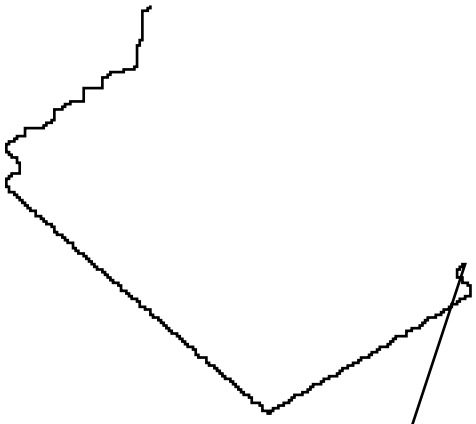
NAL25 and NAN25 SERIES

Single, dual and triple output



[2 YEAR WARRANTY] Temperature coefficient ±0.02%/°C

CE (LVD)

Overvoltage protection	+5.1V output	5.5V to 7.0V
Output power limit	Primary power limited	80W Pin limit, max. 30W Pout limit, min.
Short circuit protection		Continuous
Minimum output current		See derating curve

INPUT SPECIFICATIONS

Input voltage range		90 to 264VAC 120 to 370VDC
Input frequency range		47Hz to 440Hz
Input surge current	110VAC 230VAC	18A max. 38A max.
Safety ground leakage current	110VAC, 60Hz 230VAC, 50Hz	0.2mA 0.4mA

International Safety Standard Approvals

VDE0805/EN60950/IEC950/IEC1010 File No. 10401-3336-1076
Licence No. 70567, 1076 and 90354

UL1950 File No. E136005

CSA22.2/950 File No. LR41062C

Certificate No. PS/605107

EMC CHARACTERISTICS

Conducted emissions	NAL: EN55022, FCC part 15	level A
Conducted emissions	NAN: EN55022, FCC part 15	level B
Radiated emissions	EN55022, FCC part 15	level A
ESD air	EN61000-4-2, level 3	Perf. criteria 2
ESD contact	EN61000-4-2, level 4	Perf. criteria 2
Surge	EN61000-4-5, level 3	Perf. criteria 2
Fast transients	EN61000-4-4, level 3	Perf. criteria 2
Radiated immunity	EN61000-4-3, level 3	Perf. criteria 2
Conducted immunity	EN61000-4-6, level 3	Perf. criteria 1

GENERAL SPECIFICATIONS

Hold-up time	110VAC 230VAC	10ms @ 25W 60ms @ 25W
Efficiency		70%
Isolation voltage	Input/output Input/chassis	3000VAC 1500VAC
Switching frequency		Variable
Approvals and standards (See Note 8)		VDE0805, EN60950, IEC950 BABT, IEC1010, UL1950 CSA C22.2 No. 950
Weight		200g (7.06oz)
MTBF	MIL-HDBK-217F	150,000 hours min.

ENVIRONMENTAL SPECIFICATIONS

Thermal performance (See Notes 6, 7)	Operating ambient, (See derating curve)	0°C to +70°C
	Non-operating	-40°C to +85°C
	50°C to 70°C ambient, convection cooled	Derate to 50% load
	0C to 50C, ambient, convection cooled	25W
	Peak (0°C to +50°C, 60s)	30W
Relative humidity	Non-condensing	5% to 95% RH
Altitude	Operating Non-operating	10,000 feet max. 30,000 feet max.
Vibration (See Note 5)	5Hz to 500Hz	2.4G rms

25 Watt
AC/DC universal input switch mode power supplies

OUTPUT VOLTAGE	OUTPUT CURRENT		RIPPLE [3]	TOTAL REGULATION [4]	MODEL NUMBERS [B]	
	MAX [1]	PEAK [2]				
+ 5.1V (I_A)	2.0A	5.0A	50mV	±3.0%	NAL25-7608 [4]	NAN25-7608 [4]
+ 12V (I_B)	1.5A	3.0A	120mV	±5.0%		
–12V (I_C)	0.2A	1.0A	120mV	±5.0%		
+ 5.1V	2.0A	5.0A	50mV	±3.0%	NAL25-7628 [9]	NAN25-7628 [9]
+ 12V	0.2A	1.0A	120mV	±5.0%		
–12V	0.2A	1.0A	120mV	±5.0%		
+ 5.1V (I_A)	2.0A	5.0A	50mV	±3.0%	NAL25-7607 [4]	NAN25-7607 [4]
+ 12V (I_B)	1.5A	3.0A	120mV	±5.0%		
–5V (I_C)	0.2A	1.0A	50mV	±5.0%		
+ 5.1V (I_A)	2.0A	5.0A	50mV	±3.0%	NAL25-7610 [4]	NAN25-7610 [4]
+ 15V (I_B)	1.5A	3.0A	160mV	+13%, –0%		
–15V (I_C)	0.2A	1.0A	150mV	±5.0%		
+ 5.1V (I_A)	2.0A	5.0A	50mV	±3.0%	NAL25-7629 [4]	NAN25-7629 [4]
+ 12V (I_B)	1.5A	3.0A	120mV	±5.0%		
5V	5.0A	5.0A	50mV	±3.0%	NAL25-7605	NAN25-7605
12V	2.0A	3.0A	120mV	±3.0%	NAL25-7612	NAN25-7612
15V	1.6A	2.5A	150mV	±3.0%	NAL25-7615	NAN25-7615
24V	1.0A	1.5A	240mV	±3.0%	NAL25-7624	NAN25-7624
48V	0.5A	0.75A	480mV	±3.0%	NAL25-7617	NAN25-7617

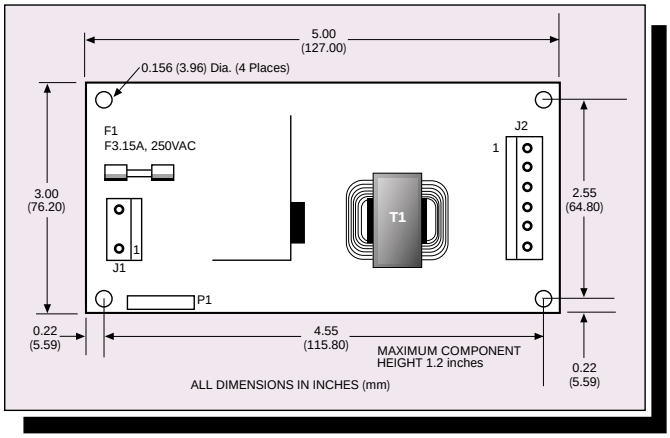
Notes

1 Natural convection cooling (25W maximum).
2 Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, output voltage may exceed total reg. limits.
3 Figure is peak-to-peak. Output noise measurements are made across a 50MHz bandwidth using a 12 inch twisted pair, terminated with a 47µF capacitor.
4 Total regulation is defined as the static output regulation at 25°C, including initial tolerance, line voltage within stated limits, load currents within stated limits and output voltages adjusted to their factory settings. For multiple output units to maintain stated regulation then:
0.25 ≤ I_A / I_B ≤ 5, for I_B > 0.3A
0.50 ≤ I_A / I_B ≤ 5, for I_B < 0.3A
Minimum load must also be 4W to achieve design MTBF.
For maximum output current I(C) on triple-output models, i.e. for I_C = IMax., then I_B min. ≥ 0.5A and I_B ≥ I_C.
5 Three orthogonal axes, random vibration, ten minute test for each axis.
6 Derating curve is application specific for ambient temperatures >50°C, for optimum reliability, no part of the heatsink should exceed 120°C, and no semiconductor case temperature should exceed 130°C.
7 CAUTION: Allow a minimum of 1 second after disconnecting line power when making thermal measurements.
8 This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
9 No minimum load required to maintain regulation on NAL25-7628 and NAN25-7628. The loading conditions in Note 4 do not apply.

AC (J1) mating connector
Molex 09-50-3031 or equiv. with Molex 08-50-0105 or equiv. crimp terminals.
DC (J2) mating connector
Molex 09-91-0600 or equiv. with Molex 08-50-0164 or equiv. crimp terminals.

Mechanical notes

A Ground pad encircling mounting hole near P1 allows system grounding through a metal stand-off of up to 8mm diameter max. to metal chassis.
B A standard L-bracket and cover is available for mounting, which contains all screws, connectors and necessary mounting hardware. Details are on page 72. Order part number 'NAL40 COVER KIT'



INPUT PIN CONNECTIONS	
J1	
Pin 1	AC Neutral
Pin 2	No Pin
Pin 3	AC Line
P1	
Pin 1	Safety Ground

OUTPUT PIN CONNECTIONS					
J2	SINGLE	DUAL	-7608/-7628	-7607	-7610
P1	+Vout	+12V	+12V	+12V	+15V
P2	+Vout	+5.1V	+5.1V	+5.1V	+5.1V
P3	+Vout	+5.1V	+5.1V	+5.1V	+5.1V
P4	Return	Return	Return	Return	Return
P5	Return	Return	Return	Return	Return
P6	Return	N/C	-12V	-5V	-15V