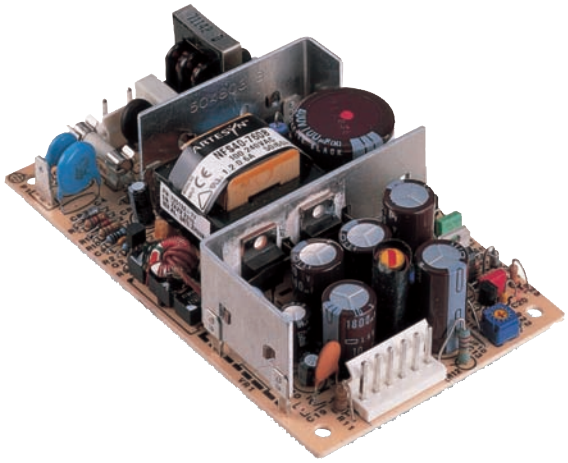
NFS40 Series

SIngle and triple output

Total Power: 40 - 50 W
Input Voltage: 85 - 264 Vac
120 - 370 Vdc

# of Outputs: Single, triple



RoHS 2002/95/EC

Special Features

- 5.0 x 3.0 x 1.2 inch package (1U applications)
- Industry standard package
- Overvoltage and short circuit protection
- 40 W with free air convection
- 50 W with 20 CFM forced air
- EN55022, EN55011 conducted noise level B
- UL, VDE and CSA safety approvals
- Available RoHS compliant
- 2 year warranty

Safety

- VDE0805/EN60950/
- IEC950/IEC1010
- File No. 10401-3336-0044
- License No. 2559

- UL60950-1 File No. E13002

- CSA C22.2 No. 950
- File No. LR41062C

Electrical Specifications

Input		
Voltage adjustability:	+5 V output on triples Vout on singles	± 5.0% ± 5.0%
Line regulation: LL to HL, FL	Main output Auxiliary outputs	± 0.2% ± 1.0%
Load regulation: FL to NL	Main output Auxiliary outputs	± 2.0% ± 5.0%
Transient response:	+5 V (1.5 - 3 A)	± 120 mV max. dev. 500 µs recovery
Temperature coefficient:	All outputs	± 0.02%/°C
Overvoltage protection:	+5 V output	S3.15 A, 250 Vac In live and neutral
Output power limit:	Primary power limited	90 W input power limit
Short circuit protection:	Single outputs Multiple outputs	Continuous Short term
Output		
Input voltage range:	Universal input	85 - 264 Vac 120 - 370 Vdc
Input frequency range:		47-440 Hz
Max. input surge current:	132 Vac, cold start 264 Vac, cold star	12 A max. 24 A max.
Safety ground leakage current:	110 Vac, 60 Hz 230 Vac, 50 Hz	0.13 mA, max. 0.32 mA, max.

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EMERSON Network Power

Specifications

All specifications are typical at nominal input, full load at 25 °C unless otherwise stated

EMC Charateristics (11, 12)		
Conducted emissions:	EN55022, FCC part 15	Level B
Radiated emissions:	EN55022	Level A
ESD air:	EN61000-4-2, level 3	Perf. criteria 1
ESD contact:	EN61000-4-2, level 4	Perf. criteria 1
Surge:	EN61000-4-2, level 3	Perf. criteria 1
Fast transients:	EN61000-4-4, level 3	Perf. criteria 1
Radiated immunity:	EN61000-4-3, level 3	Perf. criteria 2
Conducted immunity:	EN61000-4-6, level 3	Perf. criteria 2
General Specifications		
Hold-up time:	110 Vac, 40 W 230 Vac, 40 W	14 ms 110 ms
Efficiency:		70% typical
Isolation voltage:	Input/output Input/chassis	3000 Vac 1500 Vac
Switching frequency:	Variable	
Approvals and standards: (see Notes 9, 13)	VDE0805, EN60950, IEC950, IEC1010, UL1950, CSA C22.2 No. 950	
Weight:	280 g (9.88 oz)	
MTBF demonstrated:	MIL-HDBK-217E	170,000 hours

Environmental Specifications

Thermal performance:	Operating	0° C to +70 °C
(See notes 8, 10)	Non-operating	-40 °C to +85 °C
	50 °C ambient temp., convection cooled	40 W
	Forced air cooling	50 W @ 20 CFM
	+50 °C to +70 °C ambient	Derate linearly to 50% load
	Peak (60 seconds)	60W
Relative humidity:	Non-condensing	5 to 80% RH
Altitude:	Operating	10,000 feet max.
	Non-operating	40,000 feet max.
Vibration (See Note 11):	5-500 Hz	2.4 G rms peak

Ordering Information

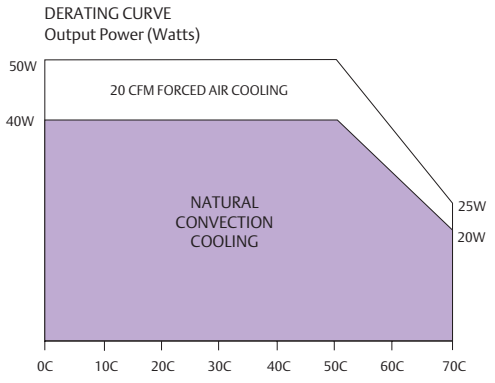
Output Voltage	Output Currents			Ripple [4]	Total Regulation [5]	Model Numbers [13, 14, F]
	Max [1]	Peak [2]	Fan [3]			
+5.1 V (A)	3 A	7 A	5 A	50 mV	± 2.0%	NFS40-7608J [5,6]
+12 V (B)	2 A	3 A	2 A	120 mV	± 5.0%	
–12 V (C)	0.35 A	1 A	0.5 A	120 mV	± 5.0%	
+5.1 V (A)	4 A	7 A	5 A	50 mV	± 2.0%	NFS40-7628J [12]
+12 V (B)	0.35 A	1 A	0.5 A	120 mV	± 5.0%	
-12 V (C)	0.35 A	1 A	0.5 A	120 mV	+ 5.0%	
+5.1 V (A)	3 A	7 A	5 A	50 mV	± 2.0%	NFS40-7607J [5,6]
+12 V (B)	2 A	3 A	2 A	120 mV	± 5.0%	
-5.0 V (C)	0.35 A	1 A	0.5 A	50 mV	± 5.0%	
+5.1 V (A)	3 A	7 A	5 A	50 mV	± 2.0%	NFS40-7610J [5,6]
+15 V (B)	2 A	2.5 A	2 A	150 mV	± 10.0%/-3.0%	
–15 V (C)	0.35 A	1 A	0.5 A	150 mV	± 5.0%	
3.3 V	6 A	12 A	8 A	100 mV	± 2.0%	NFS40-76S3J
+5.1 V	6 A	12 A	8 A	100 mV	± 2.0%	NFS40-7605J
+12.0 V	3.3 A	5 A	4 A	120 mV	± 2.0%	NFS40-7612J
+15.0 V	2.6 A	4 A	3.3 A	150 mV	± 2.0%	NFS40-7615J
+24.0 V	1.6 A	2.5 A	2 A	240 mV	± 2.0%	NFS40-7624J

Notes

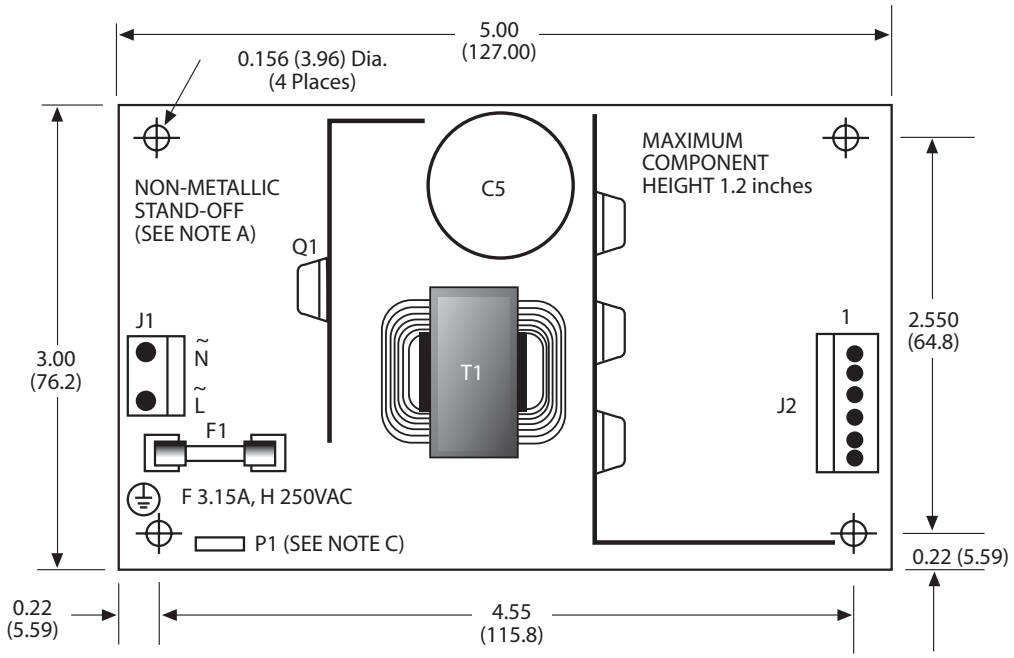
1. Natural convection cooled, 40 W maximum.
2. Peak output current lasting less than 30 seconds with duty cycle less than 10%. During peak loading, outputs may go outside of total regulation limits. Peak total power must not exceed 60 W.
3. Forced air, 20 CFM at 1 atmosphere, 50 W maximum.
4. Figure is peak-to-peak. Output noise is measured across a 50 MHz bandwidth using a 12 inch twisted pair, terminated with a 47 µF capacitor.
5. 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. Also, 0.25<I(A)/I(B)<5.0 to maintain stated regulation. This does not apply to the NFS40-7628J power supply as it has regulated auxiliary outputs.
6. A minimum load of 0.5 A is required on the +5 V output to obtain full current from the negative output.
7. The NFS40 offers the possibility of power sharing between outputs. Consult factory for details.
8. Derating curve is application specific for ambient temperatures >50 °C, for optimum reliability no part of the heatsink should exceed 110 °C and no semiconductor case temperature should exceed 115 °C.
9. A 4 W minimum load is recommended to achieve the design MTBF.
10. Caution: Allow a minimum of 1 second after disconnecting the power when making thermal measurements.
11. Three orthogonal axes, sweep at 1 octave/minute, 5 minute dwell at four major resonances.
12. The NFS40-7628J has separately linear regulated +12 V and -12 V outputs. The loading conditions in Notes 5 and 6 do not apply.
13. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
14. The 'J' suffix indicates that these parts are Pb-free (RoHS 6/6) compliant.
15. NOTICE: Some models do not support all options. Please contact your local Emerson Network Power representative or use the on-line model number search tool at http://www.Emerson.com/EmbeddedPower to find a suitable alternative.

Pin Connections

J1	-7608J, -7628J	-7607J	-7610J	SINGLES
Pin 1	AC Live	AC Live	AC Live	AC Line
Pin 2	AC Neutral	AC Neutral	AC Neutral	AC Neutral
J2				
Pin 1	+12 V	+12 V	+15 V	+Vout
Pin 2	+5.1 V	+5.1 V	+5.1 V	+Vout
Pin 3	+5.1 V	+5.1 V	+5.1 V	+Vout
Pin 4	Return	Return	Return	Return
Pin 5	Return	Return	Return	Return
Pin 6	-12 V	-5 V	-15 V	Return
P1 [c]				
Pin 1	Safety Ground			



Mechanical Drawing



ALL DIMENSIONS IN INCHES (mm)

Mechanical Notes

A In order to meet safety requirements, a non-metallic stand-off is mandatory for one hole as specified in the mechanical drawing above.

B The ground pad of the mounting hole near P1 allows system grounding through a metal stand-off.

C To improve conducted noise, the ground pad of the mounting hole near the output connector should be connected with the ground pad of the mounting hole near P1. Use metal stand-offs attached to a common metal chassis. This connection also significantly attenuates common mode noise.

D A standard enclosure kit is available for mounting which contains all screws, connectors and necessary mounting hardware. Order part number NFS40CJ.

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