POWER CONVERTIBLES™

WF15R SERIES

15 WATTS
REGULATED
(10W ON 3.3V OUTPUT)

DC/DC CONVERTERS

HIGH DENSITY, 4:1 ULTRA-WIDE INPUT RANGE

FEATURES

- 4:1 INPUT RANGE
- INPUT AND OUTPUT FILTERING
- SINGLE AND DUAL OUTPUTS
- EXTENDED TEMPERATURE RANGE: -40°C TO +85°C
- INDUSTRY STANDARD PINOUTS
- SIX-SIDED SHIELDING

APPLICATIONS

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

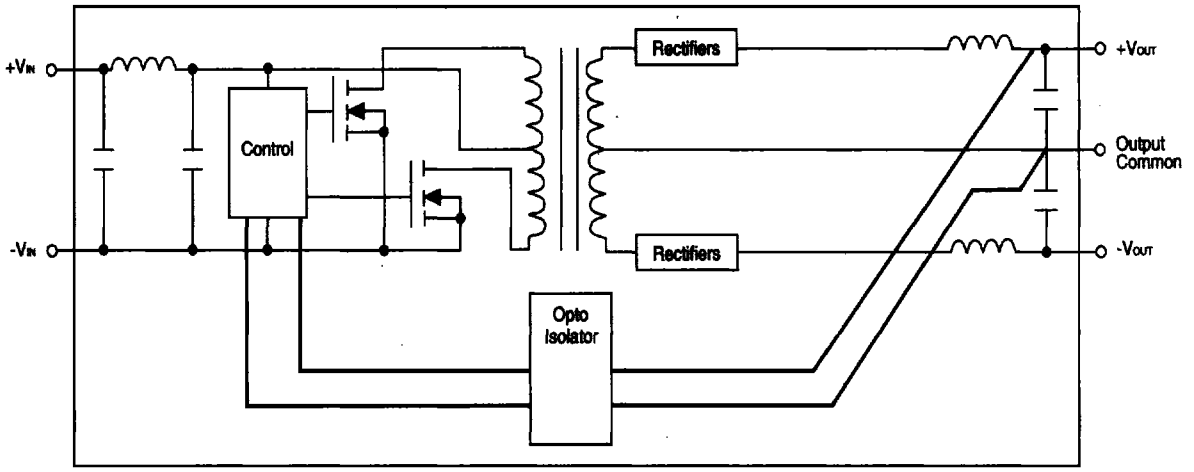
DESCRIPTION

The WF15R Series is a family of high performance DC/DC converters that offer regulated outputs over an input range of 18 to 72V and over a wide temperature range of -40°C to +85°C.

The 300KHz switching frequency and push-pull topology provides optimum performance over the full input range. 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°C, nominal input voltage, rated output current unless otherwise specified.

MODEL	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT MIN LOAD (mA)	OUTPUT CURRENT RATED LOAD (mA)	INPUT CURRENT MIN LOAD (mA)	INPUT CURRENT RATED LOAD (mA)	EFFICIENCY (%)
WF15R48S03	48	3.3	300	3000	60	290	73
WF15R48S05	48	5	300	3000	60	400	78
WF15R48D12	48	±12	±65	±625	55	390	80
WF15R48D15	48	±15	±50	±500	55	390	80

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

COMMON SPECIFICATIONS

Specifications typical at T_A = +25°C, nominal input voltage, rated output current unless otherwise specified.

Parameter	Conditions	Min	Typ	Max	Units
INPUT					
Voltage Range		36	48	72	VDC
Reflected Ripple Current			30	75	mA
ISOLATION					
Rated Voltage		500			VDC
Test Voltage	60 Hz, 10 Seconds	500			Vpk
Resistance			10		GΩ
Capacitance			400		pF
Leakage Current	V_{iso}= 240VAC, 60Hz		30		µArms
OUTPUT					
Rated Power					
3.3V				10	W
All Others				15	W
Voltage Setpoint Accuracy					
Singles				±1.5	%
Duals				±2.0	%
Temperature Coefficient			±0.02		%/°C
Line Regulation	Low Line to High Line			±0.5	%
Load Regulation					
Single	Min Load to Rated Load			±1	%
Duals	Min Load to Rated Load			±1	%
Ripple & Noise	BW = 20 Hz to 20 MHz		50	100	mVp-p
GENERAL					
Switching Frequency			300		KHz
MTTF per MIL-HDBK-217	Circuit Stress Method				
Ground Benign	T_A = +25°C		229,000		Hr
	T_A = +85°C		30,000		Hr
Package Weight			55		g
TEMPERATURE					
Specification		-25		+60	°C
Operation		-40		+110	°C
Storage		-55		+110	°C

ABSOLUTE MAXIMUM RATINGS

Short Circuit Protection ..... Continuous
Internal Power Dissipation 5.6W
Lead Temperature (soldering 10seconds, max) ..... +300°C
Maximum Case Temperature ..... +110°C

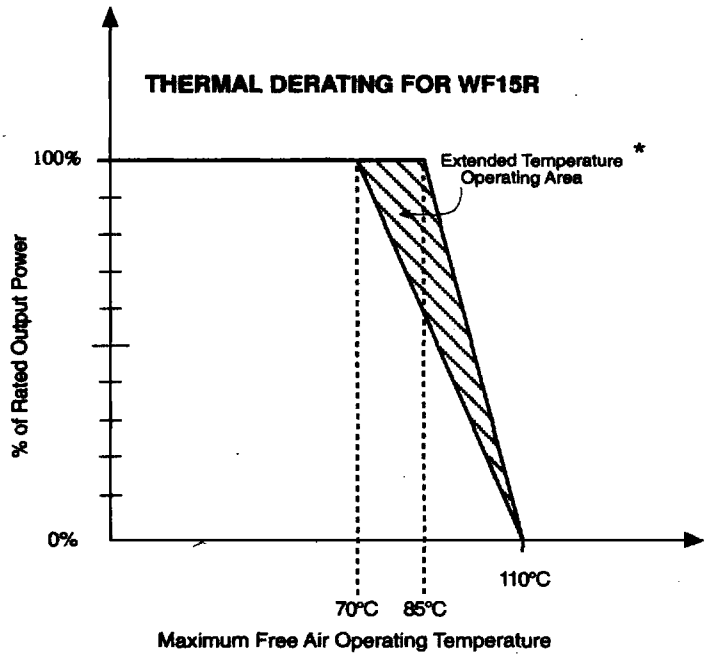
ORDERING INFORMATION

WF15R xxyzz /H

Device Family
Indicates Wide Input Voltage 15 Watt Regulated Unit

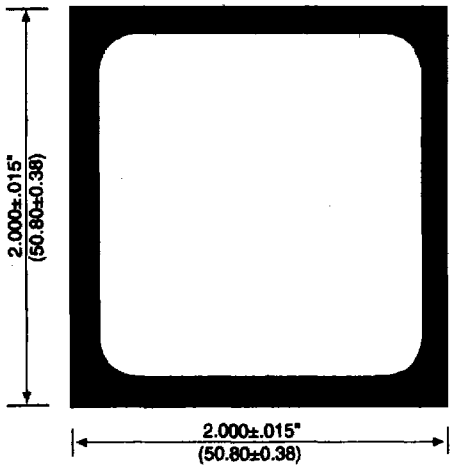
Model Number
Selected from Table of Electrical Characteristics
Where:
xx = Input Voltage
y = Number of Outputs (Single "S", Dual "D")
zz = Output Voltage

Screening Option

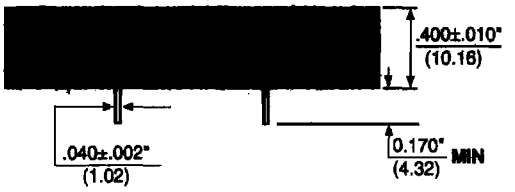


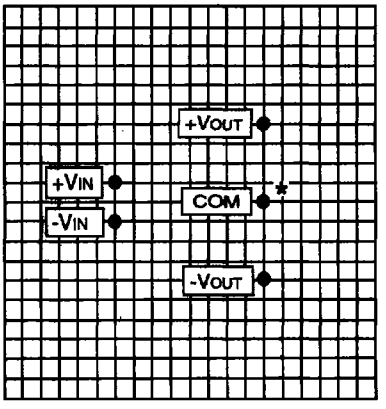
* NOTE: For extended temperature operation, a forced air flow of 500 LFM is required

MECHANICAL



* COM Pin not present on single output units





NOTES: All dimensions are in inches (millimeters).

GRID: 0.100 inches (2.54 millimeters)

Pin Placement Tolerance: ±0.015

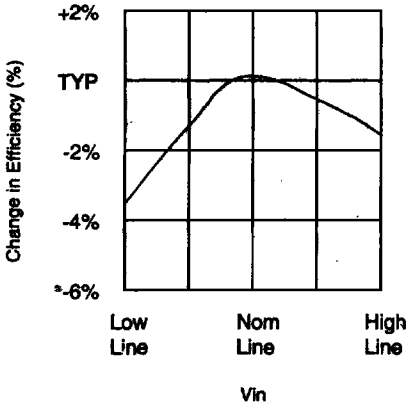
Marked with: specific model ordered, date code, job code.

MATERIAL: Units are encapsulated in Iso-ThermoFlex™, a low thermal resistance molding compound which has excellent chemical resistance, wide operating temperature range, and good electrical properties under high humidity environments. The encapsulant and outer shell of the unit have UL94V-0 ratings. Lead material is brass with a solder plated surface to allow ease of solderability.

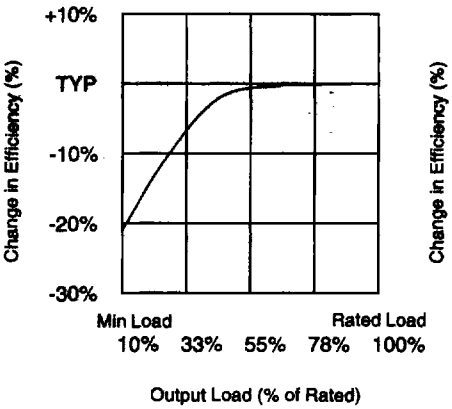
TYPICAL PERFORMANCE CURVES

T_A = +25°C, nominal input voltage, rated load, recommended external components applied, unless otherwise specified.

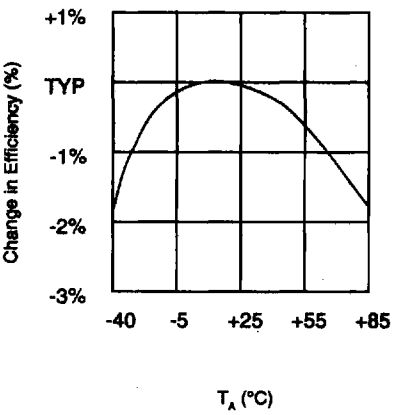
EFFICIENCY vs INPUT VOLTAGE



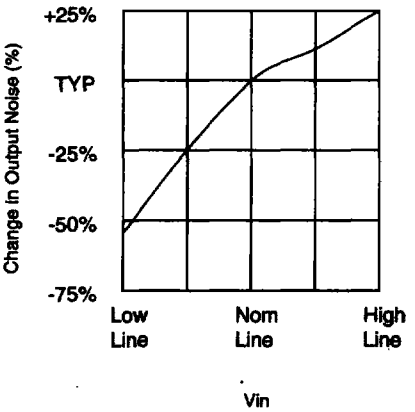
EFFICIENCY vs OUTPUT LOAD



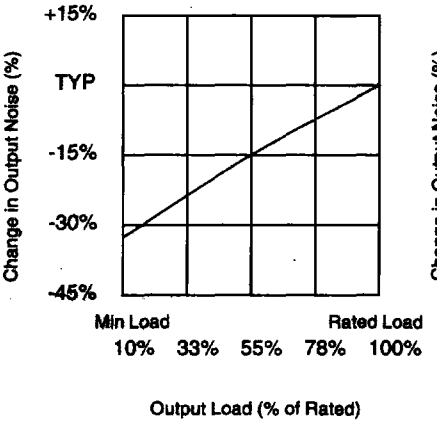
EFFICIENCY vs TEMPERATURE



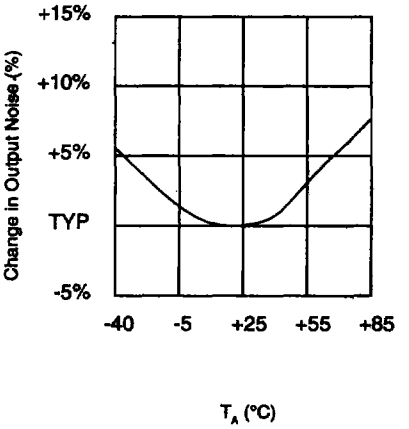
OUTPUT NOISE vs INPUT VOLTAGE



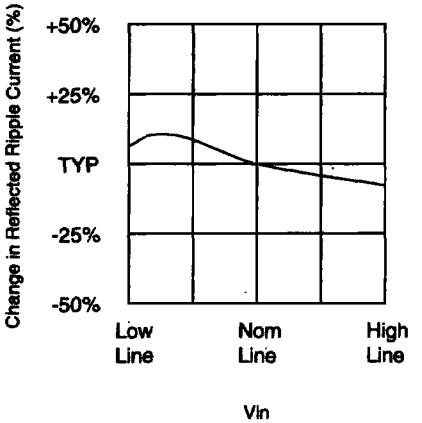
OUTPUT NOISE vs OUTPUT LOAD



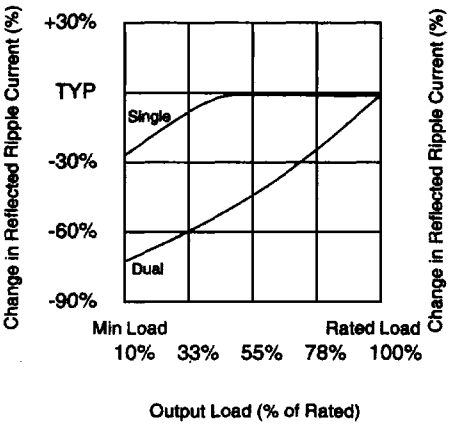
OUTPUT NOISE vs TEMPERATURE



REFLECTED RIPPLE CURRENT vs INPUT VOLTAGE



REFLECTED RIPPLE CURRENT vs OUTPUT LOAD



REFLECTED RIPPLE CURRENT vs TEMPERATURE