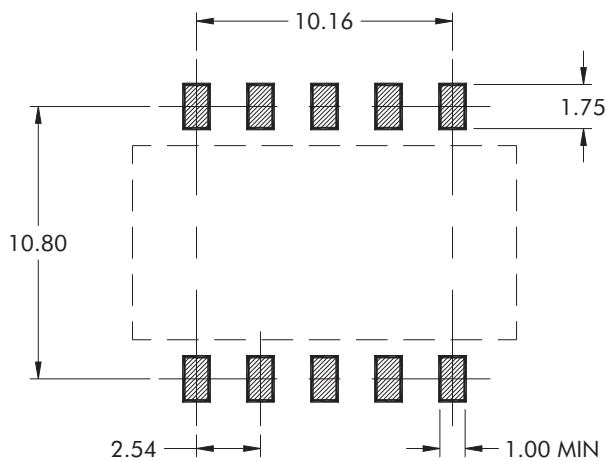
18 Pin SMD package style



DETAIL A



recommended footprint details



¹ All pins on a 2.54mm pitch.
All dimensions in mm XX.XX ± 0.25mm.

INFORMATION

The following Newport Components publications are also available :

- The Power Components Handbook (also in CD ROM format)
- EMC Design Guidelines

Please contact Newport Components or your local supplier for a copy of these data books.



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