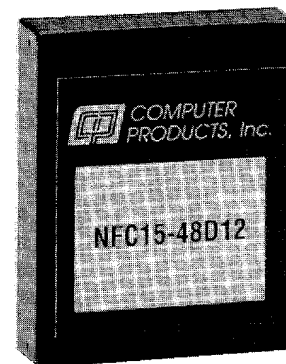


NFC15 SERIES

15 Watt Hybrid DC/DC Converters

- Extra wide 3:1 input range
- High efficiency
- Low profile case
- Overvoltage protection
- Overcurrent protection
- Inhibit/sync input
- Two year warranty
- UL 1459, 2nd edition, telecom approved
- Recommended for new designs



The NFC series are economical 15 watt, high efficiency hybrid DC/DC converters that accept input voltages ranging from 20VDC to 72VDC. They maintain a nearly-constant 80% efficiency over the entire input voltage range, and provide full output power without derating up to 60°C without the need for additional heatsinking. The isolated floating output can be referenced as either positive or negative, or "stacked" in series for higher output voltages.

The NFC series includes current limited outputs, overvoltage protection and CMOS/TTL compatible remote inhibit/sync input. The compact 1.6 × 2.0 × 0.46 inch low profile package is ideal for space-critical applications in telecommunications, data communications, distributed power networks, field test and battery powered systems.

Model Number ^(1,2)	Output Voltage	Output Currents		Ripple, P.P. ⁽⁴⁾ Max	Error Band Max ⁽⁵⁾
		Minimum ⁽³⁾	Maximum		
NFC15-48S05	5.0V	0A	3A	75 mV	±2%
NFC15-48S12	12.0V	0A	1.25A	75 mV	±2%
NFC15-48S15	15.0V	0A	1.0A	75 mV	±2%
NFC15-48D12	+12.0V	0.156A	0.625A	75 mV	±4%
	-12.0V	0.156A	0.625A	75 mV	±4%
NFC15-48D15	+15.0V	0.13A	0.50A	75 mV	±4%
	-15.0V	0.13A	0.50A	75 mV	±4%

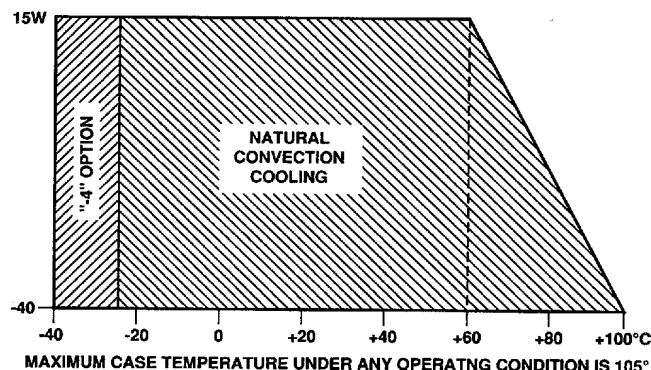
Notes:

- (1) The NFC15 series requires an input capacitor for proper operation. Please see note (6) on the next page.
- (2) For guaranteed operation at -40°C, please add "-4" to any of these model numbers. Contact the factory for availability.
- (3) For dual output models, zero output load is permissible. The minimum

specified output current is necessary to guarantee the output error band specification.

- (4) 20MHz bandwidth.
- (5) Error band is defined as the static output regulation at 25°C, including initial setting accuracy, line voltage within stated limits and load.

OPERATING LIMITS AND OUTPUT POWER RANGE



ELECTRICAL SPECIFICATIONS⁽⁵⁾

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Parameter	Conditions	Limits
Input Voltage		20 VDC to 72 VDC
Input Filter		See note 6
Input Surge Protection		100V for 100mS
Reflected Ripple Current		Determined by external filter circuit
Input Current	Converter ON, no output load full load Converter inhibited	15 mA 400 mA maximum 15 mA
Setting Accuracy	Single output Dual output, (+) output	±1% ±1.5%
External Trim Adjustment Range		±10% minimum
Line Regulation	Low line to high line, full load	±0.5%
Load Regulation	Single output, full load to 25% load full load to no load Dual output, full load to 50% load full load to no load	±0.5% ±1% ±1% ±5%
Temperature Coefficient		±0.02%/°C
Voltage Stability	24 hours	±0.05% maximum
Transient Response	25% load step	150 mV peak transient settling within 1% in 1 ms
Output Ripple and Noise⁽⁷⁾	20 MHz bandwidth	75 mV P-P maximum 15 mV RMS maximum
Overshoot/Undershoot	Turn-on	None
Overvoltage Protection Threshold	5V output 12V output 15V output	6.2V 15V 18V
Short Circuit Protection	Current limit, automatic recovery	Indefinite duration
Total Output Power	60°C ambient temperature	15 watts maximum
Isolation Voltage	Input to output	500 VDC minimum
Isolation Resistance	Input to output	10 ⁸ ohms minimum
Switching Frequency		200 KHz ±5%
Inhibit Function	Logic compatibility ON OFF	CMOS/TTL compatible Logic high or open Logic low or jumper pins 2 and 4
Altitude	Operating Non-operating	10,000 feet maximum 40,000 feet maximum
Temperature	Operating (standard model) Operating (-4 models) Case temperature Non-operating	-25°C to +60°C -40°C to +60°C +105°C maximum -55°C to +125°C
Cooling		Free air convection
Relative Humidity	Non-condensing	5% to 95%
Vibration	Three orthogonal axes, random vibration 10 minute test for each axes	2.4G RMS (approximately) 5 Hz to 500 Hz
MTBF	MIL-HDBK 217E - Demonstrated	1,000,000 hours minimum
Weight		2 oz. (57 grams)
Case Material		Black anodized aluminum with non-conductive base
Flammability Rating		Meets UL 94V-0

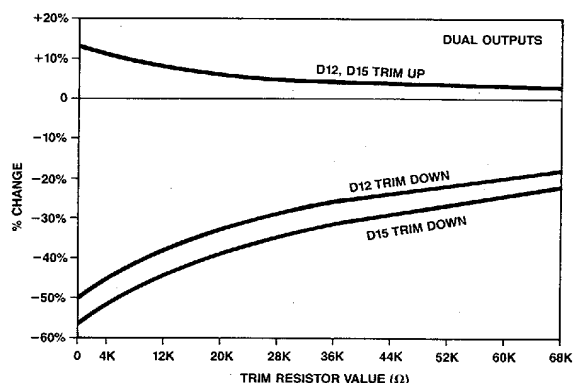
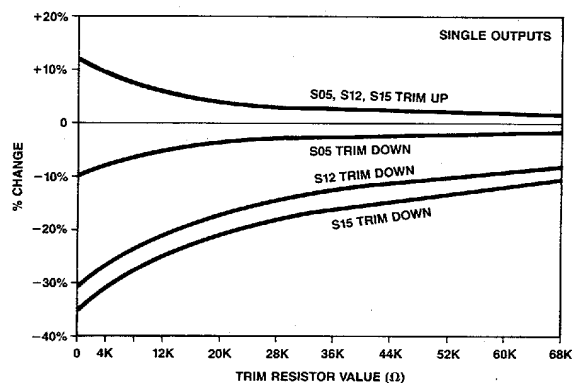
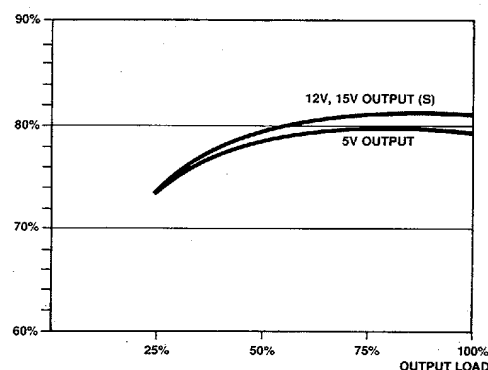
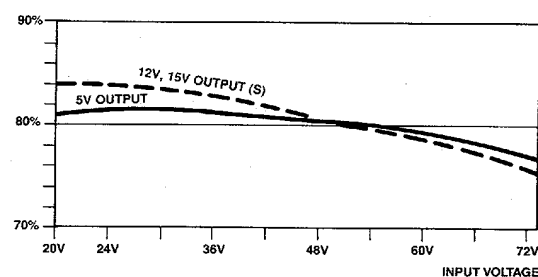
Notes:

- (5) All specifications typical at 48VDC input, full output load, 25°C ambient temperature unless otherwise noted.
 (6) The NFC15 series requires an external filter capacitor across the input, which must withstand 600mA of ripple current. CPI recommends a 33μF @ 100V capacitor (Sprague type 672D or equivalent).
 (7) 20 MHz bandwidth.

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Output Voltage Trim Procedure

The output voltage(s) can be trimmed up or down using either a fixed value resistor or a potentiometer. The trim up resistor should be connected between Pin 7 and "Trim". The trim down resistor should be connected between "+V_{out}" and "Trim". Alternatively, the output voltage(s) can be made continuously adjustable by connecting a 10K pot between "+V_{out}" and "-V_{out}", with the pot's wiper arm connected to "Trim".

**TYPICAL EFFICIENCY VS. OUTPUT LOAD (48VDC INPUT)****TYPICAL EFFICIENCY VS. INPUT VOLTAGE (FULL OUTPUT LOAD)****MECHANICAL SPECIFICATIONS****PIN CHART**

	NFC15-48S05	NFC15-48S12	NFC15-48S15	NFC15-48D12	NFC15-48D15
Pin 1	Input (+)	Input (+)	Input (+)	Input (+)	Input (+)
Pin 2	Input (-)	Input (-)	Input (-)	Input (-)	Input (-)
Pin 3	(no pin)	(no pin)	(no pin)	(no pin)	(no pin)
Pin 4	Control	Control	Control	Control	Control
Pin 5	(no pin)	(no pin)	(no pin)	+12V	+15V
Pin 6	+5V	+12V	+15V	Output Return	Output Return
Pin 7	Output Return	Output Return	Output Return	-12V	-15V
Pin 8	Trim	Trim	Trim	Trim	Trim

