

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

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

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	

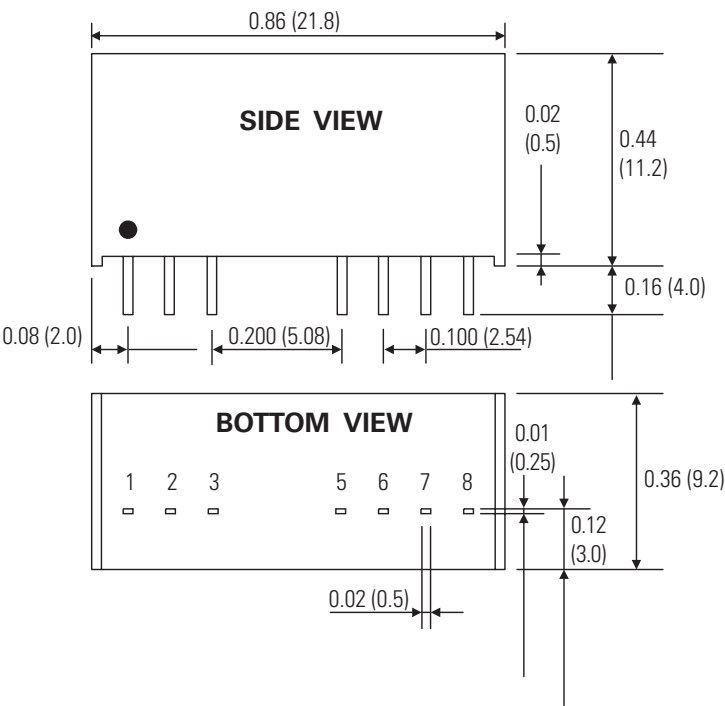
ENVIRONMENTAL SPECIFICATIONS

	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

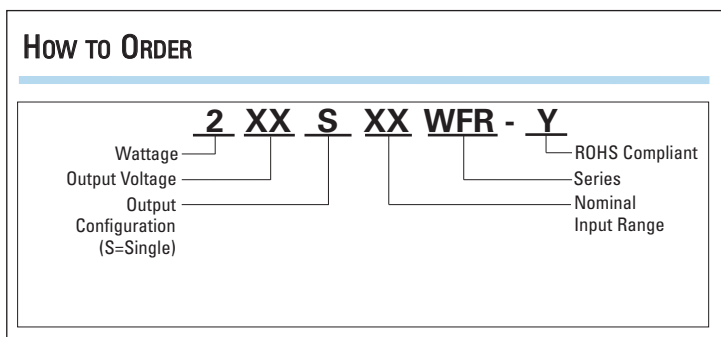
Pins	Function
1	- Vin
2	+ Vin
3	Remote On/Off
5	NC
6	+ Vout
7	- Vout
8	NC

NC = No Connection

- Notes:
- 1. Unless otherwise specified dimensions are in inches (mm).
Tolerances: X.XX = ± 0.02 (± 0.5)
X.XXX = ± 0.010 (± 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)	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

