

# 3000WFR series

## Single, Dual, Triple Output DC/DC Converter

### FEATURES

- 6 sided Continuous Shielding
- Remote On/Off Control
- Wide 2:1 Input Voltage Range
- Efficiency to 85%
- Output Voltage Trim up to  $\pm 10\%$

### DESCRIPTIONS

The 3000WFR series is a family of compact 25W to 30W, high performance DC/DC converters. These converters are specifically designed to provide the flexibility, power density, and reliability required to fulfill local power needs in applications ranging from telecom switch systems to portable instrumentation. 27 models operate over 2:1 input ranges of 9 to 18, 18 to 36 or 36 to 72 VDC; providing single, dual or triple output combinations of 3.3, 5, 12, 15,  $\pm 5$ ,  $\pm 12$ ,  $\pm 15$ ,  $5\pm 12$  and  $5\pm 15$  VDC. All models are packaged in compact, low profile 2.0" X 2.0" X 0.4" metal cases.

### OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Accuracy				
Single & Dual Outputs			$\pm 2$	% <sup>1</sup>
Triple Outputs - Primary			$\pm 2$	% <sup>1</sup>
- Auxiliaries			$\pm 5$	% <sup>1</sup>
Output Voltage Trim			$\pm 10$	% <sup>1</sup>
Voltage Balance:				
Dual Outputs			$\pm 2$	%; Equal Output Loads
Triple Outputs (Auxiliaries)			$\pm 100$	mV; Equal Output Loads
Minimum Load			10%	Full Load
Line Regulation				
Single Outputs			$\pm 0.5$	% <sup>2</sup>
Dual Outputs			$\pm 0.5$	% <sup>2</sup>
Triple Outputs - Primary			$\pm 1$	% <sup>2</sup>
- Auxiliaries			$\pm 5$	% <sup>2</sup>
Load Regulation				
Single Outputs			$\pm 1$	% <sup>3</sup>
Dual Outputs			$\pm 1$	% <sup>3</sup> ; Equal Loads
Triple Outputs - Primary			$\pm 1$	% <sup>3</sup>
- Auxiliaries			$\pm 5$	% <sup>3</sup> ; Equal Loads
Ripple/Noise				
5V Outputs		75		mV; p-p, Nom.Line FL, 20Mhz B.W. using 1 $\mu$ f bypass capacitor
12V and 15V Outputs		1		% of Vout
Short Circuit Protection				Continuous, Automatic Recovery
Transient Recovery Time		100		$\mu$ S to within 1% error band for 50% step load change
Temperature Coefficient			$\pm 0.01$	% per $^{\circ}$ C
Over Voltage Protection				See Model Selection Guide

### INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Input Voltage Range				
12 VDC Input Models	9	12	18	VDC
24 VDC Input Models	18	24	36	VDC
48 VDC Input Models	36	48	72	VDC
Remote ON / OFF Control				
Supply ON				5.5 VDC or Open Circuit
Supply OFF				0 VDC to 0.8 VDC
Logic Referenced to Negative Input				
Input Filter				Pi Filter

### GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency		300		kHz
Isolation Voltage	500			VDC, 1 minute
Isolation Resistance	1000			Mohm, 500VDC

<sup>1</sup> = Output voltage at nominal line & FL

<sup>2</sup> = % Output voltage measured from min. input line to maximum

<sup>3</sup> = Output voltage measured from FL to 10% Load

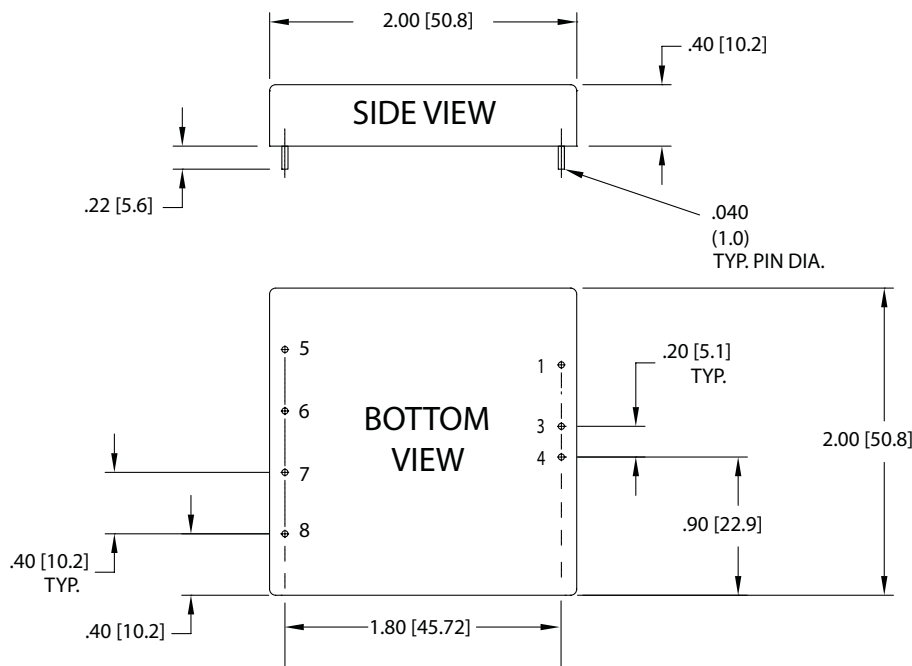
**ENVIRONMENTAL SPECIFICATIONS**

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-25		+71	°C; Ambient
Storage Temp. Range	-55		+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 (50.8 X 50.8 X 10.2 mm)
Case Material	Coated Metal with Non-Conductive Base
Shield Connection	
12V and 24V Input Models	Negative Input
48V Input Models	Positive Input
Flammability	UL94V-0

**OUTLINE DRAWING**



**PIN OUT CHART**

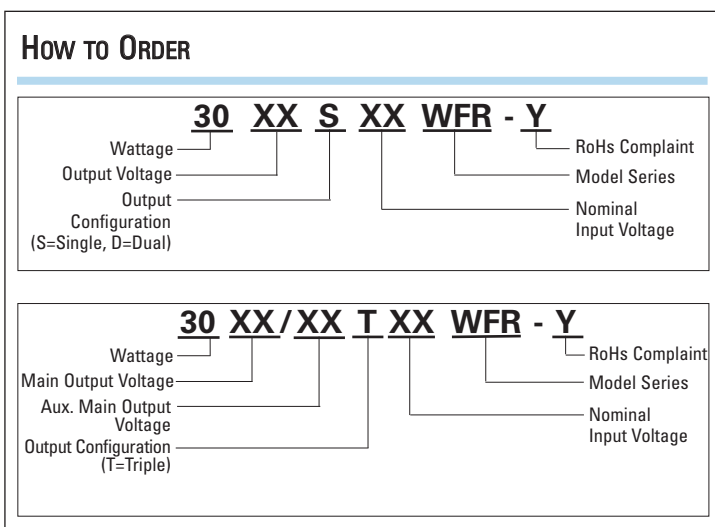
Pin	Single	Dual	Triple
1	Remote On/Off	Remote On/Off	Remote On/Off
2	No Pin	No Pin	No Pin
3	- Vin	- Vin	- Vin
4	+ Vin	+ Vin	+Vin
5	Trim	Trim	- Aux. Out
6	- Vout	- Vout	Common
7	+ Vout	Common	+5V out
8	No Pin	+ Vout	+ Aux. Out

**Notes:**

- 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
- Mounting inserts: 4-40 X .10 (2.5) Deep

All specifications are typical at nominal input, nominal load and 25° C unless otherwise specified. External, low ESR, 10 microfarad (minimum) capacitor across output 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)	Output Voltage (VDC)	Full Load Output Current (mA)	Efficiency @ FL (%)
3003S12WFR	12	9 - 18	30	1860	3.3	5000	74
3005S12WFR	12	9 - 18	30	2675	5.0	5000	78
3012S12WFR	12	9 - 18	30	3050	12.0	2500	82
3015S12WFR	12	9 - 18	30	3050	15.0	2000	82
3003S24WFR	24	18 - 36	30	920	3.3	5000	75
3005S24WFR	24	18 - 36	30	1336	5.0	5000	79
3012S24WFR	24	18 - 36	30	1525	12.0	2500	82
3015S24WFR	24	18 - 36	30	1525	15.0	2000	82
3003S48WFR	48	36 - 72	20	460	3.3	5000	75
3005S48WFR	48	36 - 72	20	660	5.0	5000	79
3012S48WFR	48	36 - 72	20	765	12.0	2500	82
3015S48WFR	48	36 - 72	20	765	15.0	2000	82
3005D12WFR	12	9 - 18	35	2675	±5	±2500	78
3012D12WFR	12	9 - 18	35	3050	±12	±1250	82
3015D12WFR	12	9 - 18	35	3050	±15	±1000	82
3005D24WFR	24	18 - 36	30	1336	±5	±2500	79
3012D24WFR	24	18 - 36	303	1470	±12	±1250	85
3015D24WFR	24	18 - 36	30	1470	±15	±1000	85
3005D48WFR	48	36 - 72	25	660	±5	±2500	79
3012D48WFR	48	36 - 72	25	735	±12	±1250	85
3015D48WFR	48	36 - 72	25	735	±15	±1000	85
3005/12T12WFR	12	9 - 18	35	2640	5/±12	3500/±310	79
3005/15T12WFR	12	9 - 18	35	2640	5/±15	3500/±250	79
3005/12T24WFR	24	18 - 36	30	1320	5/±12	3500/±310	80
3005/15T24WFR	24	18 - 36	30	1320	5/±15	3500/±250	80
3005/12T48WFR	48	36 - 72	25	655	5/±12	3500/±310	80
3005/15T48WFR	48	36 - 72	25	655	5/±15	3500/±250	80