

HPR1XX

0.75 Watt Single Output DC/DC Converter



The HPR1XX Series uses advanced circuit design and packaging technology to deliver superior reliability and performance. A 170kHz push-pull

reduced when using the HPR1XX Series with high frequency isolation amplifiers. Reduced parts count and high

efficiency add to the reliability of the

Beat-frequency oscillation problems are

oscillator is used in the input stage.

- Low Cost
- Multiple Package Styles
- Internal Input and Output
- Filtering
- Non-Conductive Case

- High Output Power Density: 10 Watts/Inch³
- Extended Temperature Range: -25°C to +85°C
- Efficiency to 79%

HPR1XX Series. The high efficiency of the HPR1XX Series means less internal power dissipation, as low as 190mW. With reduced heat dissipation the HPR1XX Series can operate at higher temperatures with no degradation. In addition, the high efficiency of the HPR1XX Series means the series is able to offer greater than 10 W/inch³ of output power density. Operation down

to no load will not impact the reliability of the series, although a≥1mA minimum load is needed to realize published specifications.

The HPR1XX Series provides the user a low cost converter without sacrificing reliability. The use of surface mounted devices and advanced manufacturing technologies make it possible to offer premium performance and low cost.

SPECIFICATIONS All specifications are typical at $T_A = +25$ °C nominal input voltage unless otherwise specified.

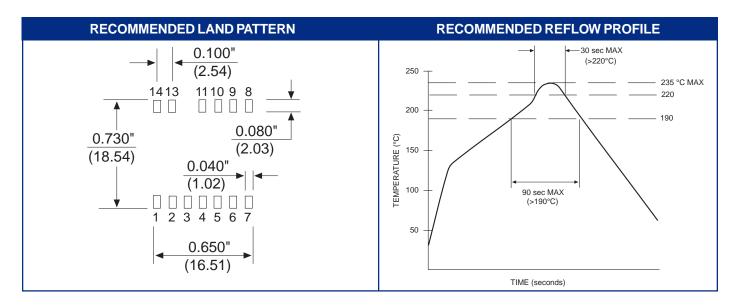
	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	RATED OUTPUT CURRENT (mA)	INPUT CURRENT		REFLECTED	
MODEL				NO LOAD (mA)	RATED LOAD (mA)	RIPPLE CURRENT (mAp-p)	EFFICIENCY (%)
HPR100	5	5	150	20	216	10	69
HPR101	5	12	62	20	212	5	70
HPR102	5	15	50	20	212	5	71
HPR103	5	±5	±75	20	218	5	68
HPR104	5	±12	±30	20	212	5	68
HPR105	5	±15	±25	20	200	5	75
HPR106	12	5	150	10	90	5	69
HPR107	12	12	62	10	81	5	77
HPR108	12	15	50	10	81	5	77
HPR109	12	±5	±75	10	88	5	71
HPR110	12	±12	±30	10	81	5	74
HPR111	12	±15	±25	10	81	5	77
HPR112	15	5	150	8	72	5	69
HPR113	15	12	62	8	72	5	69
HPR114	15	15	50	8	72	5	69
HPR115	15	±5	±75	8	72	5	69
HPR116	15	±12	±30	8	63	5	76
HPR117	15	±15	±25	8	63	5	79
HPR118	24	5	150	8	48	15	65
HPR119	24	12	62	8	48	15	65
HPR120	24	15	50	8	45	15	76
HPR121	24	±5	±75	8	45	15	69
HPR122	24	±12	±30	8	45	15	67
HPR123	24	±15	±25	8	45	15	69

Note: Other input to output voltages may be available. Please contact factory.

 $\begin{tabular}{ll} SPECIFICATIONS, ALL MODELS \\ Specifications are at $T_A=+25^{\circ}$C nominal input voltage unless otherwise specified. \\ \end{tabular}$

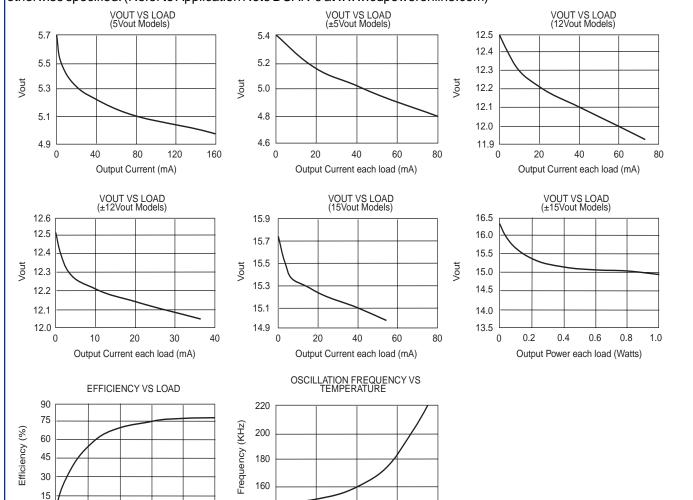
INPUT	INPUT Voltage Range	CONDITIONS	MIN	TYP	MAX	UNITS			
INPUT									
INPUT	Voltage Range								
INPUT			4.5	5	5.5	VDC			
INP			10.8	12	13.2	VDC			
=			13.5	15	16.5	VDC			
			21.6	24	26.4	VDC			
	Voltage Rise Time See Typical Performance Curves & Application Notes: "Capacitive Loading Effects on Start-Up of DC/DC Converters								
	OUTPUT								
	Rated Power			750		mVV			
	Voltage Setpoint Accuracy	Rated Load, Nominal V _{IN}			±5	%			
- 1	Ripple & Noise	BW = DC to 10MHz		45		mVp-p			
\supset		BW =10Hz to 2MHz		30		mVrms			
DUTPUT	HPR103	BW = DC to 10MHz		90		mVp-p			
5	Voltage (Over Input Voltage Range)	1mA Load, V _{OUT} = 5V			7	VDC			
		1mA Load, V _{OUT} = 12V			15	VDC			
		1mA Load, V _{OUT} = 15V			18	VDC			
	Temperature Coefficent			.01		%/°C			
	REGULATION								
	Line Regulation	High Line to Low Line		1		%/%Vin			
	GENERAL								
	ISOLATION								
	Rated Voltage		750			VDC			
	Test Voltage	60 Hz, 10 Seconds	750			Vrms (1060pk)			
	Resistance			10		GΩ			
	Capacitance			25	100	pF			
	Leakage Current	V _{ISO} = 240VAC, 60Hz		2	8.5	μArms			
₹ _	Switching Frequency			170		kHz			
ш	Frequency Change	Over Line and Load		24		%			
GENERAL	Package Weight			2		g			
<u>ග</u>	MTTF per MIL-HDBK-217, Rev. E*	Circuit Stress Method							
	Ground Benign	T _A =+25°C		7.9		MHr			
	Fixed Ground	T _A =+35°C		1.9		MHr			
	Naval Sheltered	T _A =+35°C		1.2		MHr			
	Airborne Uninhabited Fighter	T _A =+35°C		300		kHr			
	TEMPERATURE								
	Specification	_	-25	+25	+85	℃			
	Operation		-40		+100	℃			
	Storage		-40		+110	℃			

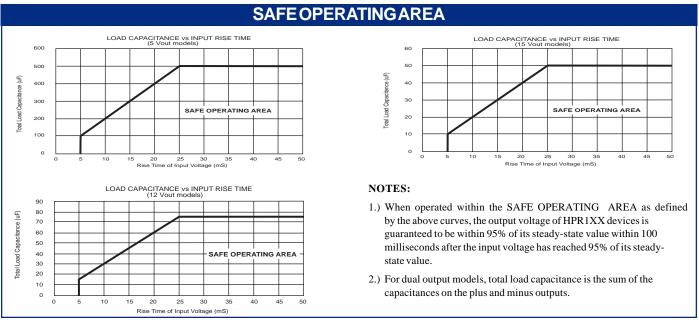
^{*} For demonstrated MTTF results reference: Power Convertibles Reliability Report HPR105.



TYPICAL PERFORMANCE CURVES

Specifications are at $T_A = +25$ °C nominal input voltage, nominal load, recommended external components applied, unless otherwise specified. (Refer to Application Note DCAN-9 at www.cdpoweronline.com)





Temperature (°C)

60

140

-30

0

0

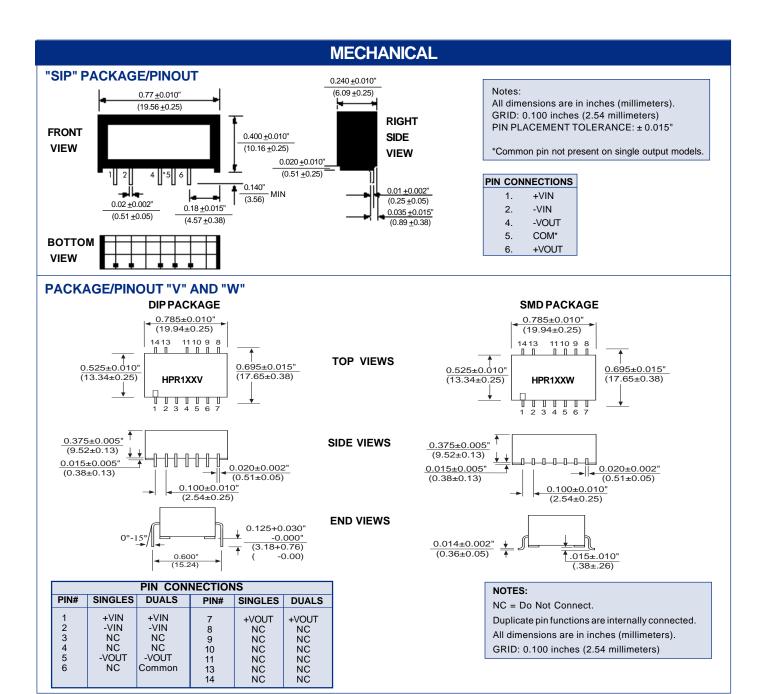
40

% of Rated Load (%)

60

80

100



ABSOLUTE MAXIMUM RATINGS

* NOTE: Refer to Reflow Profile for SMD Models.

ORDERING INFORMATION HPR 1XX V/W Device Family HPR Indicates DC/DC Converter Model Number Selected from Table of Electrical Characteristics Package Option There is "no" package designator for the SIP package V = DIP Package W = SMD Package

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