

200HFS series



www.martekpower.com

Single & Dual Output DC/DC Converter



DESCRIPTIONS

The 200HFS series is a family of cost effective 2 watt single and dual output DC/DC converters in ultra-miniature SIP packages. 21 models operate from input bus voltages of 5V, 12 and 24V; producing output voltage levels of 5V, 9V, 12V, 15V, ± 5 , ± 12 V and ± 15 V for a wide choice.

The 200HFS series is ideal for a variety of applications including distributed power systems, mixed analog / digital subsystems, portable test equipment, local power networks and battery backed systems.

OUTPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Output Voltage Set Point	± 1.0	± 3.0		% Output voltage at nominal line & FL
Output Voltage Balance (Duals)	± 0.1	± 1.0		% Equal Output Loads
Line Regulation	± 1.2	± 1.5		%; % Change / Percentage change in Input voltage
Load Regulation	See Model Selection Chart			% Output voltage measured from FL to 20% load
Ripple/Noise	100	150		mV p-p, Nom.Line @FL, 20MHz B.W., using 1 μ f bypass capacitor
Ripple/Noise		200		mV p-p, Over Line, Load & Temp., 20 MHz B.W., using 1 μ f bypass capacitor
Overload Protection	120			%Rated Output Load
Short Circuit Protection		0.5		Second
Temperature Coefficient	± 0.01	± 0.02		% per degree C

FEATURES

- Miniature Single-Inline-Package (SIP)
- 1000 VDC Input/Output Isolation
- High Efficiency
- Wide Operating Temperature Range
- MTBF > 2,000,000 Hours
- Low Cost

INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Input Voltage				
5 VDC Input Models	4.5	5	5.5	VDC
12 VDC Input Models	10.8	12	13.2	VDC
24 VDC Input Models	21.6	24	26.4	VDC
Input Fuse Requirements				
5 VDC Input Models		1000		mA; Slow blow type
12 VDC Input Models		500		mA; Slow blow type
24 VDC Input Models		200		mA; Slow blow type
Reverse Polarity Input Current			0.3	A
Input Filter				Pi Filter

GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency	50	80	100	kHz
Isolation Voltage	1000			VDC, 1 sec
Isolation Resistance	1000			Mohm, 500VDC
Isolation Capacitance		80	120	pF, 100kHz, 1Volt
MTBF (MIL-HBK-217F)	2000			Thousand Hours, +25°C, Ground Benign

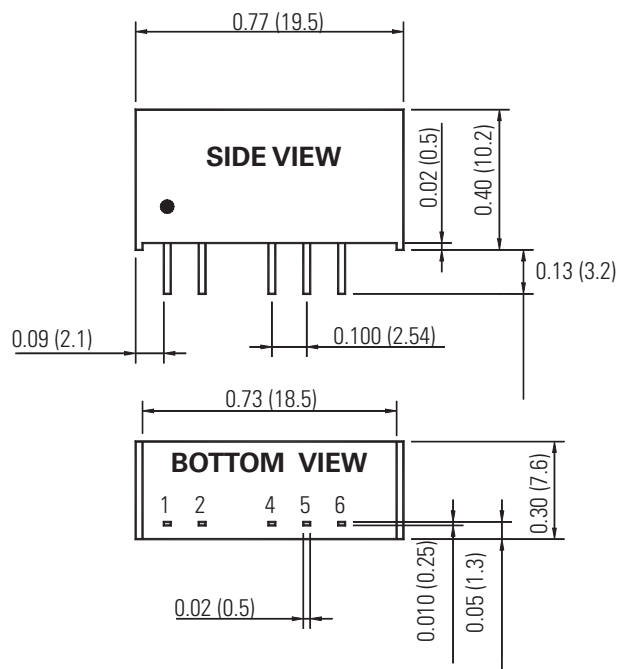
ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-40		+70	°C; Ambient
Operating Temp. Range	-25		+90	°C; Case
Storage Temp. Range	-40		+125	°C
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection

PHYSICAL CHARACTERISTICS

	Unit/Comments
Case Size	0.77 X 0.30 X 0.40 inches (19.5 X 7.6 X 10.2 mm)
Case Material	Non-Conductive Black Plastic
Flammability	UL94V-0
Weight	2.7 Grams

OUTLINE DRAWING



PIN OUT CHART

Pins	Single	Dual
1	+ Vin	+ Vin
2	- Vin	- Vin
4	- Vout	-Vout
5	No Pin-	Common
6	+ Vout	+ Vout

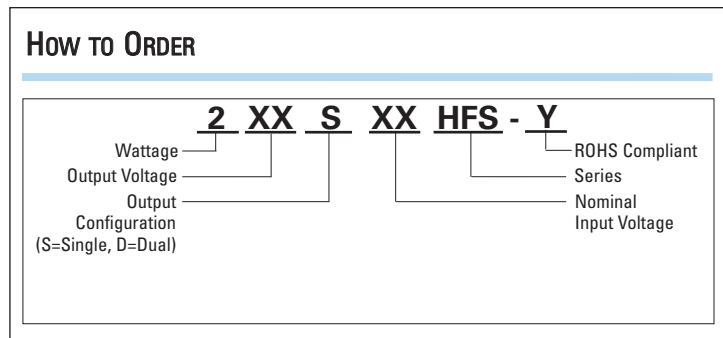
Notes:

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)	Output Voltage (VDC)	Max. Output Current (mA)	Efficiency @ FL (%)	Max. Load Regulation (%)	Min. Output Current (mA)
203S5HFS	5	4.5 - 5.5	3.3	500	73	11	10
205S5HFS	5	4.5 - 5.5	5.0	400	76	11	8
212S5HFS	5	4.5 - 5.5	12.0	165	80	7	3
215S5HFS	5	4.5 - 5.5	15.0	133	80	7	2.5
205D5HFS	5	4.5 - 5.5	±5.0	±200	77	10	±4
212D5HFS	5	4.5 - 5.5	±12.0	±83	79	7	±1.5
215D5HFS	5	4.5 - 5.5	±15.0	±66	79	7	±1
203S12HFS	12	10.8 - 13.2	3.3	500	74	8	10
205S12HFS	12	10.8 - 13.2	5.0	400	78	8	8
212S12HFS	12	10.8 - 13.2	12.0	165	82	5	3
215S12HFS	12	10.8 - 13.2	15.0	133	83	5	2.5
205D12HFS	12	10.8 - 13.2	±5.0	±200	79	8	±4
212D12HFS	12	10.8 - 13.2	±12.0	±83	82	5	±1.5
215D12HFS	12	10.8 - 13.2	±15.0	±66	82	5	±1
203S24HFS	12	21.6 - 26.4	3.3	500	74	8	10
205S24HFS	24	21.6 - 26.4	5.0	400	77	8	8
212S24HFS	24	21.6 - 26.4	12.0	165	77	8	3
215S24HFS	24	21.6 - 26.4	15.0	133	81	5	2.5
205D24HFS	24	21.6 - 26.4	±5.0	±200	79	8	±4
212D24HFS	24	21.6 - 26.4	±12.0	±83	81	5	±1.5
215D24HFS	24	21.6 - 26.4	±15.0	±66	82	5	±1