

NB80T triple-output DC/DC converters

14 – 40Vin, 2 – 28Vout, 80 watts



How to Order:

NB 80 T I / 5 / 12 / 15 - A - D

Series		Options:
Output Power		A- pins out side of unit
Triple Output		B- pins out bottom of unit
Industrial (I) or Military (M)		C- pins out top of unit
Auxiliary Output Voltage 1		D- through hole inserts (STD threaded)
Main Output Voltage 2		I - M2.5 inserts
Auxiliary Output Voltage 3		

Model Numbering Example:
To order an 80 watt, triple output, 15V, 15V and 5.2V, industrial grade power supply with pins out the bottom (baseplate), the model number would be NB80TI/15/15/5.2-B. Triple output, 12V, 15V and 3.3Vout, military grade, would be NB80TM/12/15/3.3-B. When ordering a unit, the first output voltage is located on channel 1, the second on channel 2, and the third output voltage is on channel 3 (see case drawing).

INPUT CHARACTERISTICS

	Min.	Typ.	Max.	Units
Input Voltage	14	28	40	Vdc
Brown Out (75% of Full Load)		12		Vdc
No Load Power Dissipation		4	8	Watt
Inrush Charge			4	mc
Logic Disable Current (Sink)		300	450	µA
Logic Disable Power In		3	6.5	W
Input Ripple Rejection (120 Hz)		55		dB
Input Ripple Rejection (800 Hz)		45		dB
Efficiency up to	See Page 22 [fig II, III]	85		%

EMI: Units conform to MIL-STD-461D (on the input leads) with companion filter

Input Transient: Units conform to MIL-STD-704D for transients up to 50V for .01 second

OUTPUT CHARACTERISTICS

	Main Output			Auxiliary Outputs			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Set Point Accuracy			1 †			1	% V _{out}
Load Regulation		5	0.2% ¹		5	25	mV
Line Regulation		5	0.2% ¹		5	25	mV
Ripple P-P (10 MHz) (2V-24V)		45	150		50	100	mV
Ripple P-P (10 MHz) (28V)		0.2%	1%		50mV	100mV	% V _{out}
Trim Range	100		110	100		110	% V _{out}
Remote Sense Compensation			0.5				Vdc
Overvoltage Protection (2V, 3.3V)		140			125		% V _{out}
Overvoltage Protection (5V-28V)		125			125		% V _{out}
Transient Response (Vout 1%) Time/Overshoot							
20-80% Load		350/300			350/250		µS/mV
Low Line - High Line		300/350			300/300		µS/mV
50-100% Load		250/300			250/200		µS/mV
Temperature Drift		0.01	0.05		0.01	0.05	%/°C
Long Term Drift		0.01	0.02		0.01	0.02	%/1KHrs
Current Limit	105	125	150	105	125	150	% I _{out}
Short Circuit Current	25		75	25		75	% I _{out}
Turn On Time		1.5			2.5		mS
Logic Turn On Time		1.5			2.5		mS

† 1% or 50mV, whichever is greater

¹ 0.2% or 25 mV whichever is greater

FEATURES

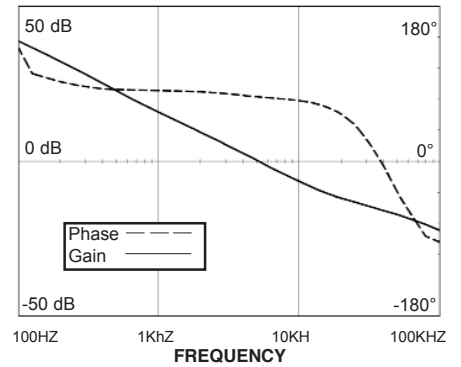
- Synchronization
- Remote Turn On (TTL)
- Output Voltage Trim Pin
- Over Temperature Protection
- Output Overvoltage/Overcurrent Protection
- Built-In Test (Output Power Good; Main Output)
- 100% Environmental Screening (Military Version)
- Outputs Isolated Allowing Any Combination of Output Voltages

SELECTION CHART

Main Output		Auxiliary Output	
Voltage	Current	Voltage	Current
2	10A	2	3.0A
3.3	10A	3.3	3.0A
5	10A	5	3.0A
5.2	9.6A	5.2	2.9A
12	4.2A	12	1.25A
15	3.3A	15	1.0A
24	2.1A		
28	1.8A		

STABILITY

Main Output Channel



Powering Business Worldwide

For additional information, call 310.542.8561
or e-mail: Orders-EP@eaton.com

www.eaton.com/powerconversion

Industrial & military grade high density DC to DC converters

TEMPERATURE CHARACTERISTICS

	Min.	Typ.	Max.	Units
Operating	-55		+100	°C
Storage (Ambient)	-55		+125	°C
Over Temperature Shutdown		+105		°C
Thermal Resistance Case - Ambient		12		°C/W

ENVIRONMENTAL SCREENING - M MODEL

Stabilization Bake:	+125°C for 24 hours similar to Mil-Std-883, M1008.2, Condition B
Temperature Cycling:	10 cycles at -55°C to +125°C (transition period 36 minutes) similar to Mil-Std-883, M1010, Condition B
Burn-in:	160 hours at +85°C min.
Final Testing	

ENVIRONMENTAL SCREENING - I MODEL

Burn-in:	16 hours at +85°C min.
Final Testing	

See "Guide to Operation" for full details.

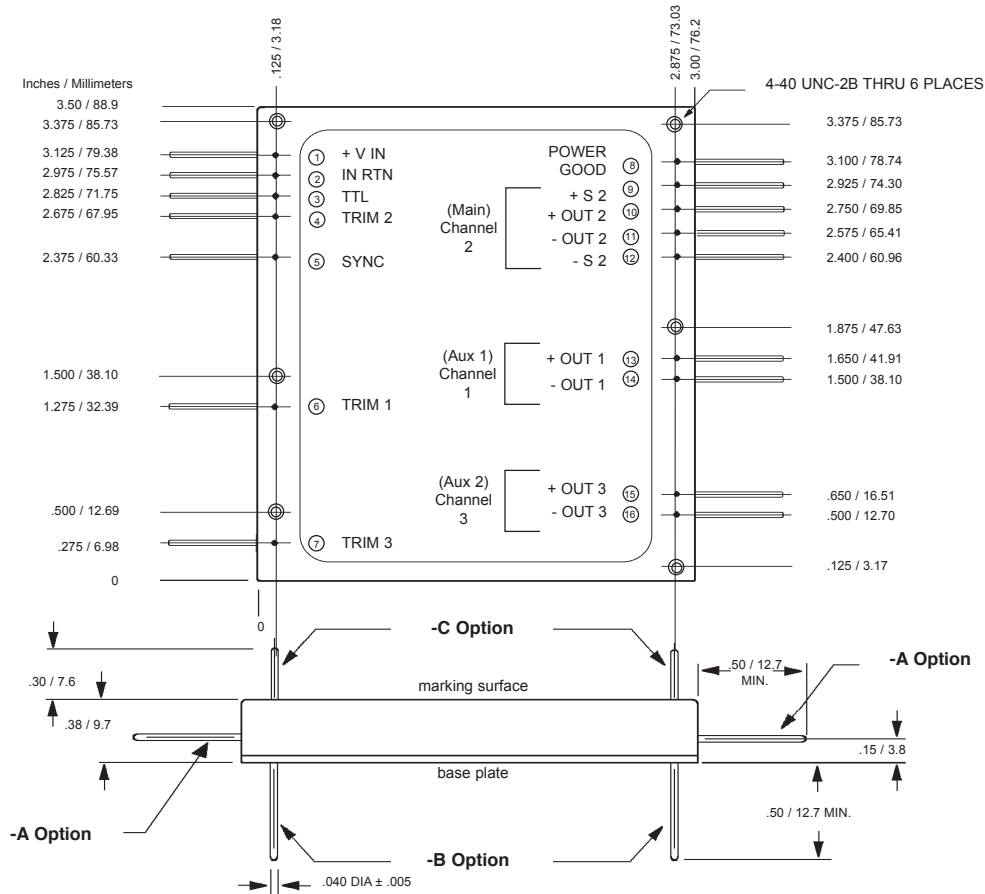
ISOLATION CHARACTERISTICS

	Min.	Typ.	Max.	Units
Isolation:				
Input to Output	500			Vdc
Output to Base	250			Vdc
Input to Base	250			Vdc
Input to Output Capacitance (single)		0.066		µf
Insulation Resistance (@50 Vdc)	50			MOhm

MECHANICAL CHARACTERISTICS

Weight	6.8	oz.
	190	grams
Size	3.0 x 3.5 x 0.38	inch
	76.2 x 88.9 x 9.7	mm
Volume	3.99	inch ³
	65.7	cm ³
Material	Pin	Brass (Solder Plating)
	Baseplate	Aluminum 5052-H32
	Case	28 Gauge Steel (cold rolled)
Finish		Nickel Plating
Mounting	Standard	4-40 inserts provided in baseplate
	I Option	M2.5 metric inserts (6 places)
	D Option	0.115 DIA thru holes (6 places)

CASE DRAWINGS

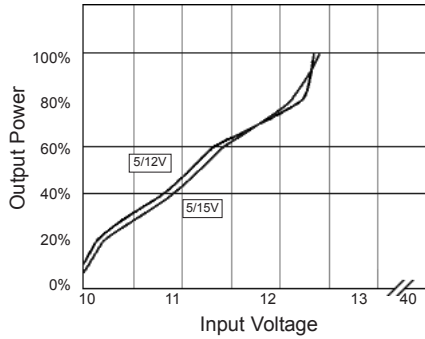


Tolerances: inches - x.xx = ±0.03 mm - x.x = ±0.8
 x.xxx = ±0.015 x.xx = ±0.40

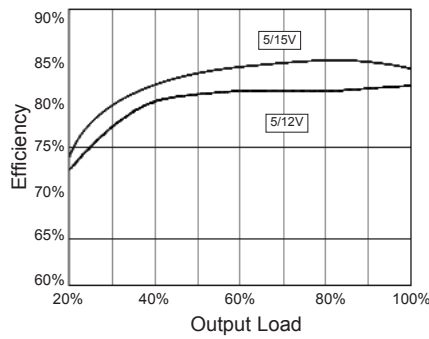
All specifications are typical @+25°C with nominal input voltage under full output load conditions, unless otherwise noted. Specifications subject to change without notice.

Performance characteristics

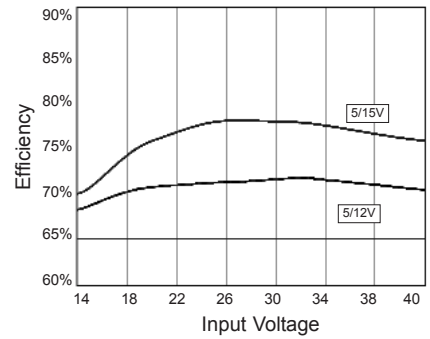
I. Input Voltage vs. Output Power



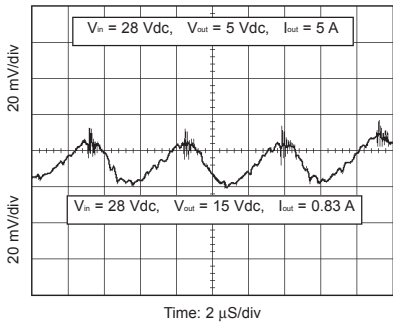
II. Efficiency vs. Output Power



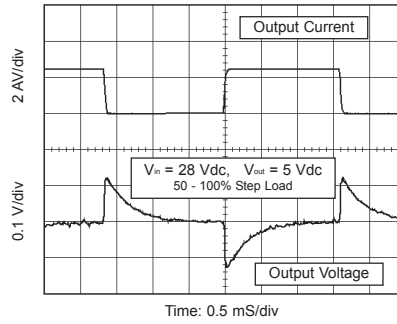
III. Efficiency vs. Input Voltage



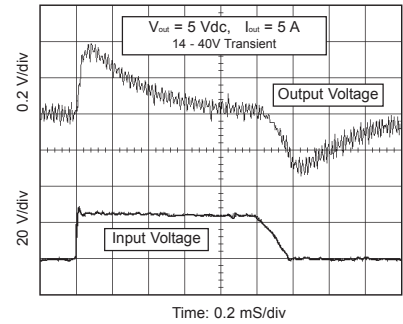
IV. Output Voltage Ripple



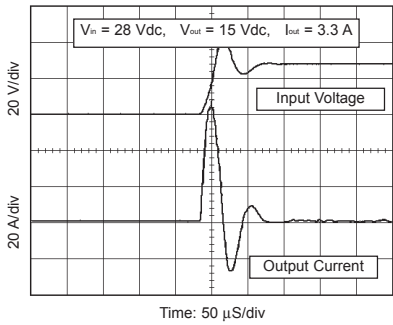
V. Load Transient Response



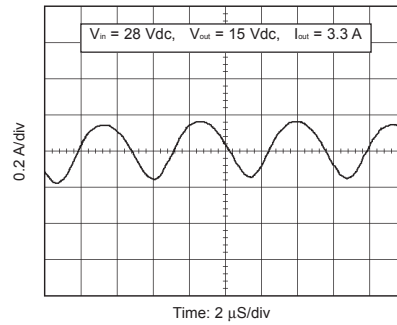
VI. Input Transient Response



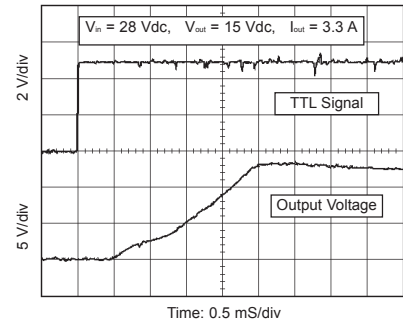
VII. Input Inrush Current



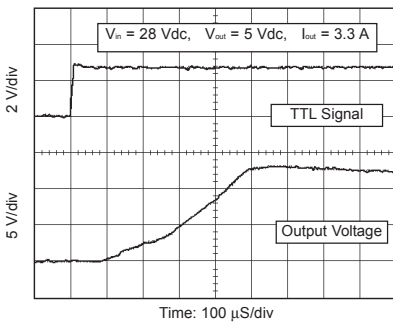
VIII. Input Current Ripple



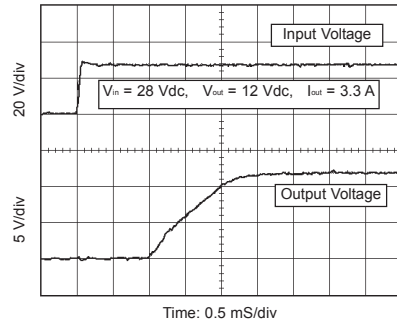
IX. TTL Turn On



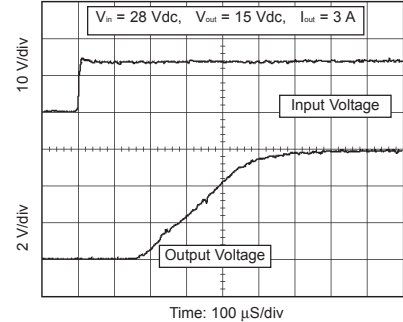
X. Turn On



XI. Turn On



XII. Turn On



NBF150 EMI filters



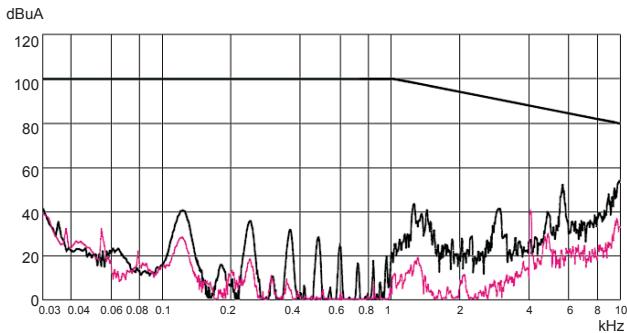
How to Order:

NBF 150 - A - D

- Series
- Total Output Power
- Options:
 A- pins out side of unit
 B- pins out bottom of unit
 C- pins out top of unit
 D- through hole inserts (STD threaded)
 I - M2.5 inserts

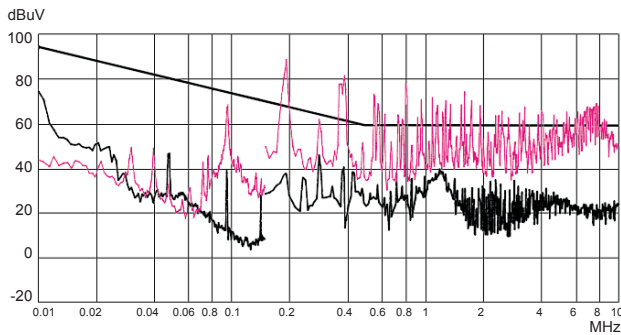
EMI COMPARISON GRAPHS

28V_{in} - 150 watts
 MIL-STD-461D, CE101-4



28V_{in} - 150 watts
 MIL-STD-461D, CE102

- With NBF50
 ■ Without NBF50



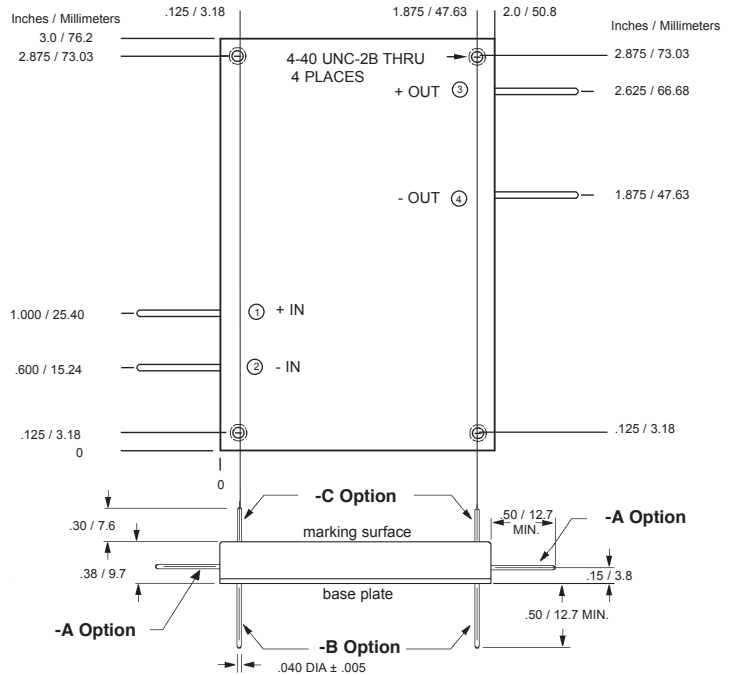
FEATURES

- MIL-STD-461D Compliance CE101 and CE102
- Does Not Require External Components
- Meets Environmental Requirements of MIL-STD-810E and MIL-S-901
- For Use With NB80, NB100, NB150 Series DC/DC Converters

SPECIFICATIONS

Input Voltage (maximum)	50	Vdc
Rated Output Current	15	A
Isolation (Input/Output to Case)	500	Vdc
Operating Temperature	-55 to +100	°C
Storage Temperature	-55 to +125	°C
Insulation Resistance (measured at 50Vdc)	50	M Ohm
Weight	4.2	oz.
	120	grams
Size	3.0 x 2.0 x 0.38	inch
	76.2 x 50.8 x 9.7	mm
Volume	2.28	inch ³
	37.5	cm ³
Material	Pin	Brass (Solder Plating)
	Baseplate	Aluminum 5052-H32
	Case	28 Gauge Steel (cold rolled)
Finish		Nickel Plating
Mounting	Standard	4-40 inserts provided in baseplate
	I Option	M2.5 metric inserts (4 places)
	D Option	0.115 DIA thru holes (4 places)

CASE DRAWINGS



Tolerances:

inches	-	x.xx	= ±0.03
		x.xxx	= ±0.015
mm	-	x.x	= ±0.8
		x.xx	= ±0.40

All specifications are typical @+25°C with nominal input voltage under full output load conditions, unless otherwise noted. Specifications subject to change without notice.

For additional information, call 310.542.8561
or e-mail: Orders-EP@eaton.com



Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

© 2017 Eaton
All Rights Reserved
Printed in USA
March 2017

Eaton is a registered trademark.

All other trademarks are property
of their respective owners.