

DC/DC CONVERTERS**HIGH DENSITY, 4:1 ULTRA WIDE INPUT RANGE****FEATURES**

- 4:1 INPUT RANGE
- SINGLE AND DUAL OUTPUTS
- EXTENDED TEMPERATURE RANGE:
-40°C TO +85°C
- INDUSTRY STANDARD PINOUTS
- SIX-SIDED SHIELDING
- LOW PROFILE 0.4 INCH
- 11.7 WATTS/CUBIC INCH
- REMOTE ON-OFF/SYNC FUNCTION
- OUTPUT VOLTAGE TRIM: $\pm 10\%$

DESCRIPTION

The WFC15R Series is a family of high performance DC/DC converters that offers regulated outputs over an input range of 20 to 75V and over a wide operating temperature range of -40°C to +85°C.

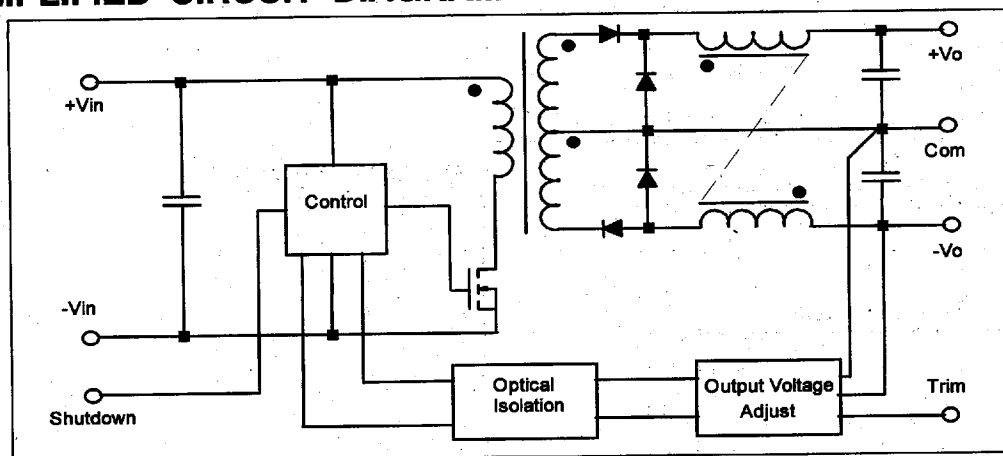
An output voltage adjust of $\pm 10\%$ is provided. In addition, a CMOS/TTL open-collector compatible remote on-off (shutdown) pin is available to put the unit into a low current consumption (typically $< 1\text{mA}$) standby mode. This pin may also be used to synchronize the unit with an external clock.

APPLICATIONS

- TELECOMMUNICATION APPLICATIONS
- BATTERY POWERED SYSTEMS
- PORTABLE INSTRUMENTS
- PROCESS CONTROL EQUIPMENT
- TRANSPORTATION EQUIPMENT
- DISTRIBUTED POWER SYSTEMS

The 200 KHz switching frequency and forward converter topology provides optimum performance over the full input range in a space-saving package. The design uses all surface mounted components including magnetic components to provide enhanced reliability.

The entire circuit is constructed on an aluminum substrate printed wiring board which provides improved thermal performance.

SIMPLIFIED CIRCUIT DIAGRAM

ELECTRICAL SPECIFICATIONS

Specifications typical at $T_A = +25^{\circ}\text{C}$, nominal input voltage, rated output current unless otherwise specified.

MODEL	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT		INPUT CURRENT		EFFICIENCY (%)
			MIN LOAD (mA)	RATED LOAD (mA)	MIN LOAD (mA)	RATED LOAD (mA)	
WFC15R48S05	48	5	300	3000	50	400	77
WFC15R48S12	48	12	125	1250	50	390	80
WFC15R48S15	48	15	100	1000	50	390	80
WFC15R48D12	48	± 12	± 156	± 625	100	385	81
WFC15R48D15	48	± 15	± 125	± 500	100	385	81

NOTE: Other input to output voltages may be available. Please consult factory.

COMMON SPECIFICATIONS

Specifications typical at $T_A = +25^{\circ}\text{C}$, nominal input voltage, rated output current unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT Voltage Range Reflected Ripple Current*	Measured with External Capacitor	20	48 100	75	VDC mAp-p
INPUT CONTROL/SYNC** Shutdown LOW (E_C OFF) Shutdown sink current Shutdown HIGH (E_C ON) Total Standby Quiescent Current	Referenced to -Vin Current into Control Pin (pin 4) With 0V at Pin 4 Referenced to -Vin Current into +Vin With Control Pin Shorted to -Vin	 3.5	 -22 1	2 9	V μA V mA
ISOLATION Rated Voltage Test Voltage Resistance Capacitance Leakage Current	60 Hz, 10 Seconds $V_{iso} = 240\text{VAC}, 60\text{Hz}$	500 1500	 10 2000 180		VDC VDC G Ω pF μArms
OUTPUT Rated Power Voltage Setpoint Accuracy Output Adjust Range*** Temperature Coefficient Line Regulation Load Regulation Ripple & Noise	Low Line to High Line Min Load to Rated Load BW = 5 Hz to 20 MHz	± 8	± 10 ± 0.02	15 ± 1.5 ± 12 ± 0.5 ± 1.0 100	Watts % % %/°C % % mVp-p
GENERAL Switching Frequency MTTF per MIL-HDBK-217 Ground Benign Fixed Ground Package Weight	Circuit Stress Method, Using an Unmodified Database $T_A = +25^{\circ}\text{C}$ $T_A = +25^{\circ}\text{C}$		200 272 174 38		KHz kHr kHr g
TEMPERATURE Specification Operation Storage		-25 -40 -55		+60 +110 +125	°C °C °C

NOTES:

- * External input filter capacitor is required for normal operation. Recommended 100V 100mF Nippon Chemi-Con SXE100VB100MJ30 or equivalent
- ** For shutdown, the remote on-off pin must be actively pulled below 2V or connected to -Vin. For normal operation, the remote on-off pin should be either left open or tied to a logic HIGH of >3.5V.
- *** When output voltage is adjusted via trim pin, total load power should not exceed 15W, and total load current should not exceed rated load current.

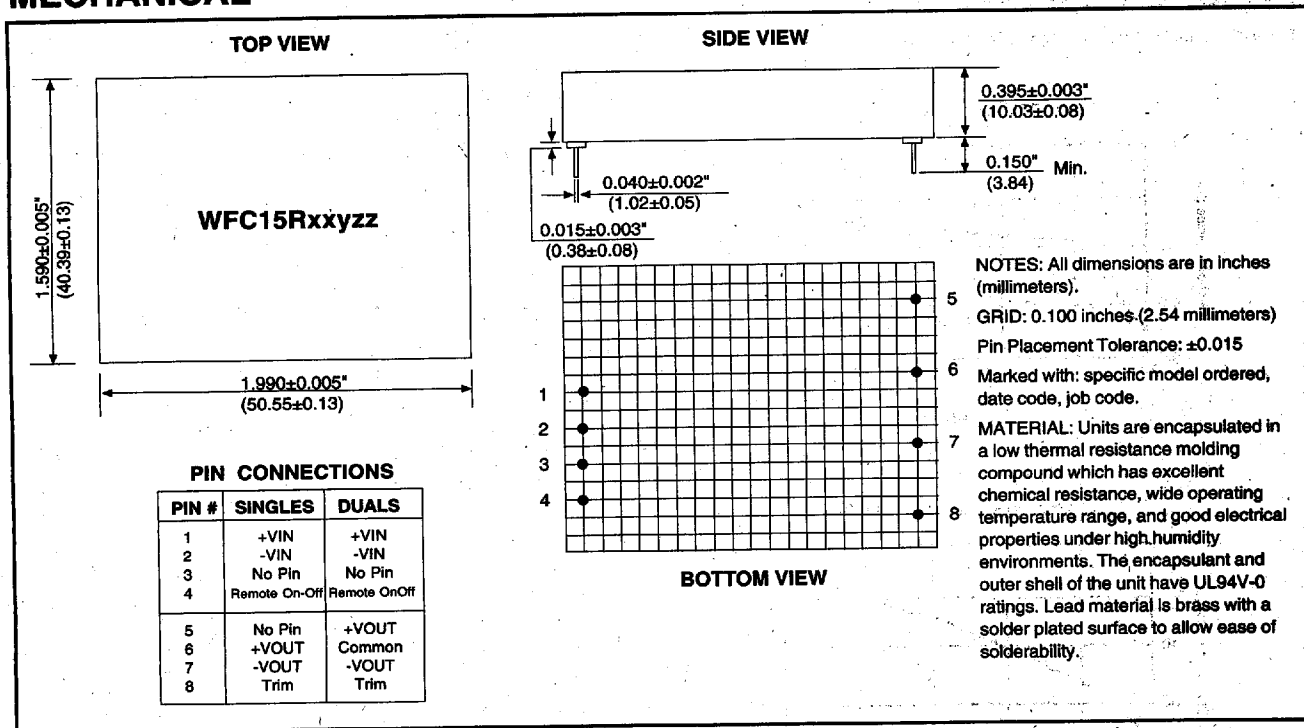
ABSOLUTE MAXIMUM RATINGS

Short Circuit Protection	Continuous
Internal Power Dissipation	5W
Lead Temperature (soldering 10seconds, max)	+300°C
Maximum Case Temperature	+110°C

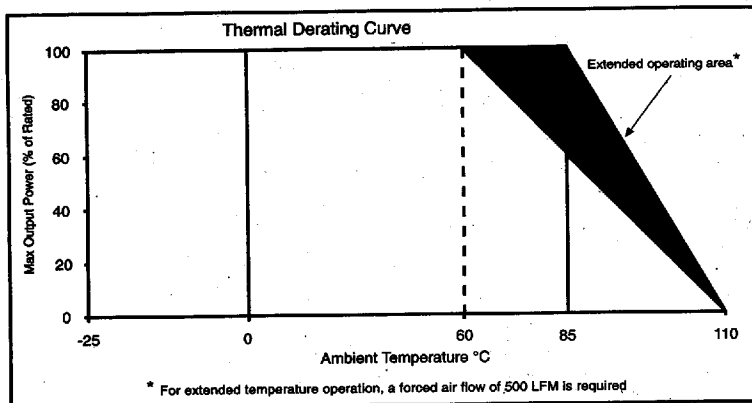
ORDERING INFORMATION

WFC15R xxyzz /H	
Device Family	Indicates Wide Input Voltage 15 Watt Regulated Unit
Model Number	Selected from Table of Electrical Characteristics
Where:	
xx = Input Voltage	
y = Number of Outputs (Single "S", Dual "D")	
zz = Output Voltage	
Screening Option	

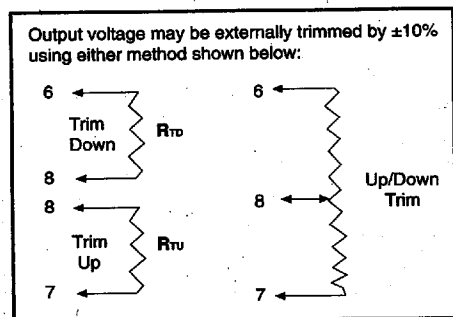
MECHANICAL



THERMAL DERATING



OUTPUT TRIM ADJUST

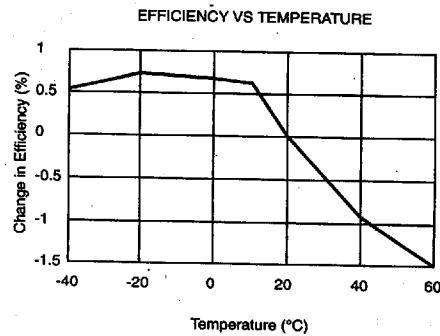
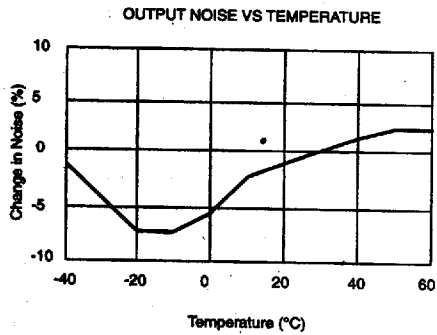
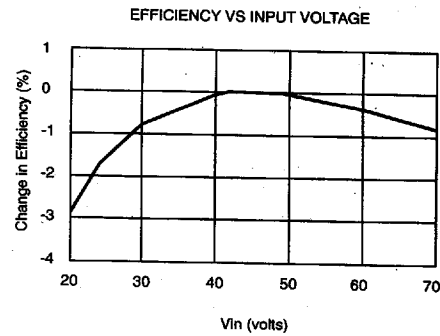
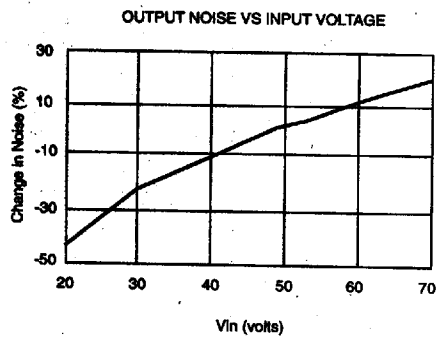
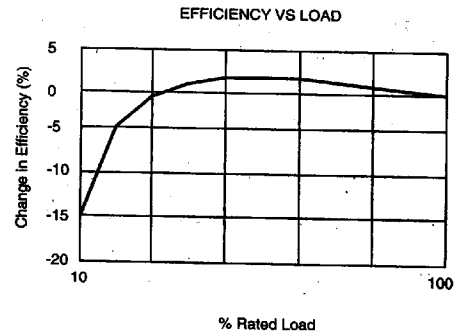
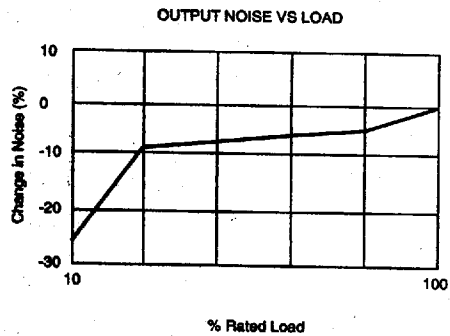


REMOTE ON/OFF CONTROL

Logic Compatibility	CMOS or Open Collector TTL
EC On	Open Circuit or > 3.5VDC
EC Of	< 2VDC
Shutdown Idle Current	1mA
Control Common	-Vin

TYPICAL PERFORMANCE CURVES

$T_A = +25^\circ\text{C}$, nominal input voltage, rated load, recommended external components applied, unless otherwise specified.



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