



200HFR series

Single & Dual Output DC/DC Converter

FEATURES

- Up to 63% Efficiency
- Single & Dual Output, 2 watt converter
- 3000 VDC Input / Output Isolation
- Short Circuit Protection
- MTBF > 800,000 Hours

DESCRIPTIONS

The 200HFR series 2 watts power modules are high efficiency, low profile dc-dc converters that operate over input voltage ranges of 4.75-5.25 VDC, 10.8-13.2 VDC, and 21.6-26.4 VDC and provide precisely regulated output voltages of 5V, 12V, 15V, ±12V and ±15V.

The -25°C to +71°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			±5.0	% Output voltage at nominal line & FL
Output Voltage Balance (Duals)			±3.0	% Equal Output Loads
Line Regulation			±0.5	% Output voltage measured from min. input line to maximum
Load Regulation			±0.5	% Output voltage measured from FL to 10% load
Ripple/Noise			50	mV p-p, Nom.Line @FL, 20MHz B.W., using 1 µf bypass capacitor
Short Circuit Protection				Continuous, Automatic Recovery
Temperature Coefficient			±0.02	% per degree C

INPUT CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Start Voltage				
5 VDC Input Models	4.75		5.25	VDC
12 VDC Input Models	10.8		13.2	VDC
24 VDC Input Models	21.6		26.4	VDC

GENERAL CHARACTERISTICS

	Min	Typ	Max	Unit/Comments
Switching Frequency	40			kHz
Isolation Voltage	3000			VDC, 1 minute
Isolation Resistance	1000			Mohm, 500VDC
Isolation Capacitance			20	pF, 100kHz, 1Volt
Input Filter				Pi Filter
MTBF (MIL-HBK-217F)	0.8			Million Hours, +25°C, Ground Benign



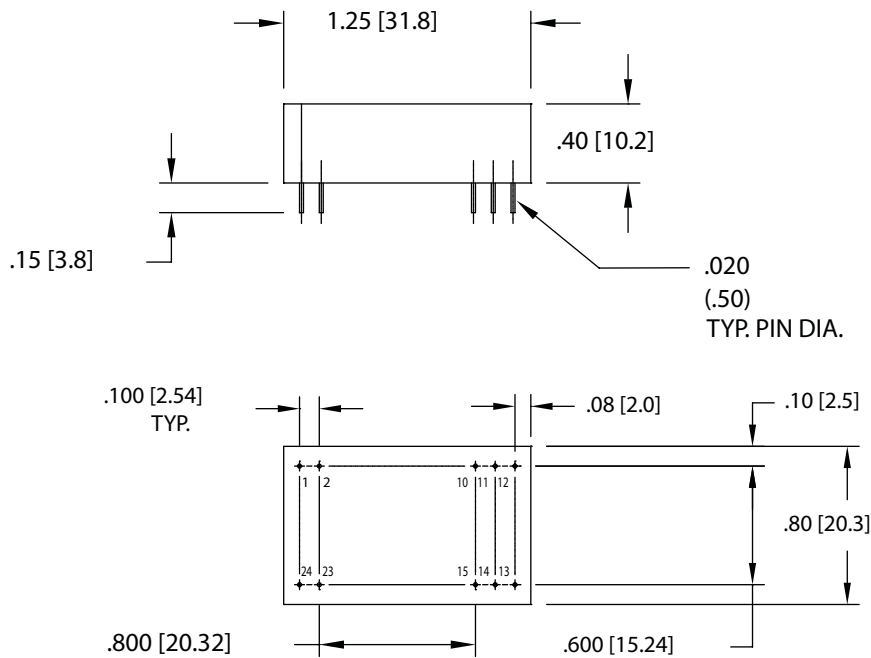
ENVIRONMENTAL SPECIFICATIONS

	Min	Typ	Max	Unit/Comments
Operating Temp. Range	-25		+71	°C; Ambient
Storage Temp. Range	-40		+125	°C
Relative Humidity			95	% Humidity; non-condensing
Cooling				Free-Air Convection

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	Non-conductive Black Plastic
Flammability	UL94V-0
Weight	14 Grams

OUTLINE DRAWING



SIDE VIEW

BOTTOM VIEW

PIN OUT CHART

Pins	Single	Dual
1, 2	+ Vin	+Vin
23, 24	- Vin	- Vin
15	NC	+Vout
13	+ Vout	- Vout
10, 11	NC	± COMMON
12,	-Vout	NC
14	NC	NC

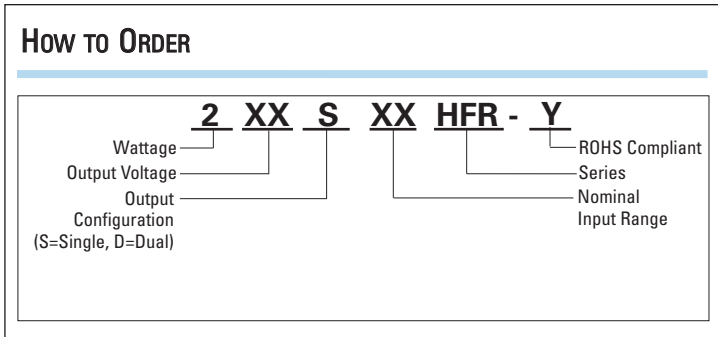
Notes:

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 output is recommended for operation.

NC = No Connection

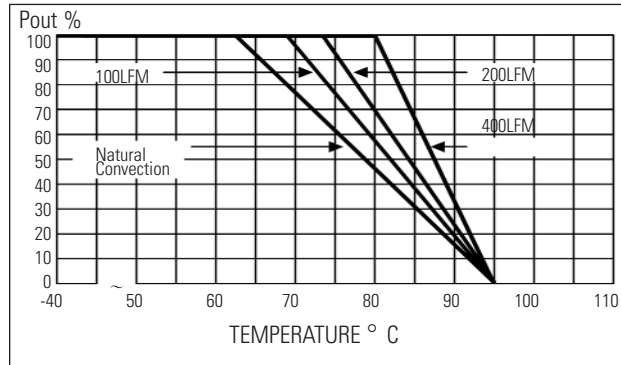


MODEL SELECTION CHART

Model	Nominal Input Voltage (VDC)	Input Current No Load (mA)	Input Current Full Load (mA)	Output Voltage (VDC)	Full Load Output Current (mA)	Efficiency @ FL (%)
205S5HFR	5	120	666	5	400	60
212S5HFR	5	120	660	12	165	63
215S5HFR	5	120	665	15	133	63
205S12HFR	12	50	277	5	400	60
212S12HFR	12	50	275	12	165	63
205S24HFR	24	25	138	5	400	60
212S24HFR	24	25	137	12	165	63
212D5HFR	5	120	664	±12	±83	62
215D5HFR	5	120	660	±15	±66	62
212D12HFR	12	50	276	±12	±83	62
212D24HFR	24	25	138	±12	±83	62



MODEL 200HFR - SINGLE OUTPUT



MODEL 200HFR - DUAL OUTPUT

