

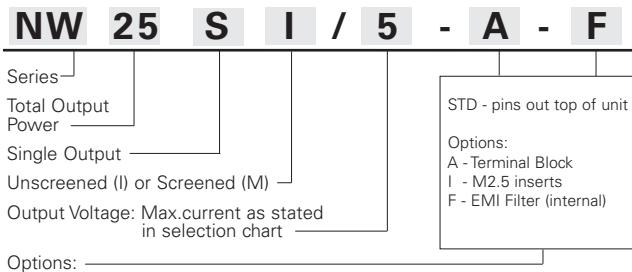
NW25S

25 Watts Output Power

SINGLE OUTPUT



How to Order:



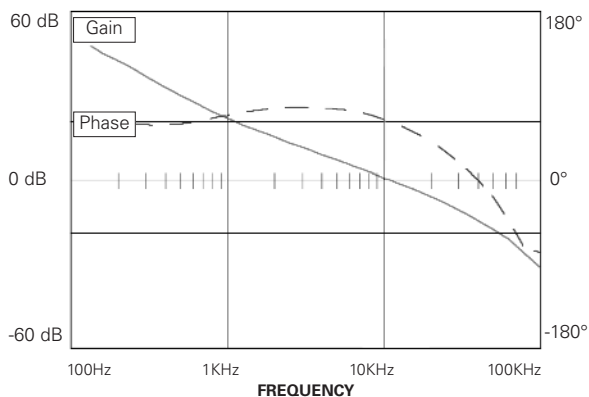
INPUT CHARACTERISTICS

	PER CHANNEL			
	Min.	Typ.	Max.	Units
Input Voltage (47-440 Hz)	90	110	130	Vac
	120	150	184	Vdc
Brown Out (75% of Full Load) [fig. I]*			80	Vac
No Load Power Dissipation		1.0	1.5	Watt
Inrush Current [fig. VI]*		15		A
Logic Disable Current (Sink)		5	6	mA
Logic Disable Power In		1.0	1.5	Watt
Efficiency (FL) [fig. II, III]*	75	80-86		%
3.3 Vdc Output (FL)	70	74		%
2 Vdc Output (FL)	60	65		%
Power Factor (110 Vac, 60Hz)				
Half Load		0.55		
Full Load		0.59		

EMI: Units conform to Mil-Std-461D (on input pins) with optional internal filter (-F)

Input Transient: Units can withstand 180Vac transients up to 0.1 second

STABILITY



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



FEATURES

- Over Temperature Protection
- Remote Turn On (TTL)
- Output Overvoltage Protection
- Output Overcurrent Protection
- 100% Environmental Screening (M Version)
- Remote Sense

SELECTION CHART

Nominal Output Voltage	Output Current (Amps)	Model Number (Unscreened)	Model Number (Screened)
2	5.0	NW25SI/2	NW5SM/2
3.3	5.0	NW25SI/3.3	NW25SM/3.3
5	5.0	NW25SI/5	NW25SM/5
5.2	4.8	NW25SI/5.2	NW25SM/5.2
9	2.8	NW25SI/9	NW25SM/9
12	2.1	NW25SI/12	NW25SM/12
15	1.66	NW25SI/15	NW25SM/15
24	1.1	NW25SI/24	NW25SM/24
28	0.9	NW25SI/28	NW25SM/28

OUTPUT CHARACTERISTICS

	PER CHANNEL			
	Min.	Typ.	Max.	Units
Set Point Accuracy			1 †	% V _{out}
Load Regulation		0.1	0.2	% V _{out}
Line Regulation		0.1	0.2	% V _{out}
Ripple P-P (10 MHz) [fig. IV]*		50	150	mV
Remote Sense Compensation		0.5		Vdc
Overvoltage Protection		125		% V _{out}
Transient Response (V _{out} 1%) Time/Overshoot				
20-80% Load		500/300		µS/mV
Low Line - High Line		500/300		µS/mV
50-100% Load [fig.V]*		500/300		µS/mV
Temperature Drift		0.01	0.02	%/°C
Long Term Drift		0.01		%/1KHrs
Current Limit		130		% I _{out}
Short Circuit Current		50		% I _{out}
Turn On Time [fig. IX]*		200		mS
Logic Turn On Time [fig. VII]*		3		mS

† 1% or 50mV (whichever is greater)

* figures on page 6



NW25s

HIGH DENSITY AC TO DC CONVERTERS

Industrial & Military Grades

TEMPERATURE CHARACTERISTICS

	Min.	Typ.	Max.	Units
Operating	-40		+90	°C
Storage - Ambient	-55		+115	°C
Over Temperature Shutdown		+95		°C
Thermal Resistance Case- Ambient		5		°C/W

M- GRADE - ENVIRONMENTAL SCREENING

Stabilization Bake:	+115°C for 24 hours similar to Mil-Std-883, M1008.2, Condition B
Temperature Cycling:	10 cycles at -55°C to +115°C (transition period 5°C /min) similar to Mil-Std-883, M1010, Condition B
Burn in:	160 hours @ 75°C minimum
Final Testing	

I- GRADE - ENVIRONMENTAL SCREENING

Burn in:	16 hours @ 75°C minimum
Final Testing	

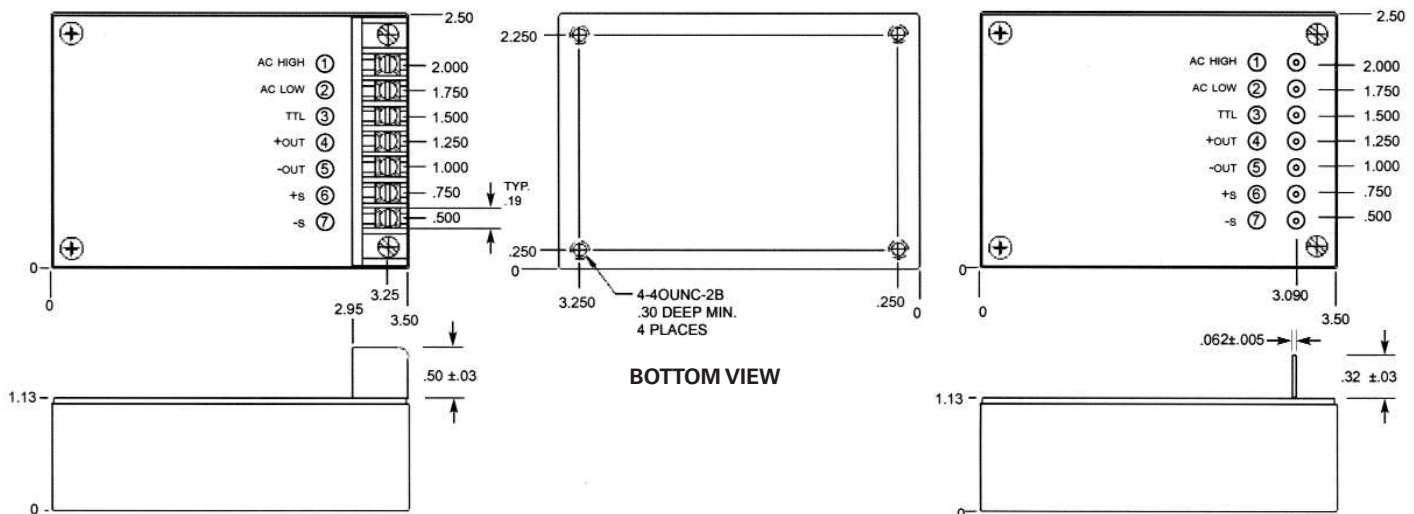
ISOLATION CHARACTERISTICS

	Min.	Units
Isolation:		
Input to Output	500	Vdc
Output to Base	500	Vdc
Input to Base	500	Vdc
Insulation Resistance (@50 Vdc)	50	MOhm

MECHANICAL CHARACTERISTICS

Weight	14.4	oz.
	408.2	grams
Size	3.5 x 2.5 x 1.13	inch
	88.9 x 63.5 x 28.7	mm
Volume	9.89	inch ³
	162	cm ³
Material	24GA CRS	
Finish	Nickel Plating	
Mounting	4-40 Inserts	

CASE DRAWINGS



(-A OPTIONAL TERMINAL BLOCK)

(STANDARD PINS)

1. Wire Clamping Screws Standard
2. Wire Range: 18 - 22 AWG
3. Screw No. 3 - 48 UNC

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

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

NW50D

50 Watts Output Power

DUAL OUTPUT



How to Order:

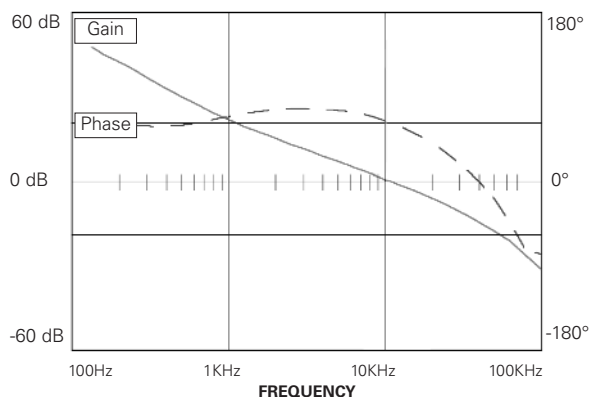
NW	50	D	M	/	5	/	12	-	A	-	F
Series	Total Output Power	Dual Output	Unscreened (I) or Screened (M)								
											STD - pins out top of unit
											Options: A - Terminal Block I - M2.5 inserts F - EMI Filter (internal)

INPUT CHARACTERISTICS

	PER CHANNEL			Units
	Min.	Typ.	Max.	
Input Voltage (47-440 Hz)	90	110	130	Vac
	120	150	184	Vdc
Brown Out (75% of Full Load) [fig. I]*			80	Vac
No Load Power Dissipation		1.0	1.5	Watt
Inrush Current [fig. VI]*		15		A
Logic Disable Current (Sink)		5	6	mA
Logic Disable Power In		1.0	1.5	Watt
Efficiency (FL) [fig. II, III]*	75	80-86		%
3.3 Vdc Output (FL)	70	74		%
2 Vdc Output (FL)	60	65		%
Power Factor (110 Vac, 60Hz)				
Half Load		0.55		
Full Load		0.59		

EMI: Units conform to Mil-Std-461D (on input pins) with optional internal filter (-F)
Input Transient: Units can withstand 180Vac transients up to 0.1 second

STABILITY



FEATURES

- Over Temperature Protection
- Remote Turn On (TTL)
- Output Overvoltage Protection
- Output Overcurrent Protection
- 100% Environmental Screening (M Version)

Model Numbering Example:

An environmentally screened, 50 watts, dual output, 5 Vdc and 15 Vdc, the model number would be NW50MI/5/15. A non-environmentally screened dual output, 12 Vdc and 15 Vdc, would be model number NW50DI/12/15. The first output voltage in the model number is located on channel 1, and the second output voltage in the model number is located on channel 2 (see case drawing).

SELECTION CHART

Nominal Output Voltage	Dual Per Channel Current (Amps)
2	5.0
3.3	5.0
5	5.0
5.2	4.8
9	2.8
12	2.1
15	1.66
24	1.1
28	0.9

NOTE : Any output voltage can be located in either Channel 1 or Channel 2

OUTPUT CHARACTERISTICS

	PER CHANNEL			Units
	Min.	Typ.	Max.	
Set Point Accuracy			1 †	% V _{out}
Load Regulation		0.1	0.2	% V _{out}
Line Regulation		0.1	0.2	% V _{out}
Ripple P-P (10 MHz) [fig. IV]*		50	150	mV
Overvoltage Protection		125		% V _{out}
Transient Response (V _{out} 1%) Time/Overshoot				
20-80% Load		500/300		µS/mV
Low Line - High Line		500/300		µS/mV
50-100% Load [fig. V]*		500/300		µS/mV
Temperature Drift		0.01	0.02	%/°C
Long Term Drift		0.01		%/1KHrs
Current Limit		130		% I _{out}
Short Circuit Current		50		% I _{out}
Turn On Time [fig. IX]*		200		mS
Logic Turn On Time [fig. VII]*		3		mS

† 1% or 50mV (whichever is greater)

* figures on page 6



NW50D

HIGH DENSITY AC TO DC CONVERTERS

Industrial & Military Grades

TEMPERATURE CHARACTERISTICS

	Min.	Typ.	Max.	Units
Operating	-40		+90	°C
Storage - Ambient	-55		+115	°C
Over Temperature Shutdown		+95		°C
Thermal Resistance Case- Ambient		5		°C/W

M- GRADE - ENVIRONMENTAL SCREENING

Stabilization Bake: +115°C for 24 hours similar to Mil-Std-883, M1008.2, Condition B

Temperature Cycling: 10 cycles at -55°C to +115°C (transition period 5°C/min) similar to Mil-Std-883, M1010, Condition B

Burn in: 160 hours @ 75°C minimum

Final Testing

I- GRADE - ENVIRONMENTAL SCREENING

Burn in: 16 hours @ 75°C minimum

Final Testing

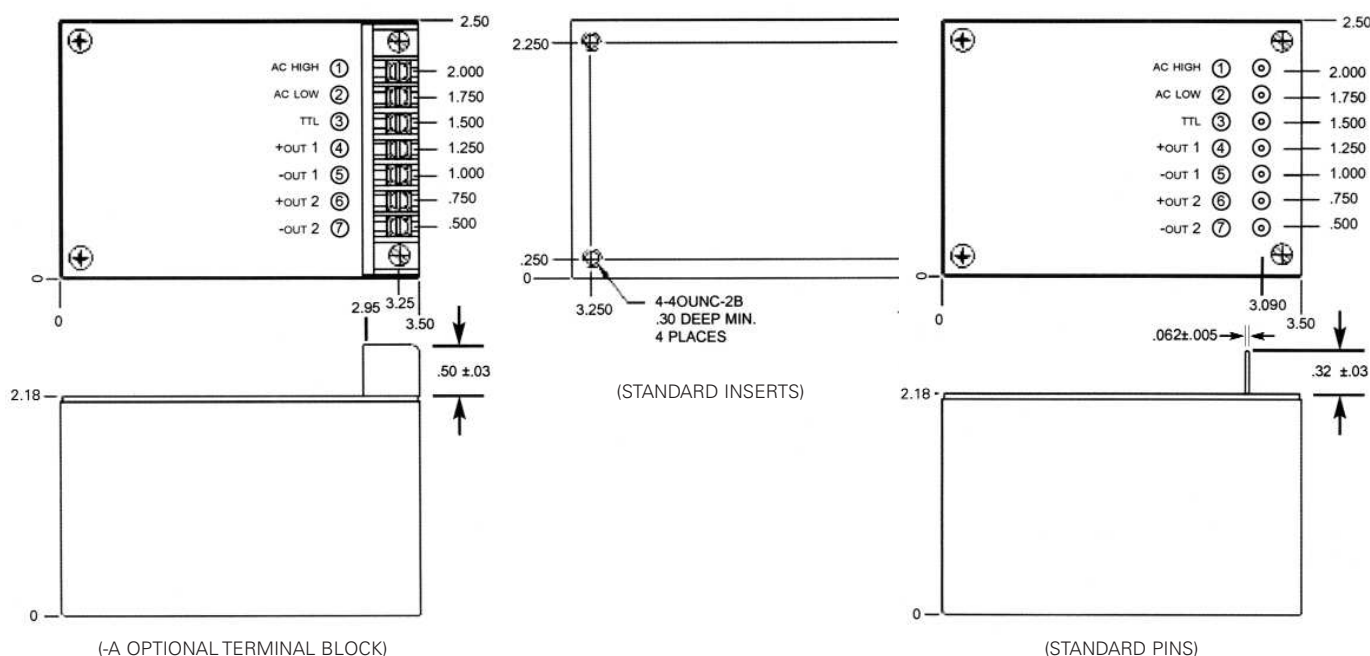
ISOLATION CHARACTERISTICS

	Min.	Units
Isolation:		
Input to Output	500	Vdc
Output to Base	500	Vdc
Input to Base	500	Vdc
Insulation Resistance (@50 Vdc)	50	MOhm

MECHANICAL CHARACTERISTICS

Weight	28.8	oz.
	816.4	grams
Size	3.5 x 2.5 x 2.18	inch
	88.9 x 63.5 x 55.4	mm
Volume	19.08	inch ³
	312.7	cm ³
Material	24GA CRS	
Finish	Nickel Plating	
Mounting	4-40 Inserts	

CASE DRAWINGS



(-A OPTIONAL TERMINAL BLOCK)

Wire Gauge: 18 AWG Max

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

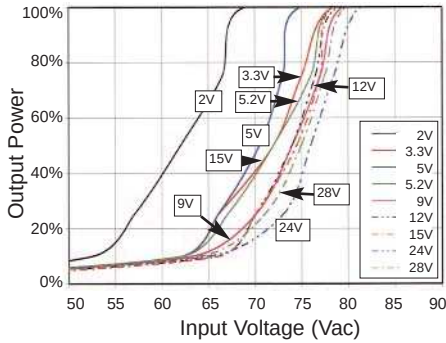
All specifications are typical @+25°C with nominal input voltage under full output load conditions, unless otherwise noted. Specifications subject to change without notice.



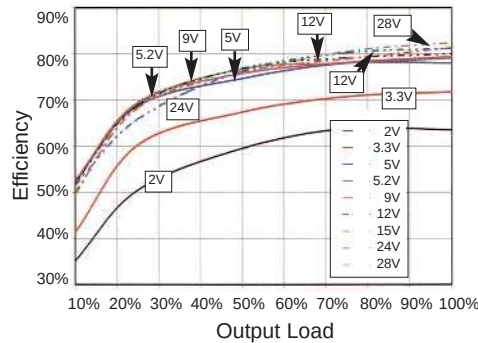
NW25S NW50D

Performance Characteristics

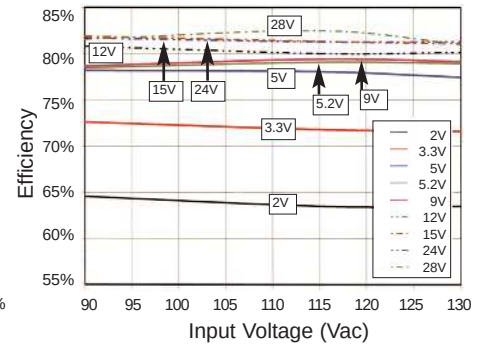
I. Input Voltage vs. Output Power



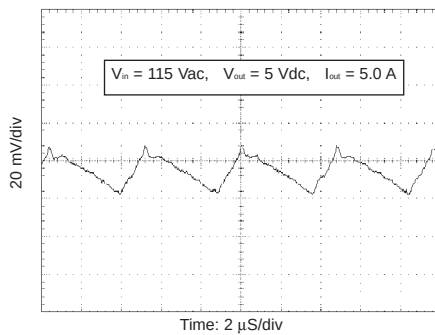
II. Efficiency vs. Output Power



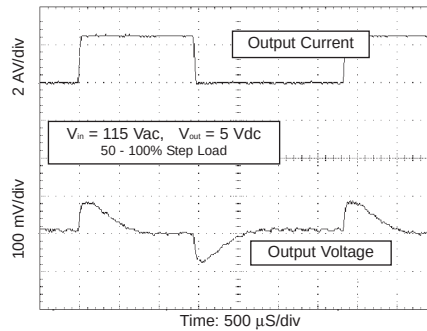
III. Efficiency vs. Input Voltage



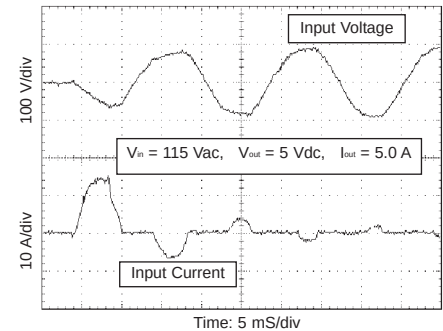
IV. Output Voltage Ripple



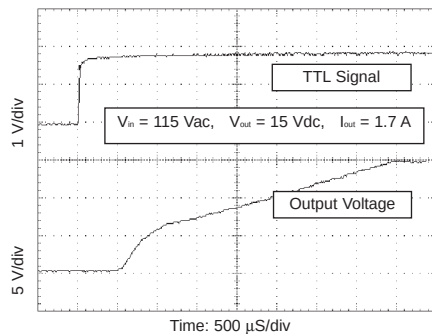
V. Load Transient Response



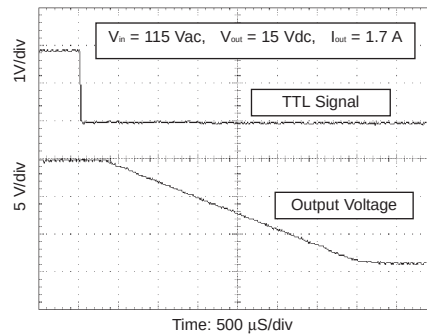
VI. Input Inrush Current



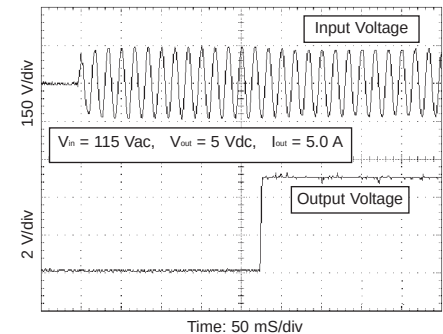
VII. TTL Turn-On



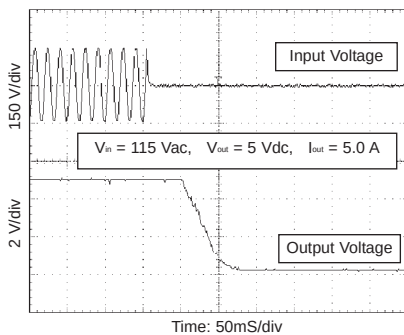
VIII. TTL Turn-Off



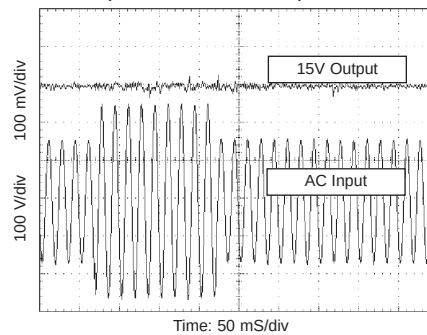
IX. AC Turn-On



X. AC Turn-Off



XI. Input Transient Response



XII. EMI: MIL-STD-461D CE102 115V

