Murata Power Solutions

3.0 WATT
MINIATURE SIP DC/DC CONVERTER

HPR2XX

FEATURES

- **Four Channels Of Isolated Power**
- **High Output Power Density: > 9. 4 Watts/Inch^3**
- **Extended Temperature Range: -25°C To +85°C**
- **High Efficiency: To 84%**
- **Low Cost**
- **High Isolation Voltage: 750V Continuous Input-to-Output and Channel-to-Channel**
- **Single In-line Package (SIP)**
- **Internal Input and Output Filtering**
- **Non-Conductive Case**

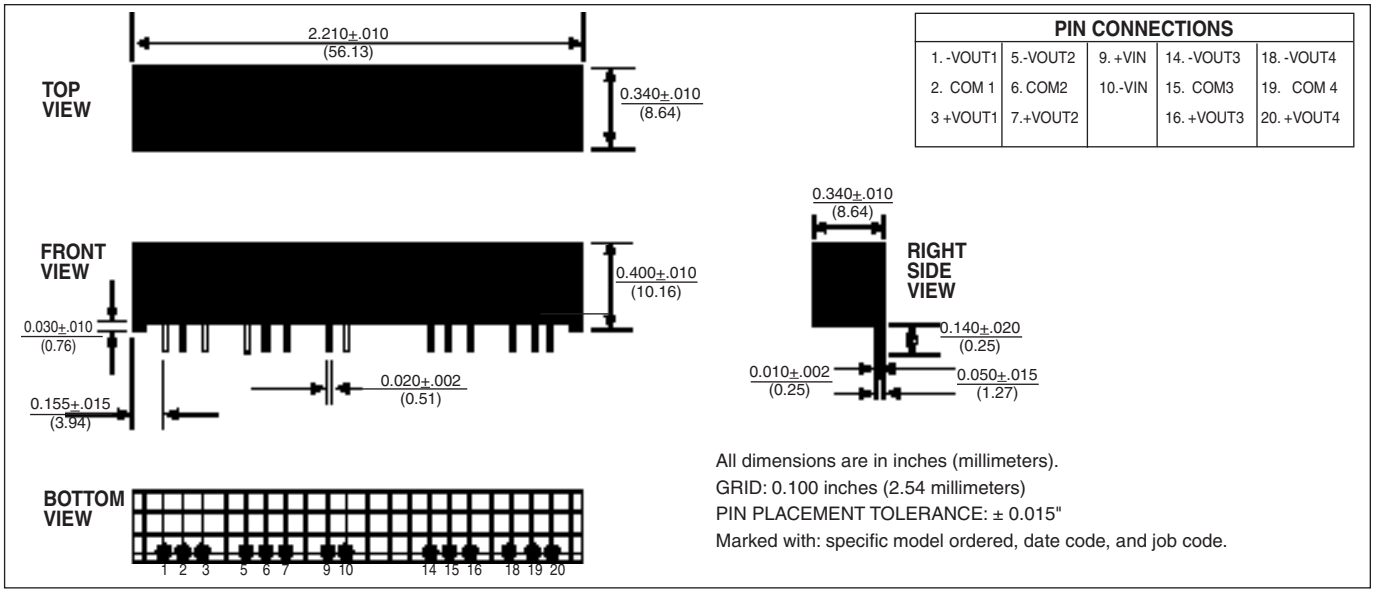
The HPR2XX Series is designed for multiple channel applications that require small size and could benefit from a complete one-package solution. The HPR2XX Series offers four isolated channels of output power in a footprint less than the size of many singular devices. This unregulated series of DC/DC converters provides three watts of total output power. Each isolated channel can supply up to 750mW.

The HPR2XX Series uses advanced circuit design and packaging technology to realize superior reliability and performance. With only one switching converter on the board, the HPR2XX eliminates the possibility of separate converters creating beat frequencies, or "aliasing" in multiple channel applications.

The high efficiency of the HPR2XX Series means less internal power dissipation than comparable solutions. With reduced heat to dissipate, the HPR2XX Series can operate at higher temperatures with no degradation in reliablility. In addition, the high efficiency of the HPR2XX Series provides greater than 9 watts/inch^3 output power density.

The HPR2XX Series offers the user low cost without sacrificing reliability. The use of surface mounted devices and manufacturing technologies make it possible to offer premium performance and low cost.

MECHANICAL



PIN CONNECTIONS				
1. -VOUT1	5.-VOUT2	9. +VIN	14. -VOUT3	18. -VOUT4
2. COM 1	6. COM2	10.-VIN	15. COM3	19. COM 4
3 +VOUT1	7.+VOUT2		16. +VOUT3	20. +VOUT4

All dimensions are in inches (millimeters).
GRID: 0.100 inches (2.54 millimeters)
PIN PLACEMENT TOLERANCE: ± 0.015"
Marked with: specific model ordered, date code, and job code.

ELECTRICAL SPECIFICATIONS

MODEL	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	RATED OUTPUT CURRENT (mA)	INPUT CURRENT NO LOAD (mA)	REFLECTED RIPPLE CURRENT RATED LOAD (mAp-p)	EFFICIENCY (%)
HPR203	5	±5.2	±73	70	820	35	74
HPR204	5	±12	±30	75	750	35	80
HPR205	5	±15	±25	75	750	35	80
HPR210	12	±12	±30	30	305	15	82
HPR211	12	±15	±25	30	300	15	84
HPR216	15	±12	±30	20	240	15	83
HPR217	15	±15	±25	20	240	20	84
HPR221	24	±5.0	±75	20	170	20	74
HPR223	24	±15	±25	20	155	20	81

Note: Other input to output voltage options may be available. Please consult factory.

COMMON SPECIFICATIONS

Specifications typical at T_A = +25°C, nominal input voltage, rated output current unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT					
Voltage Range		4.5	5	5.5	VDC
		10.8	12	13.2	VDC
		13.5	15	16.5	VDC
		21.6	24	26.4	VDC
Voltage Rise Time				1	V/µsec
In Rush Current	At Startup				Amps
ISOLATION					
Rated Voltage	Input to Output, Channel to Channel	750			VDC
Test Voltage	60 Hz, 10 seconds	750			Vpk
Resistance			10		GΩ
Capacitance			30		pF
Leakage Current	V_{ISO} = 240VAC, 60Hz		4		µArms
OUTPUT					
Total Rated Power			3		W
Rated Power Each Channel			750		mW
Voltage Setpoint Accuracy	Rated Load, Nominal V_{IN}			±5	%
Ripple & Noise	BW = DC to 10MHz		40		mVp-p
	BW =10Hz to 2MHz		7		mVrms
Voltage	I_L=1mA, V_{OUT} = 5V			8	VDC
	I_L=1mA, V_{OUT} = 12V			17	VDC
	I_L=1mA, V_{OUT} = 15V			20	VDC
Temperature Coefficent			.05		%/Deg C
REGULATION					
Line Regulation	High Line to Low Line		1		%/%V_{IN}
Load Regulation (5V out only)	Rated Load to 1mA Load		10		%
Load Regulation (All other Models)	Rated Load to 1mA Load		3		%
GENERAL					
Switching Frequency			300		kHz
Package Weight			7		g
Frequency Change	Rated Load to 1mA Load		5		%
	High Line to Low Line		20		%
MTTF per MIL-HDBK-217, Rev. E	Circuit Stress Method				
Ground Benign	T_A = +25°C		1.8		MHr
Fixed Ground	T_A = +35°C		450		kHr
Naval Sheltered	T_A = +35°C		270		kHr
Airborne Uninhabited Fighter	T_A = +35°C		45		kHr
TEMPERATURE					
Specification		-25	+25	+85	°C
Operation		-40		+100	°C
Storage		-40		+110	°C

ABSOLUTE MAXIMUM RATINGS

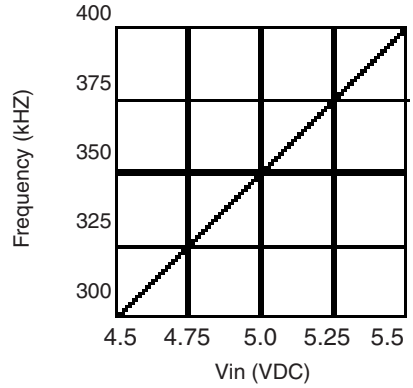
Internal Power Dissipation.....1.2W
Short Circuit Protection.....< 1 second

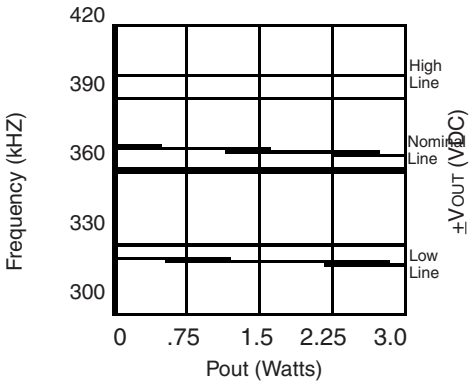
ORDERING INFORMATION

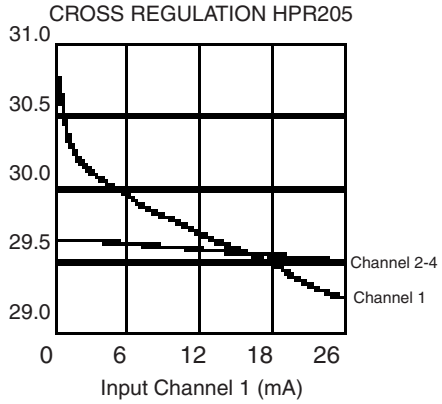
HPR 2XX /H

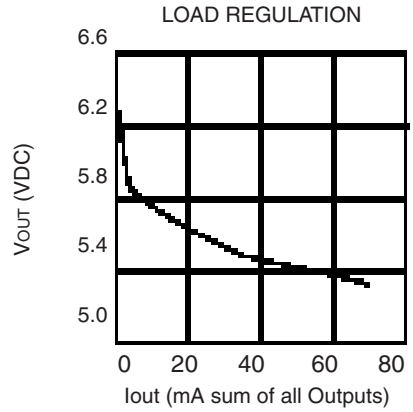
Device Family
HPR Indicates DC/DC Converter
Model Number
Selected From Table Above
Screening Option

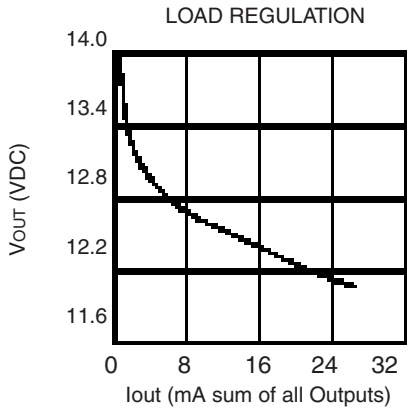
TYPICAL PERFORMANCE CURVES

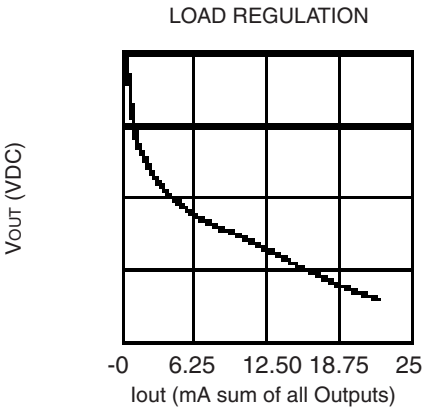


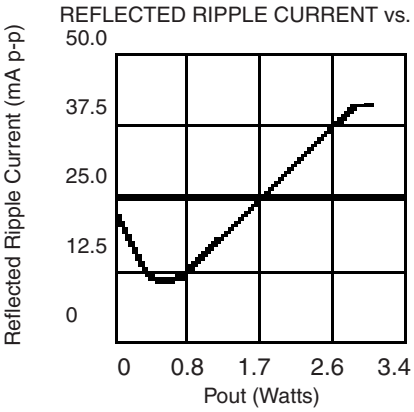


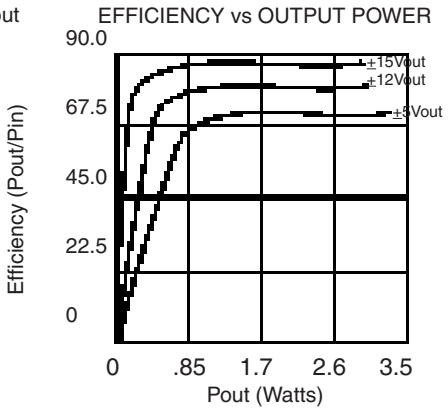


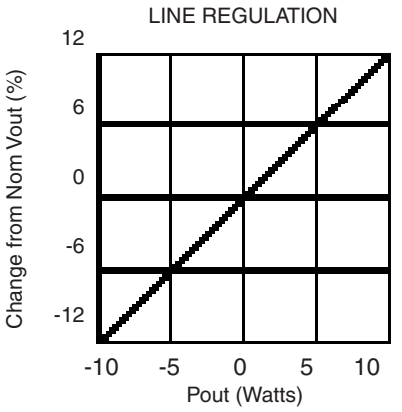












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Murata Power Solutions

Murata Power Solutions, Inc.
11 Cabot Boulevard, Mansfield, MA 02048-1151 U.S.A.
Tel: (508) 339-3000 (800) 233-2765 Fax: (508) 339-6356
www.murata-ps.com email: sales@murata-ps.com ISO 9001 & ISO 14001 REGISTERED

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USA: Mansfield (MA), Tel: (508) 339 3000, email: sales@murata-ps.com
Canada: Toronto, Tel: (866) 740 1232, email: toronto@murata-ps.com
UK: Milton Keynes, Tel: +44 (0)1908 615232, email: mk@murata-ps.com
France: Montigny Le Bretonneux, Tel: +33 (0)1 34 60 01 01, email: france@murata-ps.com
Germany: München, Tel: +49 (0)89-544334-0, email: ped.munich@murata-ps.com
Japan: Tokyo, Tel: 3-3779-1031, email: sales_tokyo@murata-ps.com
Osaka, Tel: 6-6354-2025, email: sales_osaka@murata-ps.com
China: Shanghai, Tel: +86 215 027 3678, email: shanghai@murata-ps.com
Guangzhou, Tel: +86 208 221 8066, email: guangzhou@murata-ps.com
Singapore: Parkway Centre, Tel: +65 6348 9096, email: singapore@murata-ps.com