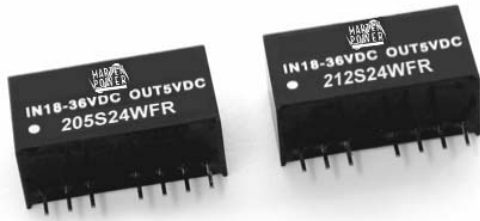


# 200WFR series



www.martekpower.com

## Single Output DC/DC Converter



### DESCRIPTIONS

The 200WFR series are low-profile 2 watts dc-dc converters that operate over input voltage ranges of 4.5 to 9VDC and 9 to 18VDC, 18 to 36VDC and 36 to 75 VDC and provide precisely regulated output voltages of 3.3V, 5V and 12VDC.

The -40°C to +65°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 Set Point	±1	±2		% Output voltage at nominal line & FL
Line Regulation	±0.3	±0.5		Change / Percentage change in Input voltage
Load Regulation	±0.5	±0.75		% Output voltage measured from full load to 10% load
Over Power Protection	120			%
Temperature Coefficient	±0.01	±0.02		% per degree C
Ripple/Noise	30	50		mV p-p measured at 20 MHz bandwidth with external 1 µf capacitor
Ripple/Noise			75	mV p-p, Over Line, Load & Temp., 20 MHz B.W., using 1µf bypass capacitor
Output Voltage and Current				Refer to model selection chart
Load Transient Response	±3	±5		% deviation of Vout voltage for a 25% load change for 500µS
Short Circuit Protection				Indefinite, Automatic Recovery

### FEATURES

- High Efficiency up to 81%
- 1000VDC Isolation
- MTBF > 1,000,000 Hours
- 2:1 Wide Input Range
- Low Cost
- Remote On/Off Control
- Low Ripple and Noise

### INPUT CHARACTERISTICS

	Min	Typ	Max	Units/Comments
Start Voltage				
5 VDC Input Models	2.8	3.2	4.5	VDC
12 VDC Input Models	4.5	6	9	VDC
24 VDC Input Models	8	12	18	VDC
48 VDC Input Models	16	24	36	VDC
Under Voltage Shut Down				
5 VDC Input Models		3	4	VDC
12 VDC Input Models		5.5	8.5	VDC
24 VDC Input Models		11	17	VDC
48 VDC Input Models		22	36	VDC
Reverse Polarity Input Current			1	A
Short Circuit Input Power			1500	mW
Input Filter				Capacitor type

### GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency	100	300	650	kHz
Isolation Voltage	1000			VDC, 1 minute
Isolation Resistance	1000			Mohm, 500VDC
Isolation Capacitance		65	120	pF, 100kHz, 1Volt
MTBF (MIL-HBK-217F)	1			Million Hours, +25°C, Ground Benign
Remote On/Off				
On		2.7	15	VDC; Referenced to input return
Off		0	0.6	

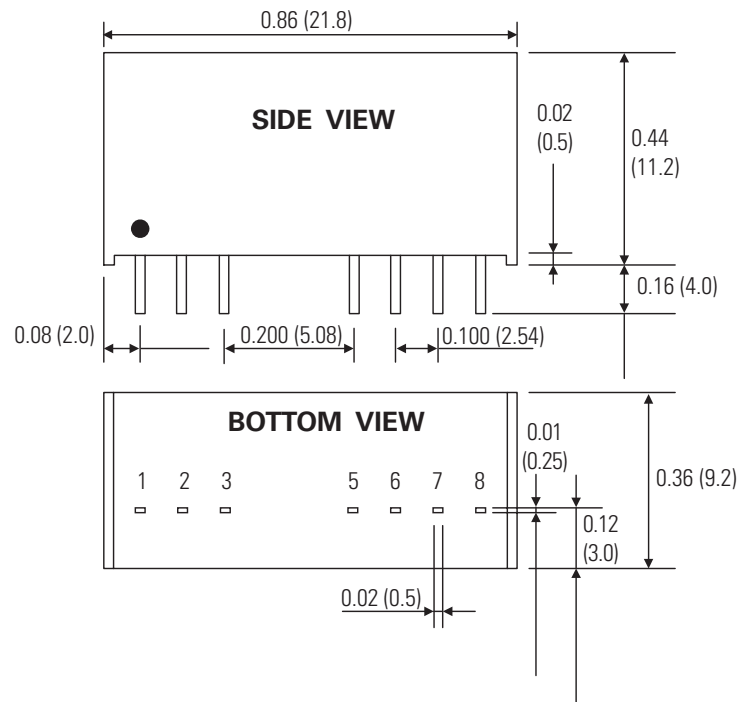
## ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-40		+65	°C; Ambient
Operating Temp. Range	-40		+90	°C; Case
Storage Temp. Range	-55		+105	°C; Case
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection

## PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	0.86 X 0.36 X 0.44 inches (21.8 X 9.2 X 11.2 mm)
Case Material	Non-Conductive Black Plastic
Flammability	UL94V-0
Weight	4.8 Grams

## OUTLINE DRAWING



## PIN OUT CHART

Pins	Function
1	- Vin
2	+ Vin
3	Remote On/Off
5	NC
6	+ Vout
7	- Vout
8	NC

NC = No Connection

### Notes:

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

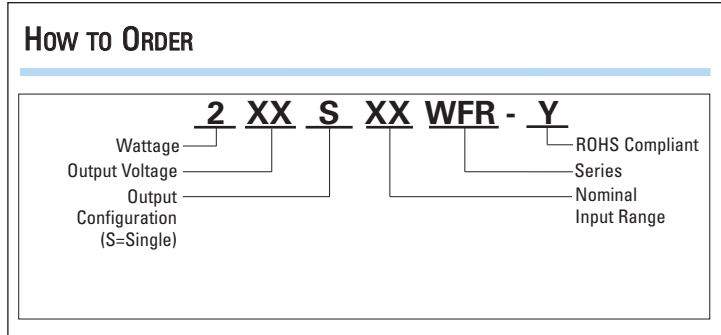
Tolerances: X.XX =  $\pm 0.02$  ( $\pm 0.5$ )

X.XXX =  $\pm 0.010$  ( $\pm 0.25$ )

Pin:  $\pm 0.002$  ( $\pm 0.05$ )

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)	Max. Output Current (mA)	Min. Output Current (mA)	Efficiency @ Full Load (%)	Input Fuse (mA)
203S5WFR	5	4.5 - 9	3.3	500	125	70	1500
205S5WFR	5	4.5 - 9	5.0	400	100	73	1500
212S5WFR	5	4.5 - 9	12.0	167	42	75	1500
203S12WFR	12	9 - 18	3.3	500	125	73	700
205S12WFR	12	9 - 18	5.0	400	100	77	700
212S12WFR	12	9 - 18	12.0	167	42	80	700
203S24WFR	24	18 - 36	3.3	500	125	72	350
205S24WFR	24	18 - 36	5.0	400	100	77	350
212S24WFR	24	18 - 36	12.0	167	42	81	350
203S48WFR	48	36 - 75	3.3	500	125	71	135
205S48WFR	48	36 - 75	5.0	400	100	73	135
212S48WFR	48	36 - 75	12.0	167	42	79	135

## DERATING CURVES

**MODEL 200WFR**

