

500WFR series

Single & Dual Output DC/DC Converter



DESCRIPTIONS

The 500WFR series 5 watts power modules are high efficiency, low profile dc-dc converters that operate over a wide input voltage range of 4.5 - 9 VDC, 9 - 18 VDC, 18 - 36 VDC and 36 - 72 VDC and provide precisely regulated output voltages of 3.3V, 5V, 12V, 15V, $\pm 5V$, $\pm 12V$ and $\pm 15V$.

The -25°C to $+71^{\circ}\text{C}$ operating temperature range makes it ideal for data communication equipment, mobile battery driven equipment, distributed power systems, telecommunication equipment, mixed analog/digital subsystems, process/machine control equipment, computer peripheral systems and industrial robot systems.

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Accuracy			± 2.0	% Output voltage at nominal line & FL
Output Voltage Balance (Duals)	± 0.5		± 2.0	% Equal Output Loads
Line Regulation			± 0.5	% Output voltage measured from min. input line to maximum
Load Regulation	± 0.5		± 1.0	% Output voltage measured from FL to 25% load
Ripple			100	mV p-p, Nom.Line @FL, 20MHz B.W., (5Vout)
Ripple			1.0	% Vout (12Vout, 15Vout)
Short Circuit Protection				Continuous, Automatic Recovery
Transient Response Deviation	± 3			% deviation of Vout for a 25% load change
Over Power Protection	120			%
Transient Recovery Time	150	300		μS for 25% load change
Temperature Coefficient	± 0.01	± 0.02		% per degree C

FEATURES

- Up to 88% Efficiency
- Single & Dual Output, 4 to 6 watt converter
- 2 - 1 Input Range
- 500 VDC Input / Output Isolation
- Short Circuit Protection
- Industry Standard Pinout

INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Start Voltage				
5 VDC Input Models	4.5	5	9	VDC
12 VDC Input Models	9	12	18	VDC
24 VDC Input Models	18	24	36	VDC
48 VDC Input Models	36	48	72	VDC
Input Fuse Requirements				
5 VDC Input Models		3000		mA; Slow blow type
12 VDC Input Models		1500		mA; Slow blow type
24 VDC Input Models		700		mA; Slow blow type
48 VDC Input Models		350		mA; Slow blow type
Reverse Polarity Input Current			1	A
Short Circuit Input Power		1000	3000	mW
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

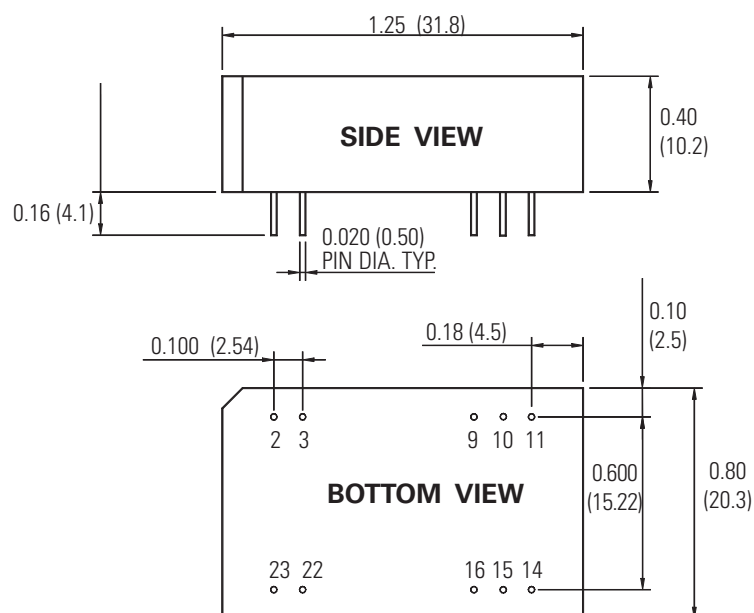
ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-25		+71	°C; Ambient
Operating Temp. Range	-25		+95	°C; Case
Storage Temp. Range	-40		+100	°C
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection
EMI				EN55022 Class A

PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	1.25 X 0.8 X 0.4 inches (31.8 X 20.3 X 10.2 mm)
Case Material	Black Plastic
Flammability	UL94V-0
Weight	16.9 Grams

OUTLINE DRAWING



PIN OUT CHART

Pins	Single	Dual
2	- Vin	- Vin
3	- Vin	- Vin
9	NC	Common
10	NC	NC
11	NC	- Vout
14	+ Vout	+ Vout
15	NC	NC
16	- Vout	Common
22	+ Vin	+ Vin
23	+ Vin	+ Vin

NC = No Connection

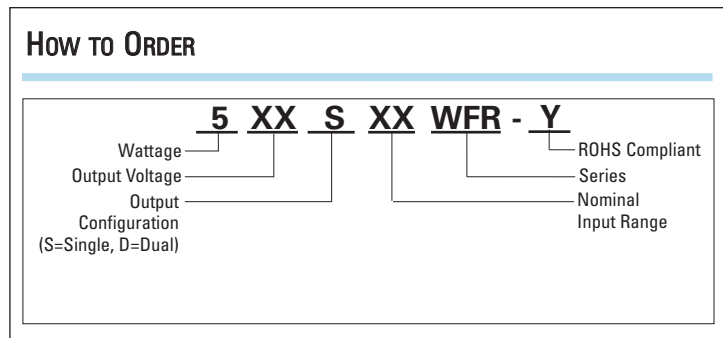
Notes:

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
Pin :	±0.002	±0.05

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)	Output Voltage (VDC)	Full Load Output Current (mA)	Input Current No-Load Typ. (mA)	Efficiency @ FL (%)
503S5WFR	5	4.5 - 9.0	3.3	1200	70	75
505S5WFR	5	4.5 - 9.0	5.0	1000	70	79
512S5WFR	5	4.5 - 9.0	12.0	500	70	82
515S5WFR	5	4.5 - 9.0	15.0	400	70	82
505D5WFR	5	4.5 - 9.0	±5.0	±500	70	79
512D5WFR	5	4.5 - 9.0	±12.0	±250	70	82
515D5WFR	5	4.5 - 9.0	±15.0	±200	70	82
503S12WFR	12	9 - 18	3.3	1200	20	77
505S12WFR	12	9 - 18	5.0	1000	20	81
512S12WFR	12	9 - 18	12.0	500	20	84
515S12WFR	12	9 - 18	15.0	400	20	84
505D12WFR	12	9 - 18	±5.0	±500	20	81
512D12WFR	12	9 - 18	±12.0	±250	20	84
515D12WFR	12	9 - 18	±15.0	±200	20	84
503S24WFR	24	18 - 36	3.3	1200	5	79
505S24WFR	24	18 - 36	5.0	1000	5	83
512S24WFR	24	18 - 36	12.0	500	5	86
515S24WFR	24	18 - 36	15.0	400	5	86
505D24WFR	24	18 - 36	±5.0	±500	5	83
512D24WFR	24	18 - 36	±12.0	±250	5	86
515D24WFR	24	18 - 36	±15.0	±200	5	86
503S48WFR	48	36 - 72	3.3	1200	3	79
505S48WFR	48	36 - 72	5.0	1000	3	83
512S48WFR	48	36 - 72	12.0	500	3	86
515S48WFR	48	36 - 72	15.0	400	3	86
505D48WFR	48	36 - 72	±5.0	±500	3	83
512D48WFR	48	36 - 72	±12.0	±250	3	86
515D48WFR	48	36 - 72	±15.0	±200	3	88

DERATING CURVES

MODEL 500WFR

