

TRIPLE OUTPUT



NB 45 T M / 12/5/12 - A - D

[illegible]

To order a 45 watt, triple output, 15 Vdc, 15 Vdc and 5.2 Vdc, industrial grade power supply with pins out the bottom (baseplate), the model number would be: NB45TM15/15/5.2-B. Triple output, 12 V, 15 V and 3.3 Vout, military grade, would be NB45TM12/15/3.3-B. The first output voltage in the model number is located on channel 1, the second on channel 2 and the third on channel 3 (see case drawing).

PER CHANNEL

	Min.	Typ.	Max.	Units
Input Voltage	14	28	40	Vdc
Brown Out (75% of Full Load) [fig. I]*		12		Vdc
No Load Power Dissipation		1	2	Watt
Inrush Charge [fig. VII]*			1	mc
Reflective Ripple Current [fig. VIII]*		22		%
Logic Disable Current (Sink)		100	150	μA
Logic Disable Power In		1	2	W
Input Ripple Rejection (120 Hz)		55		dB
Input Ripple Rejection (800 Hz)		40		dB
Efficiency up to		82		%

Input Transient: Units conform to MIL-STD-704D for transients up to 50V for 0.1 sec.

The Bode plot for a second-order system shows the following characteristics:

- Gain (Solid Line):** Starts at 50 dB at 10^2 Hz, crosses 0 dB at 10^3 Hz, and reaches -50 dB at 10^4 Hz.
- Phase (Dashed Line):** Starts at 180° at 10^2 Hz, crosses 0° at 10^3 Hz, and reaches -180° at 10^4 Hz.

- **.38 Inch Profile**
- **Remote Turn On (TTL)**
- **Output Voltage Trim Pin**
- **Over Temperature Protection**
- **Output Overvoltage/Overcurrent Protection**
- **100% Environmental Screening (Military Version)**
- **Outputs Isolated Allowing Any Combination of Output Voltages**

Nominal Output Voltage	Triple Output; Per Channel Output Current (Amps)
2	3.0
3.3	3.0
5	3.0
5.2	2.9
12	1.25
15	1.0

PER CHANNEL

	Min.	Typ.	Max.	Units
Set Point Accuracy			1 †	% V _{out}
Load Regulation		5	25	mV
Line Regulation		5	10	mV
Ripple P-P (10 MHz) [fig. IV]*		50	100	mV
Trim Range	100		110	% V _{out}
Overvoltage Protection		125		% V _{out}
Transient Response (Vout 1%) Time/Overshoot [fig. V & VI]*				
20-80% Load		350/250		µS/mV
Low Line - High Line		300/300		µS/mV
50-100% Load		250/200		µS/mV
Temperature Drift		0.01	0.05	%/°C
Long Term Drift		0.01	0.02	%/1KHrs
Current Limit	105	125	150	% I _{out}
Short Circuit Current	25		75	% I _{out}
Turn On Time [fig. XI]*		2		mS
Logic Turn On Time [fig. IX]*		2		mS

* figures on page 20 represents per channel



HIGH DENSITY DC TO DC CONVERTERS

Industrial & Military Grades

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.

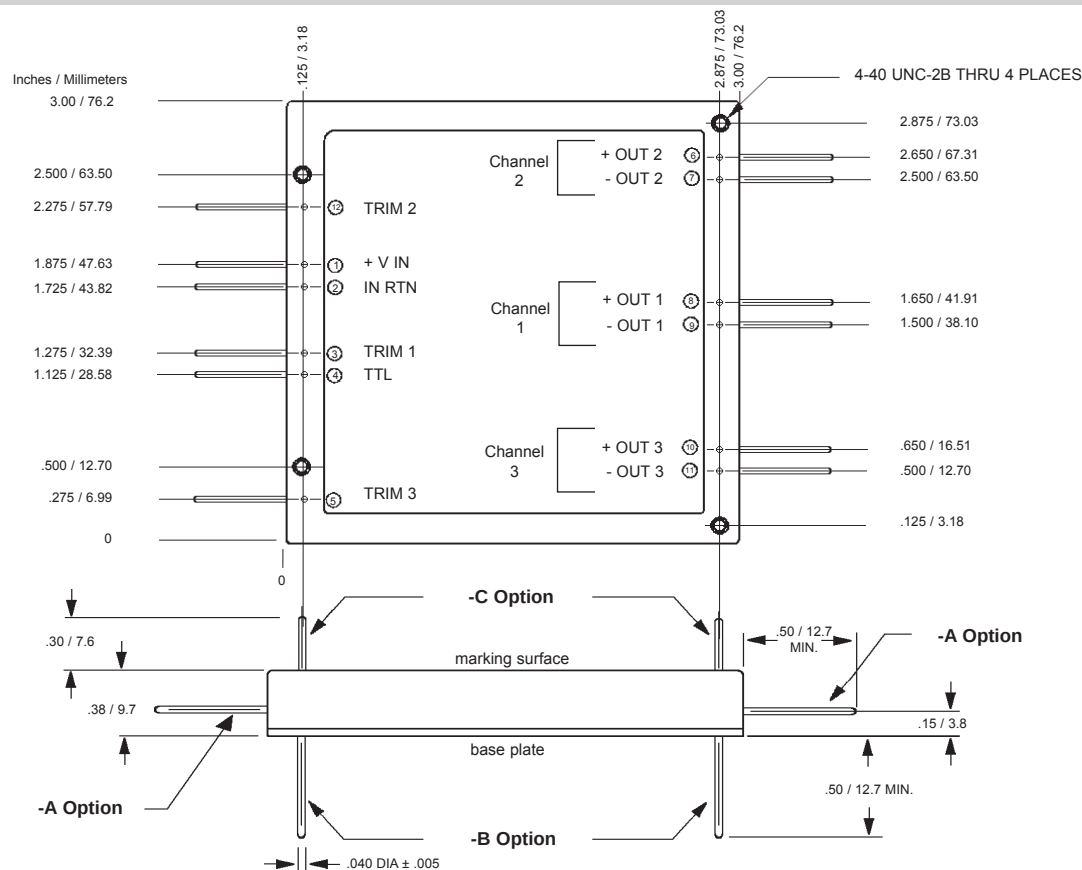
ISOLATION CHARACTERISTICS

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

MECHANICAL CHARACTERISTICS

Weight	5.4	oz.
	150	grams
Size	3.0 x 3.0 x 0.38	inch
	76.2 x 76.2 x 9.7	mm
Volume	3.42	inch ³
	56.1	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 mm - x.x = ±0.8
x.xxx = ±0.015 x.xx = ±0.40

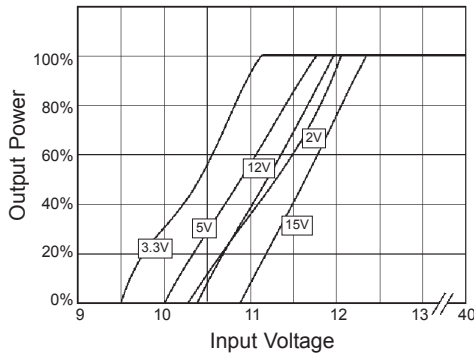
All specifications are typical @+25°C with nominal input voltage under full output load conditions, unless otherwise noted. Specifications subject to change without notice.



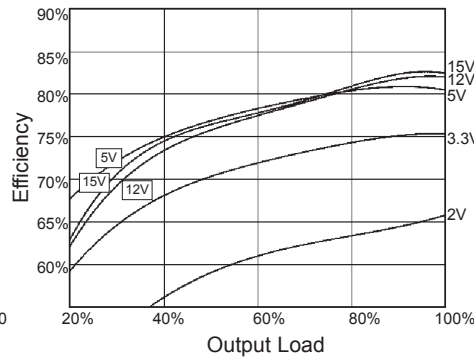
NB15 NB30 NB45

Performance Characteristics

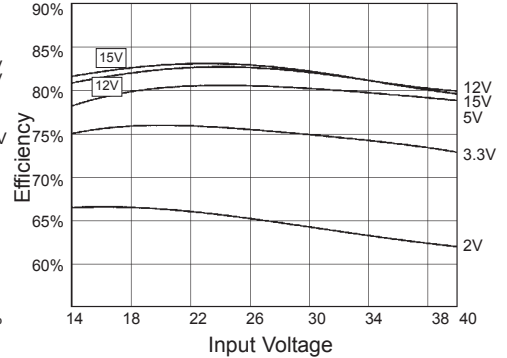
I. Input Voltage vs. Output Power



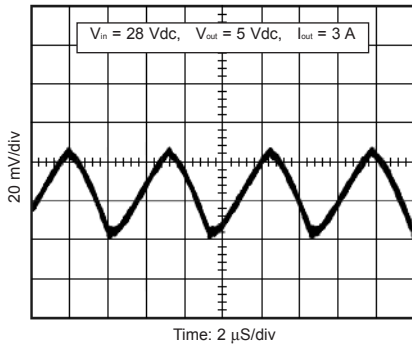
II. Efficiency vs. Output Power



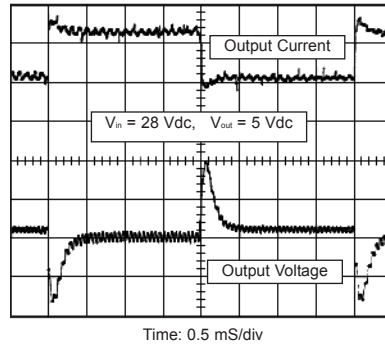
III. Efficiency vs. Input Voltage



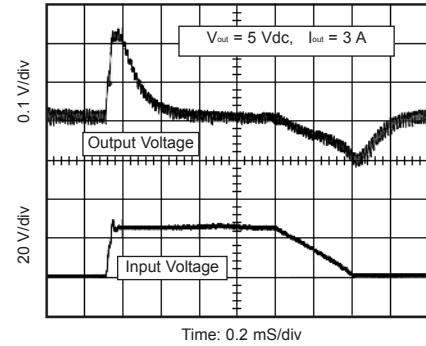
IV. Output Voltage Ripple



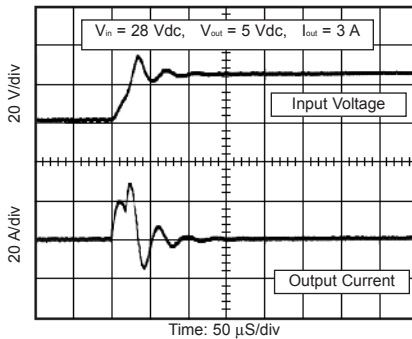
V. Load Transient Response



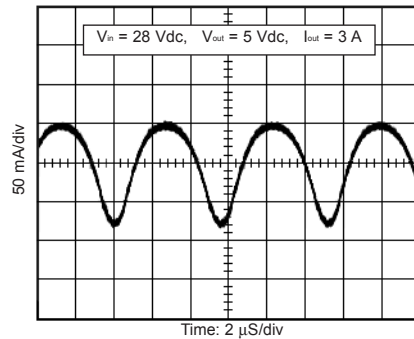
VI. Input Transient Response



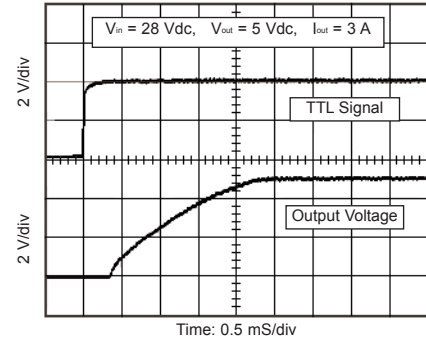
VII. Input Inrush Current



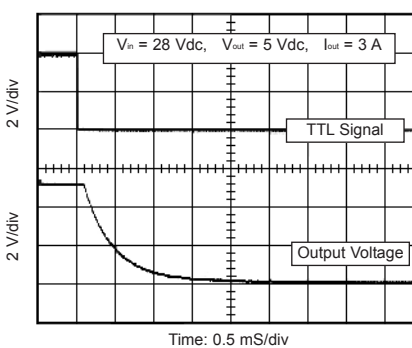
VIII. Input Current Ripple



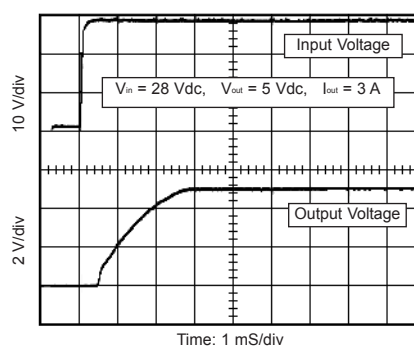
IX. TTL Turn On



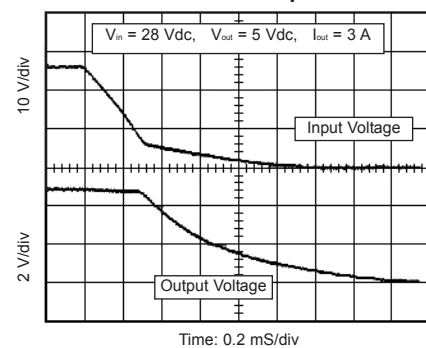
X. TTL Turn-off



XI. Turn-on



XII. Turn-off / Hold-up Time



NBF50

EMI Filter



How to Order:

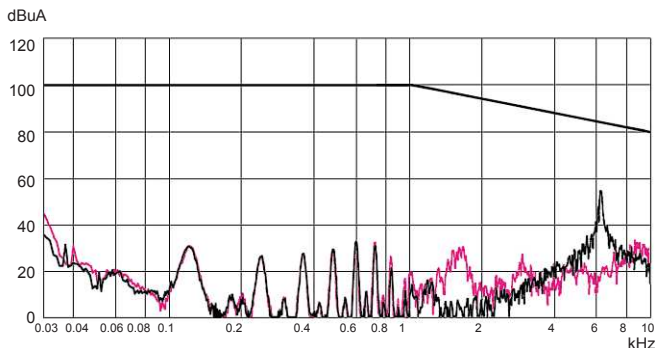
NBF 50 - A - D

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

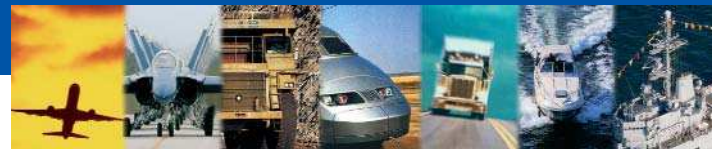
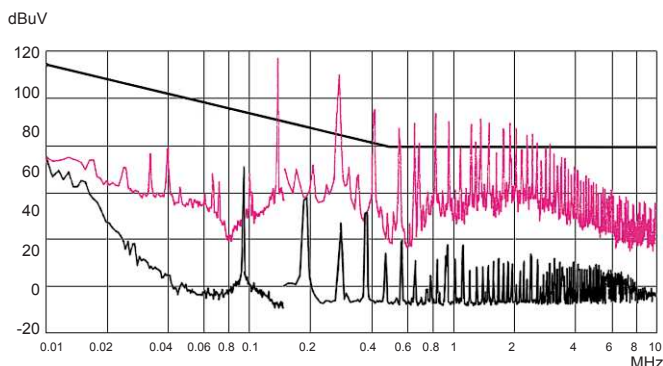
EMI COMPARISON GRAPHS

28V_{in} - 50 watts
MIL-STD-461D, CE101-4



28V_{in} - 50 watts
MIL-STD-461D, CE102

■ With NBF50
■ Without NBF50



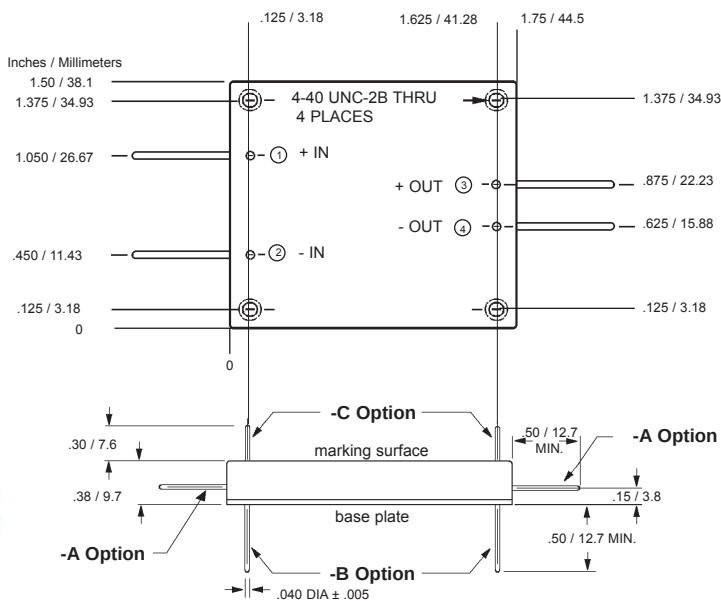
FEATURES

- MIL-STD-461D Compliance CE101 and CE102
- Thermally Non-dissipative device
- Less than 1.0 volt drop across the NBF50
- Does Not Require External Components
- Meets Environmental Requirements of MIL-STD-810E and MIL-STD-901C
- For Use With NB15, NB30, NB45 and NB50 Series DC/DC Converters

SPECIFICATIONS

Input Voltage (maximum)	50	Vdc
Rated Output Current	5	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	1.98	oz.
	56.0	grams
Size	1.75 x 1.5 x 0.38	inch
	44.5 x 38.1 x 9.7	mm
Volume	1.00	inch ³
	16.5	cm ³
Material	Pin	Brass (Solder Plating)
	Baseplate	Aluminum 5052-H32
	Case	28 Gauge Steel (cold rolled)
Finish		Nickel Plating
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	mm	-	x.x	= ±0.8
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