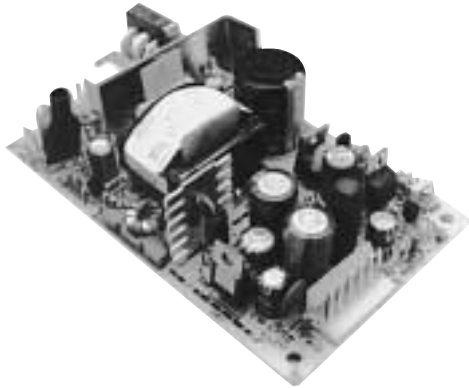


## NFN25 SERIES

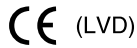
Dual and triple output



- 85VAC to 264VAC universal input range
- 120VDC to 370VDC input voltage range
- Fixed frequency operation
- Overvoltage protection (+5V output)
- Meets EN55022 limit B and FCC part 15 limit B line conducted noise
- VDE, UL and CSA approved

The NFN25 Series of universal input, 25 Watt switching power supplies are mechanically equivalent to the industry standard NFS40, but are optimised for operation at lower output power levels. The NFN25 Series uses an advanced, fixed frequency design which further reduces the line-conducted noise below EN55022 and FCC limit B and specifies a much lower leakage current. The supplies deliver 25W continuous, 35W peak and regulate to zero load. NFN25 Series power supplies are particularly suitable for telecoms applications such as modems, PABX's and networking systems.

[ 2 YEAR WARRANTY ]



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

| OUTPUT SPECIFICATIONS            |  |  |
|----------------------------------|--|--|
| Output power                     | Continuous<br>Peak (60s)   | 25W<br>35W                                 |
| Line regulation<br>LL to HL, FL  | Main output (Output 1)<br>Output 2<br>Output 3                   | ±0.2%, max.<br>±1%, max.<br>±0.2%, max.    |
| Total regulation<br>(See Note 4) | Main output (Output 1)<br>Auxilliary output<br>Auxilliary output | ±2.0%, max.<br>see table<br>see table      |
| Overshoot/undershoot             | At turn-on   | 0%   |
| Transient response               | +5V<br>(1.5 to 3A step)  | ±120mV max. dev.<br>500µs recovery         |
| Temperature coefficient          | All outputs  | ±0.02%/°C, max.                            |
| Overvoltage protection           | +5V output   | 6.25V ±0.75V                               |
| Output power limit               | Primary power<br>limited   | 60W Pin limit, max.<br>35W Pin limit, min. |
| Short circuit protection         |  | Continuous                                 |
| INPUT SPECIFICATIONS             |  |  |
| Input voltage range              |  | 85 to 264VAC<br>120 to 370VDC              |
| Input frequency range            |  | 47 to 440Hz                                |
| Input surge current              | 110VAC, cold start<br>230VAC, cold start                         | 15A max.<br>32A max.                       |
| Safety ground<br>leakage current | 132VAC, 60Hz<br>264VAC, 50Hz                                     | 155µA, max.<br>261µA, max.                 |

| ELECTROMAGNETIC COMPATIBILITY SPECIFICATIONS CON'T |                      |                  |
|--|----------------------|------------------|
| Conducted emissions                                | EN55022, level B     |                  |
| Radiated emissions                                 | EN55022, level B     |                  |
| ESD air  | EN61000-4-2, level 3 | Perf. criteria 1 |
| ESD contact  | EN61000-4-2, level 4 | Perf. criteria 1 |
| Surge  | EN61000-4-5, 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 1 |

| GENERAL SPECIFICATIONS  |  |                    |
|-------------------------|--|--------------------|
| Hold-up time            | 110VAC input<br>230VAC input   | 16ms<br>80ms       |
| Efficiency              | 25W output   | 70% typical        |
| Isolation voltage       | Input/output<br>Input/chassis  | 3000VAC<br>1500VAC |
| Switching frequency     |  | Fixed, 45kHz ±5kHz |
| Approvals and standards | IEC950, IEC1010, EN60950<br>UL1950, VDE0805, BAPT<br>CSA C22.2 No. 950 |                    |
| Weight                  |  | 280g (9.6oz)       |
| MTBF                    | MIL-HDBK-217E, 25°C  | 170,000 hours      |

| ENVIRONMENTAL SPECIFICATIONS |   |  |
|------------------------------|---|--|
| Thermal performance          | 0°C to 50°C ambient,<br>convection cooled<br>50°C to +70°C ambient<br>convection cooled<br>Peak (0°C to +50°C,<br>max. 60 seconds)<br>Non-operating | 25W max.<br><br>Derate to<br>50% load<br>35W<br><br>-40°C to +85°C |
| Relative humidity            | Non-condensing  | 5% to 95% RH   |
| Altitude                     | Operating<br>Non-operating  | 10,000 feet max.<br>30,000 feet max.                               |
| Vibration                    | Random vibration<br>Three orthogonal axes<br>10 min. test per axis  | 2.4G rms approx.<br>5Hz to 500Hz                                   |

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# 25 Watt AC/DC universal input switch mode power supplies


| OUTPUT VOLTAGE | OUTPUT CURRENTS |                    |                     | RIPPLE <sup>(3)</sup> | TOTAL REGULATION <sup>(4)</sup> | MODEL NUMBER              |
|----------------|-----------------|--------------------|---------------------|-----------------------|---------------------------------|---------------------------|
|                | MIN             | MAX <sup>(1)</sup> | PEAK <sup>(2)</sup> |                       |                                 |                           |
| +5.1V (A)      | 0A              | 2.0A               | 5.0A                | 50mV                  | ±2.0%                           | NFN25-7608                |
| +12.0V (B)     | 0A              | 1.5A               | 3.0A                | 120mV                 | ±5.0%                           |                           |
| -12.0V         | 0A              | 0.2A               | 1.0A                | 120mV                 | ±5.0%                           |                           |
| +5.1V          | 0A              | 3.0A               | 5.0A                | 50mV                  | ±2.0%                           | NFN25-7628 <sup>(5)</sup> |
| +12.0V         | 0A              | 0.2A               | 1.0A                | 120mV                 | ±2.0%                           |                           |
| -12.0V         | 0A              | 0.2A               | 1.0A                | 120mV                 | ±2.0%                           |                           |
| +5.1V (A)      | 0A              | 2.0A               | 5.0A                | 50mV                  | ±2.0%                           | NFN25-7629                |
| +12.0V (B)     | 0A              | 1.5A               | 3.0A                | 120mV                 | ±5.0%                           |                           |

## Notes


- Natural convection cooling.
- Peak output current lasting less than 60 seconds with duty cycle less than 5%. During peak loading, outputs may go outside of total regulation limits. Total peak power output is 35 Watts.
- Figure is peak-to-peak. Output noise measurements are made across a 50MHz bandwidth using a 12" twisted pair, terminated with a 47µF cap.
- 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,  $0.5 \leq I(A)/I(B) \leq 3$  to maintain stated regulation. This does not apply to the NFN25-7628.
- The NFN25-7628 has separately regulated +12V and -12V outputs. The loading condition in note 4 does not apply.
- Derate linearly from 25 Watts at 50°C to 12.5 Watts at 70°C.
- 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 125°C.
- Caution: Allow a minimum of 1 second after disconnecting the power before making thermal measurements.
- This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.

| PIN CONNECTIONS |                     |            |            |
|-----------------|---------------------|------------|------------|
| J1              | -7608               | -7628      | -7629      |
| Pin 1           | AC Live             | AC Live    | AC Live    |
| Pin 2           | AC Neutral          | AC Neutral | AC Neutral |
| J2              |                     |            |            |
| Pin 1           | +12V                | +12V       | +12V       |
| Pin 2           | +5.1V               | +5.1V      | +5.1V      |
| Pin 3           | +5.1V               | +5.1V      | +5.1V      |
| Pin 4           | Return              | Return     | Return     |
| Pin 5           | Return              | Return     | Return     |
| Pin 6           | -12V                | -12V       | N/C        |
| P1              |                     |            |            |
| Pin 1           | Safety Earth Ground |            |            |

## International Safety Standard Approvals

 VDE0805/EN60950/IEC950/IEC1010  
File No. 10401-3336-10674 Licence No. 2559, 1651

 UL1950 File No. E136005

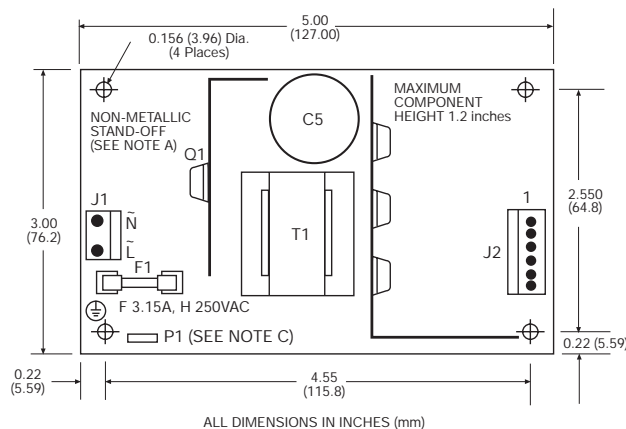
 CSA 22.2 No. 950 File No. LR41062C/LR50913/LR101320

## AC mating connector

Molex 09-50-3031 or equiv. with Molex 08-50-0105 crimp terminals or equiv.

## DC mating connector

Molex 09-91-0600 or equiv. with Molex 08-50-0164 crimp terminals or equiv.



## Mechanical notes

- The ground pad of the mounting hole near P1 allows system grounding through a metal stand-off.
- 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 J3. Use metal stand-offs attached to a common metal chassis. This connection also significantly attenuates common mode noise.
- A standard L-bracket and cover is available for mounting which contains all screws, connectors and necessary mounting hardware. Details are on page CHECK. Order part number 'NFS40 COVER KIT'.

