

NFC25 SERIES

Single and triple output



[2 YEAR WARRANTY]

- **Typical efficiency 80%**
- **Low profile 0.43 inches**
- **Remote ON/OFF**
- **BTR2511 conformance**
- **UL, CSA and TÜV approvals**
- **EN55022 conducted emissions level B**
- **Industry standard footprint**
- **Fixed operating frequency**
- **Load sharing facility**

The NFC25 Series of DC/DC converters provide 25 Watts of power in a low profile, 11mm, industry standard package. Key design specifications are tight line and load regulation, 80% efficiency, load sharing facility, conducted emissions to EN55022 level B, and the BTR2511 requirements (hold-up time, reverse polarity protection etc.). These specifications have been enhanced by adding such standard features as remote on/off, short circuit protection and overvoltage protection. Both single and triple output versions are available and the input voltage ranges encompass 9-18VDC, 18-36VDC and 36-72VDC. The NFC25 Series is ideal for applications such as telecommunications, process control, factory automation, mobile and test equipment.

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

| OUTPUT SPECIFICATIONS | | |
|--------------------------------------|---|--|
| Voltage accuracy | 5V Auxiliary outputs | ±1.0% ±3.0% |
| Voltage adjustability | All Outputs | ±10% |
| Line regulation | LL to HL, +5V output LL to HL, auxiliaries | ±0.2% ±1.5% |
| Load regulation | FL to NL, +5V output, See Note 6 Auxiliary output | ±1%, max. See diagram |
| Cross regulation | | See graphs |
| Ripple and noise 5Hz to 20MHz | 5V output Auxiliaries | 80mV pk-pk, max. 150mV pk-pk, max. |
| Temperature coefficient | All outputs | ±0.02%/°C, max. |
| Overvoltage protection | 5V output Auxiliary | 6.8V, typical None |
| Short circuit protection | 5V output Auxiliary | Indefinite 10 seconds, max. |
| INPUT SPECIFICATIONS | | |
| Input voltage range | 12VDC 24VDC 48VDC | 9 to 18VDC 18 to 36VDC 36 to 72VDC |
| Continuous input overvoltage | ETS300-132 (48VDC version) | 75VDC |
| No load input current | 12VDC 24VDC 48VDC | 120mA 60mA 50mA |
| Input filter | | Pi network |
| Remote ON/OFF Logic compatibility | | See Note 9 CMOS and TTL |
| On | | >1.5V or open |
| Off | | <0.4V |

| EMC CHARACTERISTICS | | |
|------------------------------|---|---|
| Radiated noise | EN55022/11, FCC part 15 | Class B |
| Conducted noise | EN55022/11, FCC part 15 48V input models 12V and 24V input models | Class B Class A |
| GENERAL SPECIFICATIONS | | |
| Efficiency | | 80% typical 78%, min. |
| Isolation voltage | Input/output | 500VDC |
| Switching frequency | Fixed | 150kHz |
| Approvals and standards | | EN60950, IEC950, UL1950 CSA C22.2 No. 950 |
| Case material | | Aluminum with plastic non-conductive base |
| Material flammability | | UL94V-0 |
| Weight | | 75g (2.6oz) |
| MTBF | MIL-HDBK-217E | 330,000 hours |
| ENVIRONMENTAL SPECIFICATIONS | | |
| Thermal performance | Operating ambient Non-operating Cooling Derating | -25°C to +70°C -45°C to +100°C Free air convection cooled None |
| Relative humidity | Non-condensing | 5% to 95% RH |
| Altitude | Operating Non operating | 10,000 feet max. 40,000 feet max. |
| Vibration | 5Hz to 500Hz | 2.5G rms (approx.) |

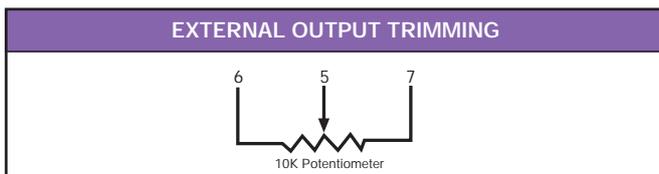
25 Watt Wide input DC/DC converters

| INPUT VOLTAGE (1) | OUTPUT VOLTAGE | OUTPUT CURRENT (MAX.) | INPUT CURRENT FULL LOAD | REGULATION | | MODEL NUMBER |
|-------------------|----------------|-----------------------|-------------------------|-------------|-------------|----------------|
| | | | | LINE (2) | LOAD (3,4) | |
| 9-18VDC | 5VDC | 5A | 2.75A | ±0.2% | ±1.0% | NFC25-12S05 |
| 9-18VDC | 5/±12VDC | 5/±1A | 2.75A | ±0.2%/±1.5% | ±1.0%/graph | NFC25-12T05-12 |
| 9-18VDC | 5/±15VDC | 5/±0.8A | 2.75A | ±0.2%/±1.5% | ±1.0%/graph | NFC25-12T05-15 |
| 18-36VDC | 5VDC | 5A | 1.35A | ±0.2% | ±1.0% | NFC25-24S05 |
| 18-36VDC (5) | 5/±12VDC | 5/±1A | 1.35A | ±0.2%/±1.5% | ±1.0%/graph | NFC25-24T05-12 |
| 18-36VDC (5) | 5/±15VDC | 5/±0.8A | 1.35A | ±0.2%/±1.5% | ±1.0%/graph | NFC25-24T05-15 |
| 36-72VDC | 5VDC | 5A | 0.68A | ±0.2% | ±1.0% | NFC25-48S05 |
| 36-72VDC | 5/±12VDC | 5/±1A | 0.68A | ±0.2%/±1.5% | ±1.0%/graph | NFC25-48T05-12 |
| 36-72VDC | 5/±15VDC | 5/±0.8A | 0.68A | ±0.2%/±1.5% | ±1.0%/graph | NFC25-48T05-15 |

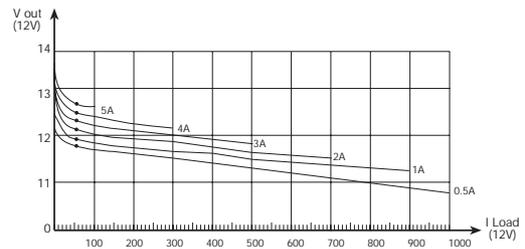
Notes

- Nominal input voltages are 12VDC, 24VDC and 48VDC.
- Measured from high line to low line at nominal loads.
- Measured from full load to no load. (For triple output versions, auxiliary outputs at no load).
- Auxiliary ±12V load regulation, 15% full load to 100% full load.
Initial: 5V @ 2.1A, ±12V @ 0.6A.
Final: 5V @ 2.1A, ±12V @ 0.09A.
Auxiliary ±15V load regulation, 20% full load to 100% full load.
Initial: 5V @ 2.1A, ±15V @ 0.5A.
Final: 5V @ 2.1A, ±15V @ 0.1A.
- To order 24V triple output versions of the NFC25 with reverse polarity inputs, add the suffix '-A' to the model number, e.g. **NFC25-24T05-12-A**.
- A minimum load of 1 Amp is required on the 5V output in order to maintain regulation of the auxiliary outputs.
- A load sharing facility is available, whereby the 25 Watts of power is available to any single output or any combination of outputs. There are, however, two prerequisites: the maximum output current may not be exceeded and the regulation is maintained as per Note 6.
- Nominal load conditions for triple output versions:
5V @ 2.1A, ±12V @ 0.6A and 5V @ 2.1A, ±15V @ 0.5A.
- The unit will be damaged by the application of a low impedance voltage source to the remote on/off pin.
- Maximum case temperature must not be exceeded. Derating may be extended or restricted depending on available cooling.

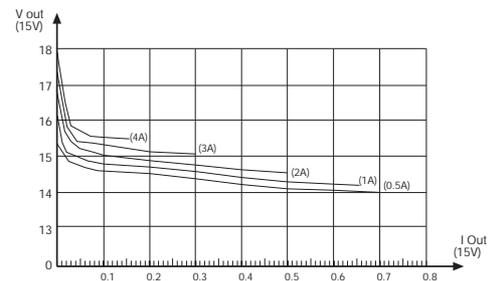
| PIN CONNECTIONS | | | | |
|-----------------|------------------|--------------|----------------------|--------------|
| PIN NUMBER | STANDARD PIN OUT | | PIN OUT OPTION A (5) | |
| | SINGLES | TRIPLES | SINGLES | TRIPLES |
| 1 | - Input | - Input | +24V | +24V |
| 2 | + Input | + Input | -24V | -24V |
| 3 | N/C | N/C | N/C | N/C |
| 4 | Remote | Remote | Remote | Remote |
| 5 | Adjust | Adjust | Adjust | Adjust |
| 6 | +5V | +5V | +5V | +5V |
| 7 | Return | Return | Return | Return |
| 8 | N/C | +12V or +15V | N/C | +12V or +15V |
| 9 | N/C | -12V or -15V | N/C | -12V or -15V |



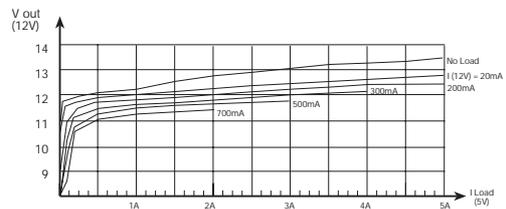
Load Regulation, ± 12V



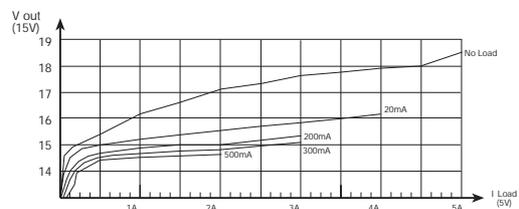
Load Regulation, ± 15V



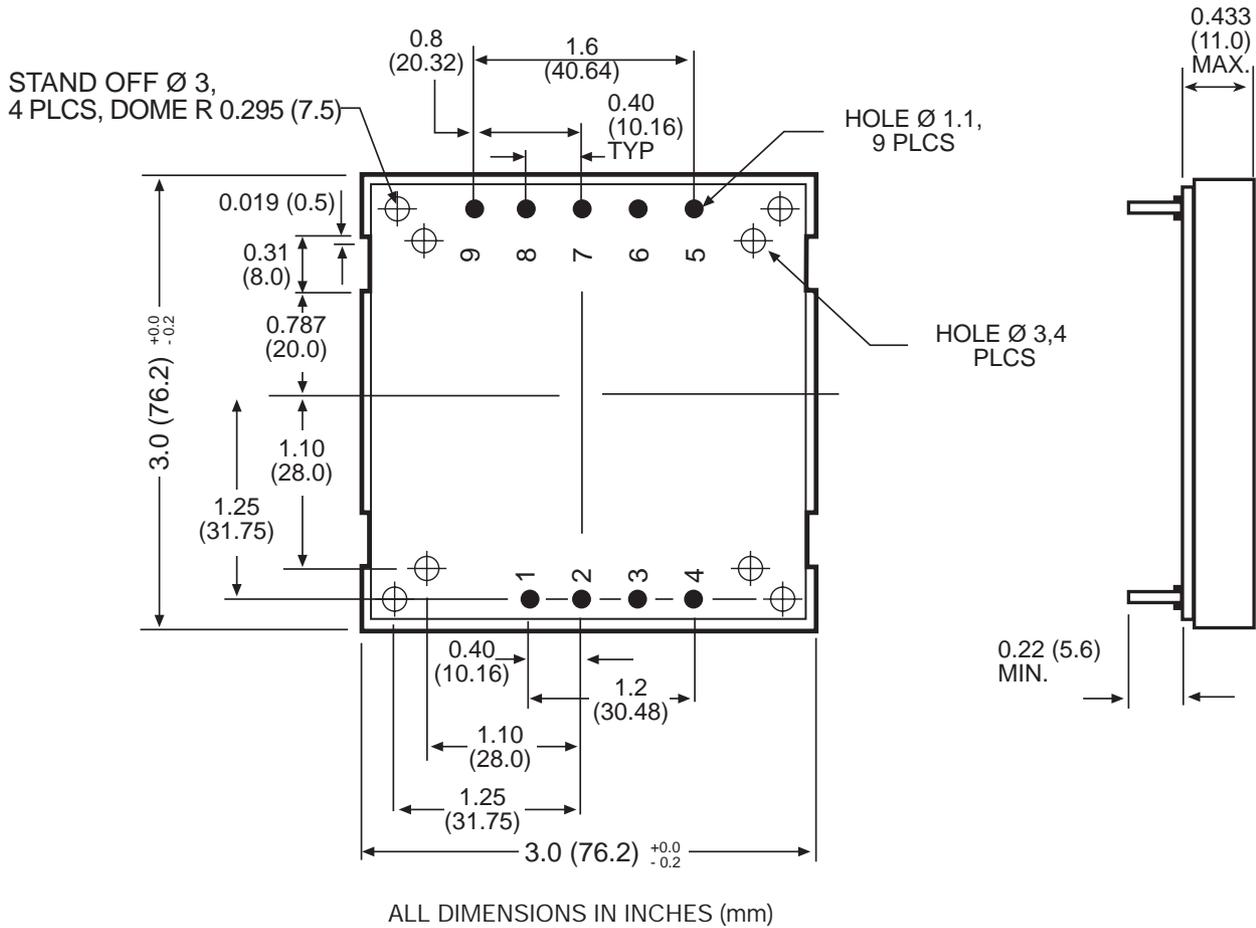
Cross Regulation, ± 12V



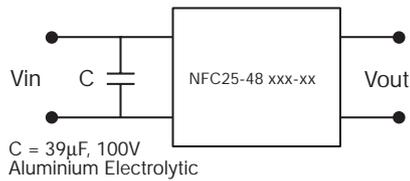
Cross Regulation, ± 15V



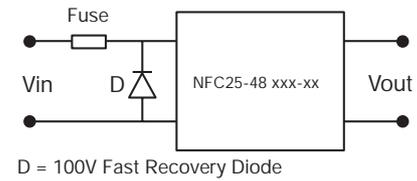
25 Watt Wide input DC/DC converters



Design Notes for 48V input versions:
VDE0871-B



BTR2511 Reverse polarity protection



International Safety Standard Approvals

TÜV EN60950/IEC950 Reg. File No. 92 05 2584 533

UL1950 File No. E136005

CSA C22.2 No. 950 File No. LR41062C