

### FEATURES

- Compact 0.4 Inch Profile Package
- -25°C to +71°C Operating Temperature Range
- ±0.2% Line Regulation
- Short Circuit Protection
- Low Output Ripple and Noise
- ±0.5% Load Regulation

### DESCRIPTIONS

The 1000WFR series is a family of 10W single and dual output DC/DC converters that utilize a cost effective design to achieve high levels of performance. Operating from wide (2:1) input voltage ranges of 9 to 18, 18 to 36 or 36 to 72 Vdc; providing outputs of 5, 9, 12, 15, ±12 or ±15 Vdc.

Standard features include an input Pi filter to reduce reflected ripple current, efficiency as high as 80%, and continuous output short circuit protection. Input/output isolation is 500 Vdc minimum, output voltage accuracy is ±1% and transient response is less than 500µSec.

### OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Voltage & Current Ratings				See Model Selection Guide
Output Voltage Accuracy			±1.0	%
Voltage Balance ( Dual Outputs)			±1.0	%
Ripple & Noise (20 MHz BW)			10	mV RMS
			100	mV Pk-Pk
Line Regulation			±0.2	%
Load Regulation			±0.5	%
Minimum Load	10			% of Full Load
Temperature Coefficient @FL			±0.02	% per °C
Short Circuit Protection				Continuous, Current Limit
Short Circuit Restart				Automatic Recover
Transient Response				500 µSec.

### INPUT CHARACTERISTICS

	Unit/Comments
Input Voltage Range	see Table 1
Input Filter	Pi Network Filter
Ripple Current	see Model Selection Guide
Reverse Voltage Protection	Parallel Diode

**TABLE 1 - INPUT VOLTAGE RANGE VS OUTPUT LOAD**

Nominal Input (VDC)	Input Voltage Range (VDC) at:			
	20% Load	40% Load	60% Load	100% Load
12	8.6 - 20.4	8.75 - 19.7	8.8 - 18.5	9.0 - 18.0
24	17.2 - 40.9	17.5 - 39.5	17.6 - 37.1	18.0 - 36.0
48	34.4 - 81.8	35.0 - 79.1	35.2 - 74.2	36.0 - 72.0

### GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency	80		120	kHz
Isolation Voltage	500			VDC, 1 minute
Isolation Resistance	1000			Mohm, 500VDC
Isolation Capacitance		600		pF

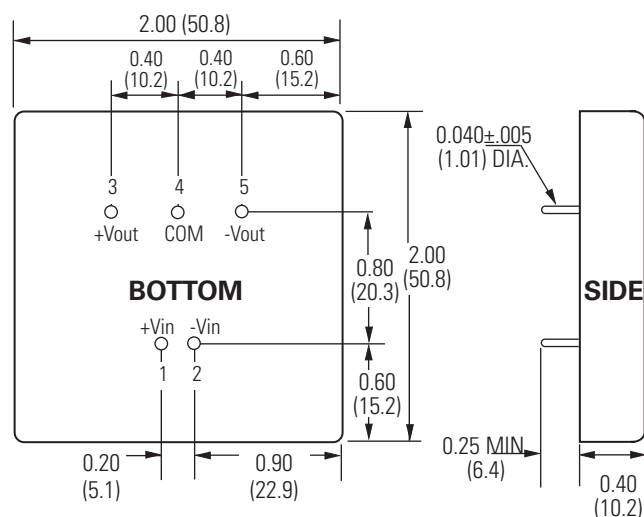
## ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-25		+71	°C; Ambient
Storage Temp. Range	-40		+105	°C
Relative Humidity			+95	% Humidity; non-condensing
Cooling				Free-Air Convection

## PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	2.0 X 2.0 X 0.4 inches (51.0 X 51.0 X 10.2 mm)
Weight	2.8 oz (79 grams)
Case Material	Black Coated Metal
Shield Connection	Six-Sided Continuous

## OUTLINE DRAWING



## PIN OUT CHART

Pins	Single	Dual
1	+ Vin	+ Vin
2	- Vin	- Vin
3	+ Vout	+ Vout
4	NC	Common
5	- Vout	- Vout

NC = No Connection

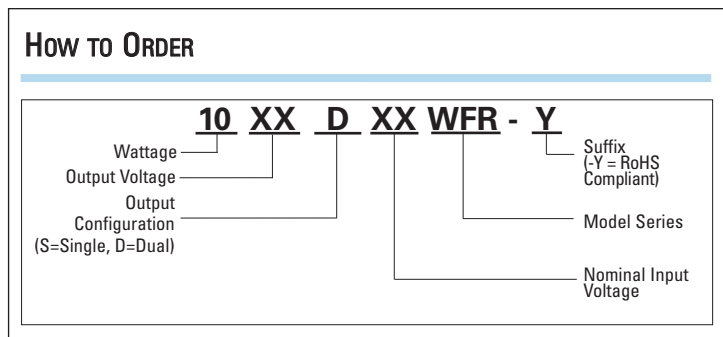
## Notes:

1. Unless otherwise specified dimensions are in inches (mm).

Tolerances	Inches	mm
	X.XX = ±0.02	X.X = ±0.5
	X.XXX = ±0.010	X.XX = ±0.25

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified.  
External, low ESR, 10 microfarad (minimum) capacitor across input is recommended for operation.

## How To ORDER



## MODEL SELECTION CHART

Model	Nominal Input Voltage (VDC)	Input Voltage Range (VDC)	No Load Input Current (mA)	Full Load Input Current (mA)	Reflected Ripple Current (mA)	Output Voltage (VDC)	Full Load Output Current (mA)	Efficiency (%)
1005S12WFR	12	9 - 18	25	1160	116	5	2000	72
1009S12WFR	12	9 - 18	25	1115	112	9	1100	74
1012S12WFR	12	9 - 18	25	1055	106	12	800	76
1015S12WFR	12	9 - 18	25	1075	108	15	600	77
1012D12WFR	12	9 - 18	25	1055	106	±12	±440	76
1015D12WFR	12	9 - 18	25	1075	108	±15	±330	77
1005S24WFR	24	18 - 36	25	565	57	5	2000	74
1009S24WFR	24	18 - 36	25	545	55	9	1100	76
1012S24WFR	24	18 - 36	25	515	52	12	800	78
1015S24WFR	24	18 - 36	25	525	53	15	600	79
1012D24WFR	24	18 - 36	25	515	52	±12	±440	78
1015D24WFR	24	18 - 36	25	530	53	±15	±330	78
1005S48WFR	48	36 - 72	25	275	28	5	2000	76
1009S48WFR	48	36 - 72	25	270	27	9	1100	77
1012S48WFR	48	36 - 72	25	255	26	12	800	79
1015S48WFR	48	36 - 72	25	260	26	15	600	80
1012D48WFR	48	36 - 72	25	250	25	±12	±440	80
1015D48WFR	48	36 - 72	25	260	26	±15	±330	80