

### FEATURES

- UL60950-1 Licensed
- 15 Watts Output Power
- Output Current up to 3A
- High Efficiency up to 82%
- Fixed Switching Frequency
- Six-Sided Continuous Shielding
- 4:1 Ultra Wide Input Voltage Range
- Standard 2.0 x 1.6 x 0.4 Inch Package
- ISO9001 Certified Manufacturing Facilities
- Compliant to RoHS EU Directive 2002/95/EC

### APPLICATIONS

- Measurement
- Wireless Network
- Telecom/Datacom
- Industry Control System
- Semiconductor Equipment



### SPECIFICATIONS: YFW15 Ultra Wide Series

*All specifications apply @ 25°C ambient unless otherwise noted*

#### INPUT SPECIFICATIONS

Input Voltage Range	24V nominal input	9-36VDC
	48V nominal input	18-75VDC
Input Filter		Pi Type
Input Surge Voltage (100ms max)	24V input	50VDC
	48V input	100VDC
Input Reflected Ripple Current (nominal Vin and full load)		20mA <sub>p-p</sub>
Start Up Time (nominal Vin and constant resistive load)		20ms typ.
Remote ON/OFF (Note 7)		
(Positive Logic)	DC-DC ON	Open or 3.5V < Vr < 12V
	DC-DC OFF	Short or 0V < Vr < 1.2V
Input Current of Remote Control Pin (nominal Vin)		-0.5mA ~ +0.5mA
Remote Off Input Current (nominal Vin)		20mA

#### OUTPUT SPECIFICATIONS

Output Voltage		see table
Voltage Accuracy (nominal Vin and full load)		±1%
Voltage Adjustability		±10%
Output Current		see table
Output Power		15 watts max.
Line Regulation (LL to HL at FL)		±0.2%
Load Regulation (min load to full load)	Single	±0.5%
	Dual	±1%
Cross Regulation (Dual) (Asymmetrical load 25% / 100% FL)		±5%
Minimum Load (Note 6)		see table
Ripple/Noise (20 MHz BW)		75mV <sub>p-p</sub>
Temperature Coefficient		±0.02% / °C max.
Transient Response Recovery Time (25% load step)		250µs

#### GENERAL SPECIFICATIONS

Efficiency		see table
Switching Frequency		270KHz typ.
Isolation Voltage (Input to Output)		1600VDC min.
Isolation Resistance		10 <sup>9</sup> ohms min.
Isolation Capacitance		300pF max.

#### PROTECTION SPECIFICATIONS

Over Voltage Protection (zener diode clamp)	5V output	6.2V
	12V output	15V
	15V output	18V
Over Load Protection (% of full load at nominal input)		150% max.
Short Circuit Protection		Hiccup, automatic recovery

#### ENVIRONMENTAL SPECIFICATIONS

Operating Temperature		-40°C ~ +85°C (with derating)
Storage Temperature		-55°C ~ +105°C
Maximum Case Temperature		100°C
Relative Humidity		5% to 95% RH
Thermal Impedance (Note 8)		
Natural Convection		10°C / Watt
Natural Convection with Heat-Sink		8.24°C / Watt
Thermal Shock		MIL-STD-810F
Vibration		10~55Hz, 10G, 30 minutes along X, Y, and Z
MTBF (Note 1)		2.041 X 10 <sup>6</sup> hrs

#### PHYSICAL SPECIFICATIONS

Weight		48g (1.69 oz)
Dimensions		2.0 x 1.6 x 0.40 inches (50.8 x 40.6 x 10.2 mm)
Case Material		Nickel-coated copper
Base Material		Non-conductive black plastic
Potting material		Epoxy (UL94-V0)
Shielding		six-sided

#### SAFETY & EMC

Safety Standard Pending		UL60950-1
EM	EN55022	Class A
ESD	EN61000-4-2	Air ± 8KV Contact ± 6KV
Radiated Immunity	EN61000-4-3	10V/m Perf. Criteria A
Fast Transient	EN61000-4-4	±2KV Perf. Criteria B
Surge (See Note 9)	EN61000-4-5	±1KV Perf. Criteria B
Conducted Immunity	EN61000-4-6	10 Vrms Perf. Criteria A

*Due to advances in technology, specifications subject to change without notice*

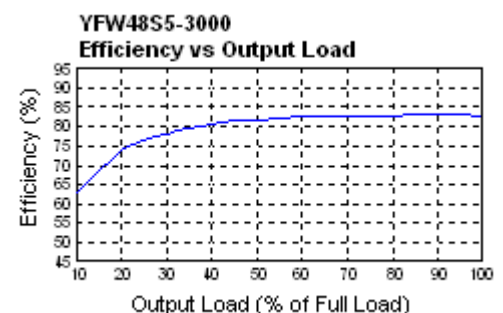
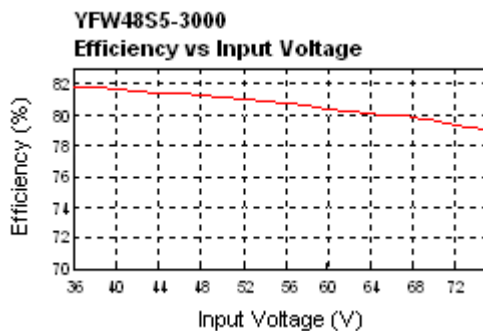
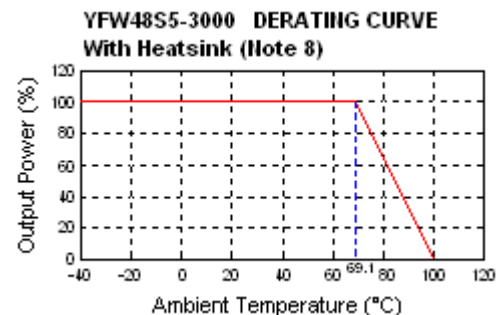
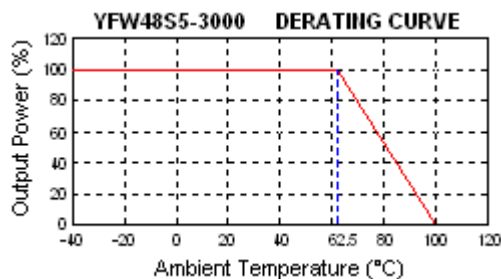
## MODEL SELECTION GUIDE

Model Number	Input Range	Output Voltage	Output Current		Output (2) Ripple & Noise	Input Current		Efficiency (4)	Capacitor (5) Load max
			Min. load	Full load		No load (3)	Full load (2)		
YFW24S5-3000	24 VDC (9-36 VDC)	5 VDC	210mA	3000mA	75mVp-p	20mA	822mA	80%	6800µF
YFW24S12-1250		12 VDC	100mA	1250mA	75mVp-p	10mA	801mA	82%	890µF
YFW24S15-1000		15 VDC	80mA	1000mA	75mVp-p	20mA	801mA	82%	570µF
YFW24D5-1500		± 5 VDC	± 105mA	± 1500mA	75mVp-p	20mA	822mA	80%	± 1700µF
YFW24D12-625		± 12 VDC	± 50mA	± 625mA	75mVp-p	20mA	801mA	82%	± 300µF
YFW24D15-500		± 15 VDC	± 40mA	± 500mA	75mVp-p	20mA	801mA	82%	± 200µF
YFW48S5-3000	48VDC (18-75 VDC)	5 VDC	210mA	3000mA	75mVp-p	15mA	411mA	80%	6800µF
YFW48S12-1250		12 VDC	100mA	1250mA	75mVp-p	15mA	401mA	82%	890µF
YFW48S15-1000		15 VDC	80mA	1000mA	75mVp-p	10mA	401mA	82%	570µF
YFW48D5-1500		± 5 VDC	± 105mA	± 1500mA	75mVp-p	10mA	411mA	80%	± 1700µF
YFW48D12-625		± 12 VDC	± 50mA	± 625mA	75mVp-p	20mA	401mA	82%	± 300µF
YFW48D15-500		± 15 VDC	± 40mA	± 500mA	75mVp-p	15mA	401mA	82%	± 200µF

## NOTES

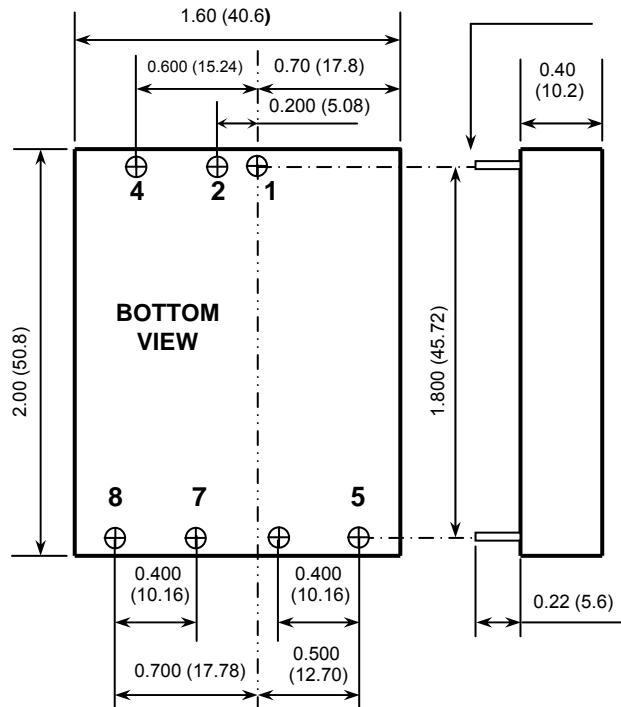
- BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C. (Ground fixed and controlled environment).
- Maximum value at nominal input voltage and full load.
- Typical value at nominal input voltage and no load.
- Typical value at nominal input voltage and full load.
- Test by minimum Vin and constant resistive load.
- The output requires a minimum loading to maintain specified regulations. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
- The ON/OFF control pin voltage is reference to -Vin.
- Heat-sink is optional, please contact factory for ordering details.
- An external filter capacitor is required if the module has to meet EN61000-4-5. The filter capacitor suggested is Nippon chemi-con KY Series, 220µF/100V, ESR 48mΩ.

## DERATING CURVES & EFFICIENCY GRAPHS



## MECHANICAL DRAWING

Unit: inches (mm)



- All dimensions in Inches (mm)  
Tolerance: X.XX±0.02 (X.X±0.5)  
X.XXX±0.01 (X.XX±0.25)
- Pin pitch tolerance ±0.01 (0.25)

PIN CONNECTION		
PIN	SINGLE	DUAL
1	+INPUT	+INPUT
2	-INPUT	-INPUT
4	CTRL	CTRL
5	NO PIN	+OUTPUT
6	+OUTPUT	COMMON
7	-OUTPUT	-OUTPUT
8	TRIM	TRIM

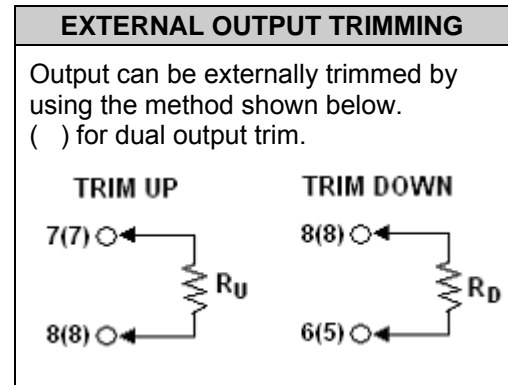
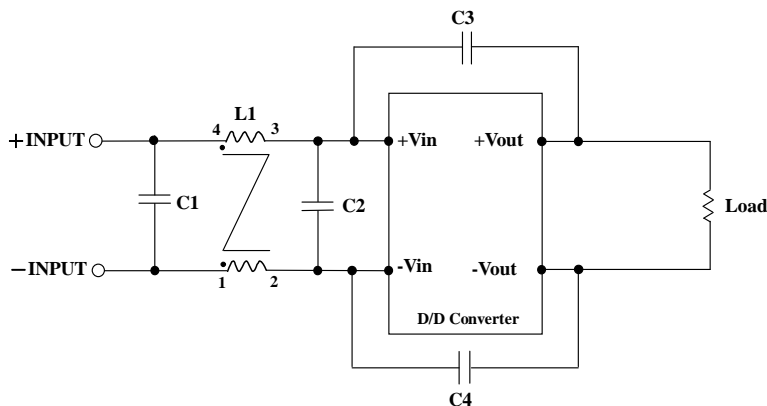


FIGURE 1

FIGURE

### Recommended Filter for EN55022 Class B Compliance



The components used in the Figure 1 are as follows:

	C1	C2	C3	C4	L1
YFW24xxx-xxxx	6.8μF/50V	N/A	1000pF/2KV	1000pF/2KV	450μH Common Choke
YFW48xxx-xxxx	2.2μF/100V	2.2μF/100V	1000pF/2KV	1000pF/2KV	450μH Common Choke

### Recommended EN55022 Class B Filter Circuit Layout

