

DC/DC CONVERTERS

QUAD CHANNEL, MINIATURE SINGLE-IN-LINE PACKAGE

FEATURES

- FOUR CHANNELS of ISOLATED POWER
- HIGH OUTPUT POWER DENSITY:
> 9.4 WATTS/INCH³
- 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

DESCRIPTION

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.

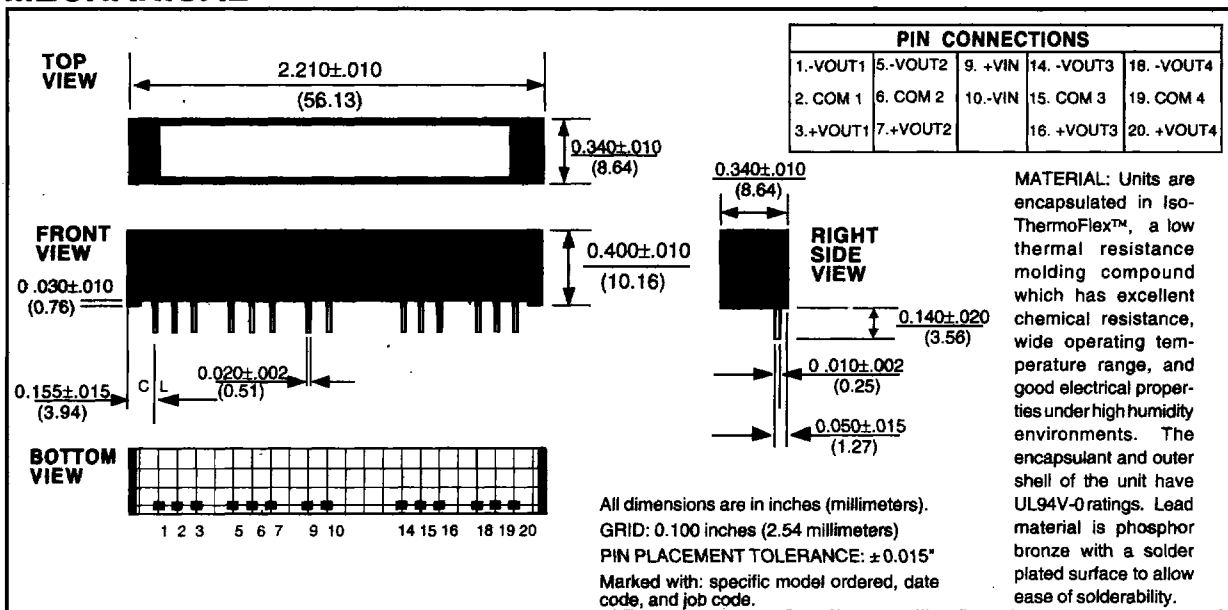
The HPR2XX Series uses advanced circuit design and packaging technology to realize superior reliability and performance. With only one converter switching on the board, the HPR2XX eliminates the possibility of separate converters creating beat fre-

quencies, or "aliasing" in multiple channel applications.

The high efficiency of the HPR2XX Series means less internal power dissipation than comparable solutions. With less heat to have to dissipate the HPR2XX Series can operate at higher temperatures with no degradation of reliable operation. In addition, the high efficiency of the HPR2XX Series provides greater than 9 watts/inch³ 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



ELECTRICAL SPECIFICATIONS

Specifications typical at $T_A = +25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

MODEL	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	RATED OUTPUT CURRENT (mA)	INPUT CURRENT		REFLECTED RIPPLE CURRENT (mApp)	EFFICIENCY (%)
				MIN LOAD (mA)	RATED LOAD (mA)		
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 $T_A = +25^\circ\text{C}$, nominal input voltage, rated output current unless otherwise specified.

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT Voltage Range		4.5 10.8 13.5 21.6	5 12 15 24	5.5 13.2 16.5 26.4	VDC VDC VDC VDC
Voltage Rise Time In Rush Current	At Startup			1	V/ μsec Amps
ISOLATION Rated Voltage Test Voltage Resistance Capacitance Leakage Current	Input to Output, Channel to Channel 60 Hz, 10 seconds $V_{\text{iso}} = 240\text{VAC}, 60\text{Hz}$	750 750	10 30 4		VDC Vpk G Ω pF μArms
OUTPUT Total Rated Power Rated Power Each Channel Voltage Setpoint Accuracy Ripple & Noise Voltage Temperature Coefficient	Rated Load, Nominal V_{IN} BW = DC to 10MHz BW = 10Hz to 2MHz $I_L = 1\text{mA}, V_{\text{OUT}} = 5\text{V}$ $I_L = 1\text{mA}, V_{\text{OUT}} = 12\text{V}$ $I_L = 1\text{mA}, V_{\text{OUT}} = 15\text{V}$		3 750 40 7 .05	 ± 5 8 17 20	W mW % mVp-p mVrms VDC VDC VDC %/Deg C
REGULATION Line Regulation Load Regulation (5V out only) Load Regulation (All other Models)	High Line to Low Line Rated Load to 1mA Load Rated Load to 1mA Load		1 10 3		%/ $\%V_{\text{IN}}$ % %
GENERAL Switching Frequency Package Weight Frequency Change MTTF per MIL-HDBK-217, Rev. E Ground Benign Fixed Ground Naval Sheltered Airborne Uninhabited Fighter	Rated Load to 1mA Load High Line to Low Line Circuit Stress Method $T_A = +25^\circ\text{C}$ $T_A = +35^\circ\text{C}$ $T_A = +35^\circ\text{C}$ $T_A = +35^\circ\text{C}$		300 7 5 20 1800 450 270 45		kHz g % % kHr kHr kHr kHr
TEMPERATURE Specification Operation Storage		-25 -40 -40	+25	+85 +100 +110	$^\circ\text{C}$ $^\circ\text{C}$ $^\circ\text{C}$

ORDERING INFORMATION

ABSOLUTE MAXIMUM RATINGS

Internal Power Dissipation.....	1.2W
Short Circuit Protection.....	< 1 second
Lead Temperature (soldering, 10 seconds max).....	+300 $^\circ\text{C}$

Device Family	HPR 2XX H
HPR Indicates DC/DC Converter	
Model Number	
Selected From Table Above	
Screening Option	

TYPICAL PERFORMANCE CURVES

T_A = +25 C, Rated Input Voltage, Rated Output Current unless otherwise noted.

