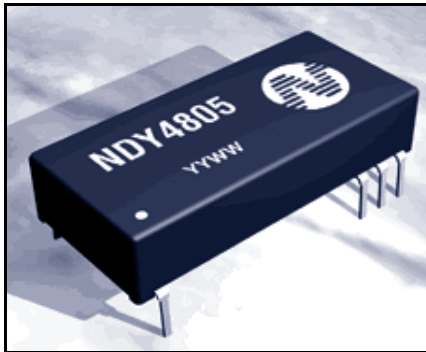




FEATURES

- Industry Standard Footprint
- Single Isolated Output
- Short Circuit Protection
- Operating Temperature Range -40°C to +85°C
- Low Profile 24 Pin Case
- Efficiency to 83%
- Power Density 0.90W/cm³
- 2:1 Wide Input Range
- 5V, 12V, 24V & 48V Input
- 5V, 9V, 12V & 15V Output
- Footprint 4.73cm²
- UL 94V-0 Package Materials
- No Heatsink Required
- Internal SMD Construction
- Fully Encapsulated

DESCRIPTION

The NDY series is a range of low profile DC-DC converters offering a single regulated output over a 2:1 input voltage range. All parts deliver 3W output power up to 85°C without heatsinking, except the 4.5V to 9V input voltage range which should be derated to 2W at the lower input voltage. A flyback oscillator design with isolated feedback is used to give regulation over the full operating range of 25% to 100% of full load. It is strongly recommended that external capacitors be used on input and output to guarantee performance over full load and input voltage range (see recommended test circuit for values). The plastic case and encapsulant materials are rated to UL 94V-0 and the connection pins are formed from a tin plated alloy 42 leadframe.

SELECTION GUIDE

Order Code	Nominal Input Voltage (V)	Rated Output Voltage (V)	Output Current ¹		Input Current Full Load (mA)	Efficiency ² (%)	Isolation Capacitance (pF)	MTTF ³ (kHrs)
			Min Load (mA)	Full Load (mA)				
NDY0505	5	5	100-150	400-600	615	66	40	1939
NDY0509	5	9	55-83	222-333	563	72	52	1926
NDY0512	5	12	42-62	166-250	548	71	43	1907
NDY0515	5	15	33-50	133-200	533	73	44	1924
NDY1205	12	5	150	600	362	71	36	1928
NDY1209	12	9	83	333	320	78	52	1916
NDY1212	12	12	62	250	316	78	44	1897
NDY1215	12	15	50	200	308	79	47	1914
NDY2405	24	5	150	600	174	70	36	1673
NDY2409	24	9	83	333	156	78	52	1663
NDY2412	24	12	62	250	154	80	44	1644
NDY2415	24	15	50	200	150	82	54	1657
NDY4805	48	5	150	600	87	73	35	1668
NDY4809	48	9	83	333	78	80	52	1663
NDY4812	48	12	62	250	77	81	44	1648
NDY4815	48	15	50	200	76	81	53	1661

INPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Voltage Range	All NDY05 Types	4.5	5	9	VDC
	All NDY12 Types	9	12	18	
	All NDY24 Types	18	24	36	
	All NDY48 Types	36	48	72	
Reflected Ripple Current	All NDY05 types when 100µF at input		400	500	mA p-p
	All NDY12 types when 100µF at input		150	170	
	All NDY24 types when 10µF at input		290	360	
	All NDY48 types when 10µF at input		100	127	

OUTPUT CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Voltage Set Point Accuracy	With external input/output capacitors, refer to recommended test circuit		±1	±5	%
Line Regulation	Low line to high line, with external input/output capacitors, refer to recommended test circuit		0.05	0.5	%
Load Regulation	25% load to 100% load, with external input/output capacitors, refer to recommended test circuit		0.2	0.5	%
Ripple	BW = 20Hz to 300kHz With external input/output capacitors, refer to recommended test circuit		5	10	mV rms
Noise	BW = DC to 100MHz With external input/output capacitors, refer to recommended test circuit		50	100	mV p-p

ABSOLUTE MAXIMUM RATINGS

Short-circuit protection	continuous
Input voltage 05 types	10V
Input voltage 12 types	20V
Input voltage 24 types	40V
Input voltage 48 types	80V
Lead temperature 1.5mm from case for 10 seconds	300°C

¹ Refer to power derating graph

² Measured at full load with external input/output capacitors

³ Calculated using MIL-HDBK-217F with nominal input voltage at full load.

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

NDY SERIES

Isolated 3W Wide Input DC-DC Converters

ISOLATION CHARACTERISTICS

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

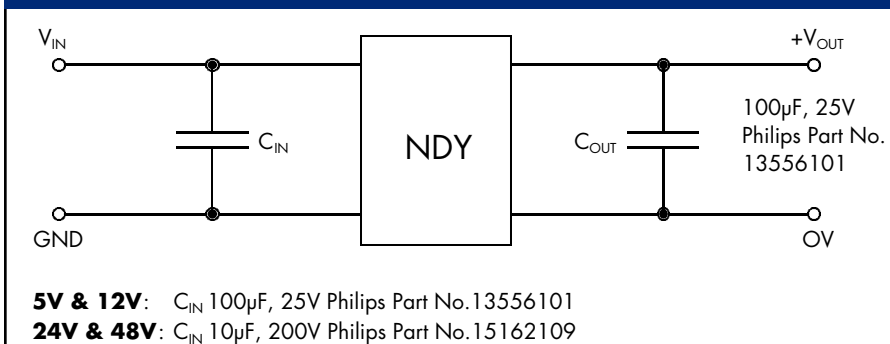
GENERAL CHARACTERISTICS

Parameter	Conditions	MIN	TYP	MAX	Units
Switching Frequency	100% load V_{IN} nominal	80		220	kHz
	25% load V_{IN} nominal	290		560	

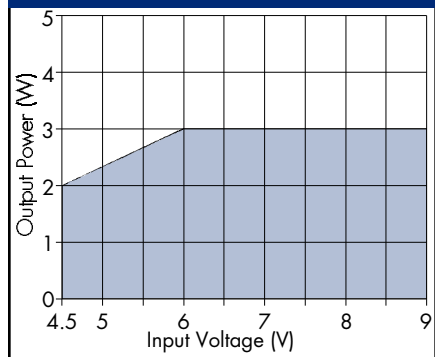
ENVIRONMENTAL

Parameter	Conditions	MIN	TYP	MAX	Units
Operation		-40		85	°C
Storage		-50		130	°C
Cooling	Free air convection				

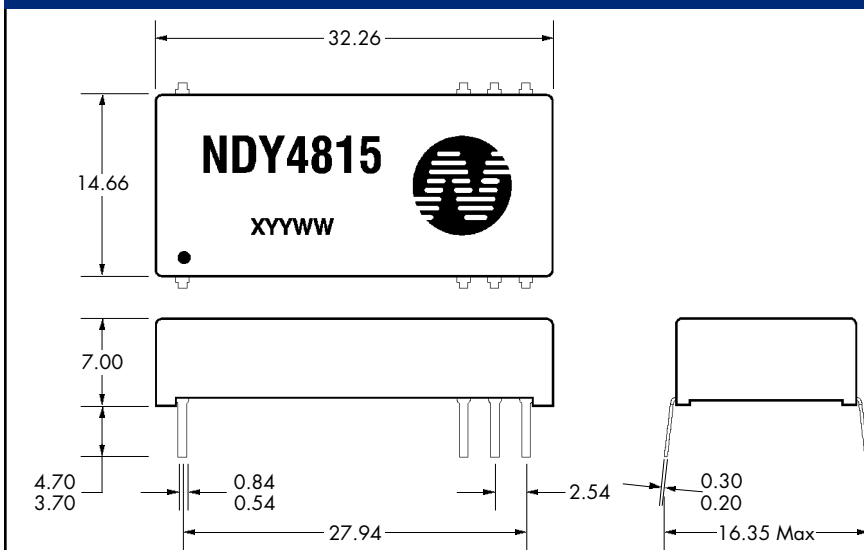
RECOMMENDED TEST CIRCUIT



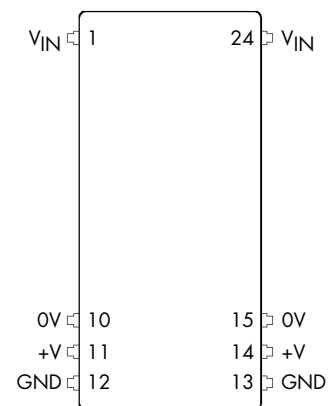
NDY05 POWER DERATING CURVE



MECHANICAL DIMENSIONS



PIN CONNECTIONS (TOP VIEW)



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C&D Technologies (NCL) Ltd
Tanners Drive, Blakelands North
Milton Keynes MK14 5BU, England
Tel: +44 (0)1908 615232
Fax: +44 (0)1908 617545
email: info@cdtechno-ncl.com

www: <http://www.dc-dc.com>

C&D Technologies (NCL), Inc.
8917 Glenwood Avenue, Raleigh
NC 27612, USA
Tel: +1 (919) 571-9405
Fax: +1 (919) 571-9262
email: info@us.cdtechno-ncl.com

C&D TECHNOLOGIES
Power Solutions