

[ 2 YEAR WARRANTY ]

## NFC25 SERIES

Single and triple output

- 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 On Off	See Note 9 CMOS and TTL >1.5V or open <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

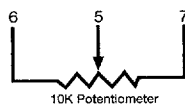
## Notes

- 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.

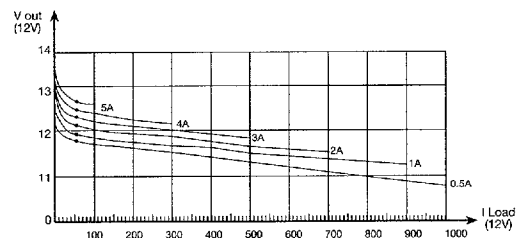
## PIN CONNECTIONS

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

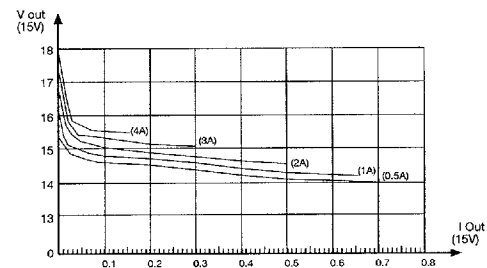
## EXTERNAL OUTPUT TRIMMING



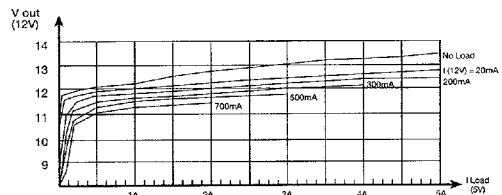
## Load Regulation, ±12V



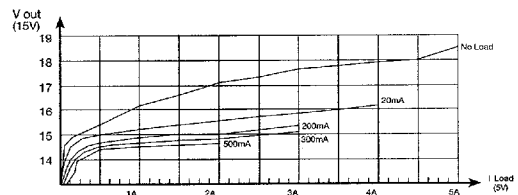
## Load Regulation, ±15V



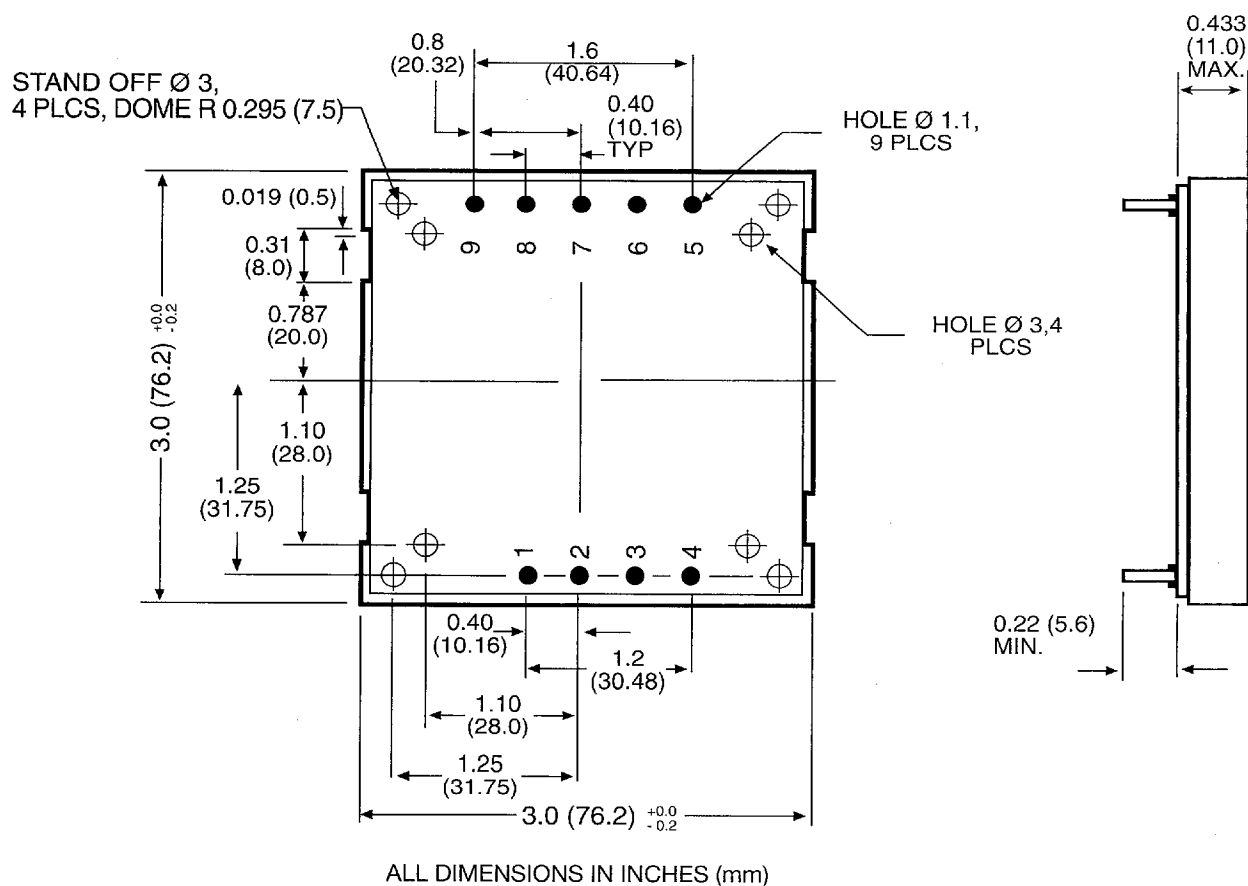
## Cross Regulation, ±12V



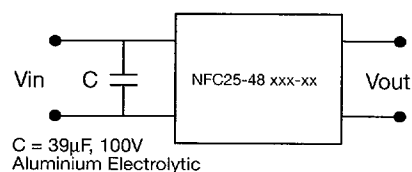
## Cross Regulation, ±15V



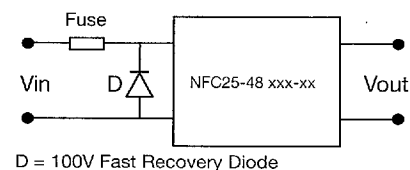
## 25 Watt Wide input DC/DC converters



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