



The HPR1XXVC Series uses advanced circuit design and packaging technology to deliver superior reliability and performance. A 170kHz push-pull oscillator is used in the input stage. Beat-frequency oscillation problems are reduced when using the HPR1XXVC Series with high frequency isolation amplifiers.

Reduced parts count and high efficiency add to the reliability of the

HPR1XXVC Series. The high efficiency of the HPR1XXVC Series means less internal power dissipation, as low as 190mW. With reduced heat dissipation the HPR1XXVC Series can operate at higher temperatures with no degradation. In addition, the high efficiency of the HPR1XXVC 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 ≥ 1 mA minimum load is needed to realize published specifications.

The HPR1XXVC 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 $T_A = +25^\circ\text{C}$ nominal input voltage unless otherwise specified.

PRODUCT SELECTION CHART

MODEL	NOMINAL INPUT VOLTAGE (VDC)	RATED OUTPUT VOLTAGE (VDC)	RATED OUTPUT CURRENT (mA)	INPUT CURRENT		REFLECTED RIPPLE CURRENT (mAp-p)	EFFICIENCY (%)
				NO LOAD (mA)	RATED LOAD (mA)		
—HPR100VC	5	5	150	20	216	10	69
—HPR101VC	5	12	62	20	212	5	70
—HPR102VC	5	15	50	20	212	5	71
—HPR103VC	5	± 5	± 75	20	218	5	68
—HPR104VC	5	± 12	± 30	20	212	5	68
—HPR105VC	5	± 15	± 25	20	200	5	75
—HPR106VC	12	5	150	10	90	5	69
—HPR107VC	12	12	62	10	81	5	77
—HPR108VC	12	15	50	10	81	5	77
—HPR109VC	12	± 5	± 75	10	88	5	71
—HPR110VC	12	± 12	± 30	10	81	5	74
—HPR111VC	12	± 15	± 25	10	81	5	77
—HPR112VC	15	5	150	8	72	5	69
—HPR113VC	15	12	62	8	72	5	69
—HPR114VC	15	15	50	8	72	5	69
—HPR115VC	15	± 5	± 75	8	72	5	69
—HPR116VC	15	± 12	± 30	8	63	5	76
—HPR117VC	15	± 15	± 25	8	63	5	79
—HPR118VC	24	5	150	8	48	15	65
—HPR119VC	24	12	62	8	48	15	65
—HPR120VC	24	15	50	8	45	15	76
—HPR121VC	24	± 5	± 75	8	45	15	69
—HPR122VC	24	± 12	± 30	8	45	15	67
—HPR123VC	24	± 15	± 25	8	45	15	69

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



SPECIFICATIONS, ALL MODELS

Specifications are at $T_A = +25^\circ\text{C}$ nominal input voltage unless otherwise specified.

	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT	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 See Typical Performance Curves & Application Notes: "Capacitive Loading Effects on Start-Up of DC/DC Converters"					
OUTPUT	OUTPUT					
	Rated Power				750	mW
	Voltage Setpoint Accuracy	Rated Load, Nominal V_{IN}			± 5	%
	Ripple & Noise	BW = DC to 10MHz		150	200	mVp-p
		BW = 10Hz to 2MHz		30	40	mVrms
	Voltage (Over Input Voltage Range)	1mA to Rated Current, $V_{OUT} = 5V$	4.75		7	VDC
		1mA to Rated Current, $V_{OUT} = 12V$	11.40		15	VDC
		1mA to Rated Current, $V_{OUT} = 15V$	14.25		18	VDC
GENERAL	Temperature Coefficient			.01	.05	%/°C
	REGULATION					
	Load Regulation (All other modes)	Rated Load to 1mA Load		3		%
	GENERAL ISOLATION					
	Rated Voltage		750			VDC
	Test Voltage	60 Hz, 10 Seconds	750			Vrms
	Resistance		10			GΩ
	Capacitance			25	100	pF
	Leakage Current	$V_{ISO} = 240VAC, 60Hz$		2	8.5	μArms
	Switching Frequency			170		kHz
	Frequency Change	Over Line and Load		24		%
	Package Weight				3	g
	MTTF per MIL-HDBK-217, Rev. F*	Circuit Stress Method				
	Ground Benign	$T_A = +25^\circ\text{C}$	7.9			MHr
	Fixed Ground	$T_A = +35^\circ\text{C}$	1.9			MHr
	Naval Sheltered	$T_A = +35^\circ\text{C}$	1.2			MHr
	Airborne Uninhabited Fighter	$T_A = +35^\circ\text{C}$	300			kHr
	TEMPERATURE					
	Specification		-25	+25	+85	°C
	Operation		-40		+100	°C
	Storage		-40		+110	°C

SOLDERING INFORMATION

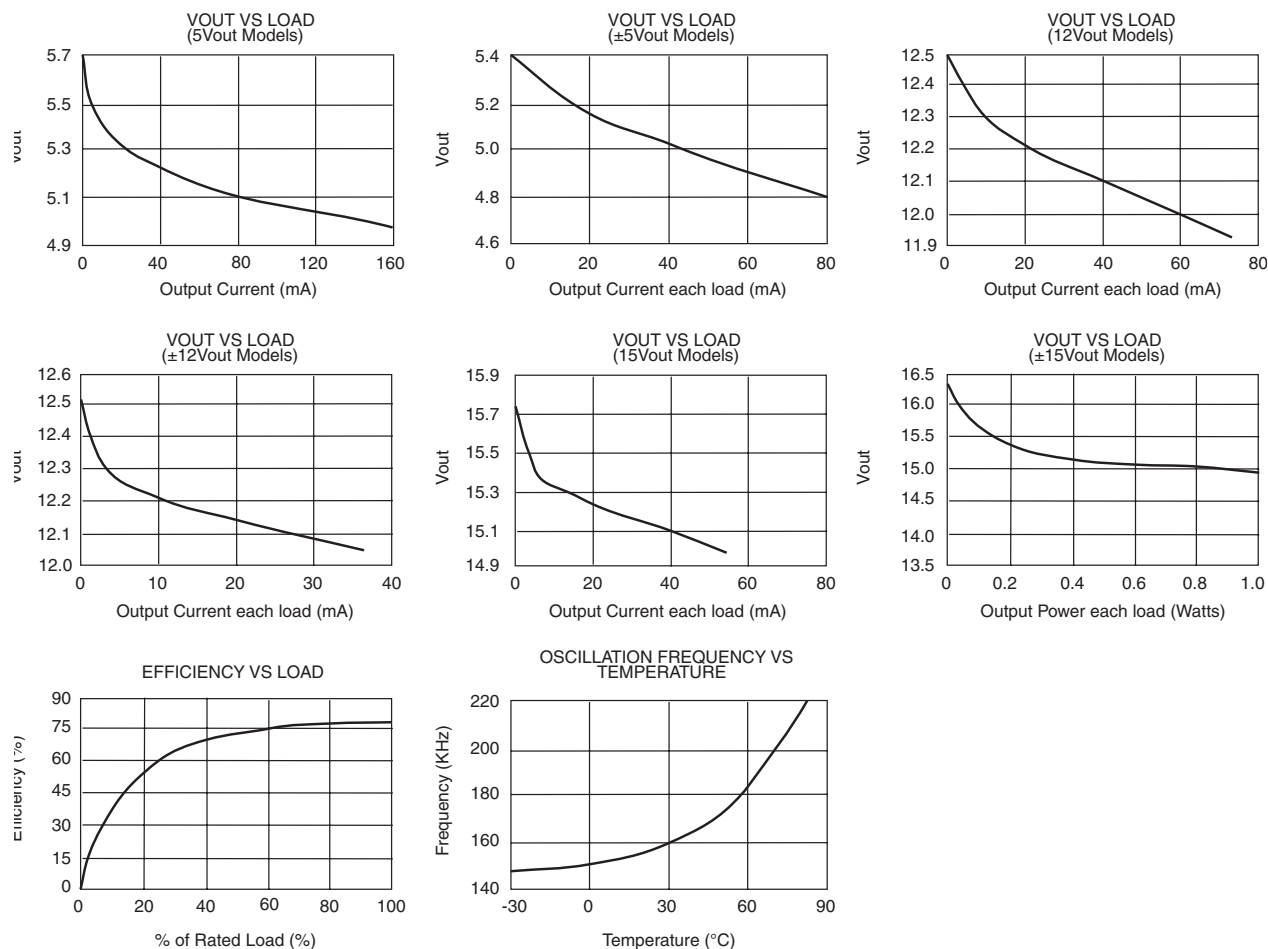
The HPR1XXVC devices are intended for wave soldering or manual soldering.

They are not intended to be subject to surface mount processes under any circumstances.

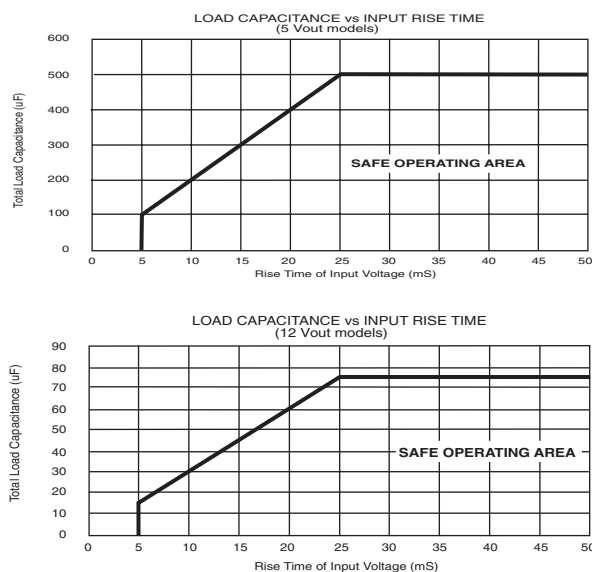
The normal wave soldering process can be used with these devices where the device is subjected to a maximum wave temperature of 260°C for a period of no more than 10 seconds. Within this time and temperature range, the integrity of the device's plastic body will not be compromised and internal temperatures within the converter will not exceed 175°C. Care should be taken to control manual soldering limits identical to that of wave soldering.

TYPICAL PERFORMANCE CURVES

Specifications are at $T_A = +25^\circ\text{C}$ nominal input voltage and nominal load.



SAFE OPERATING AREA



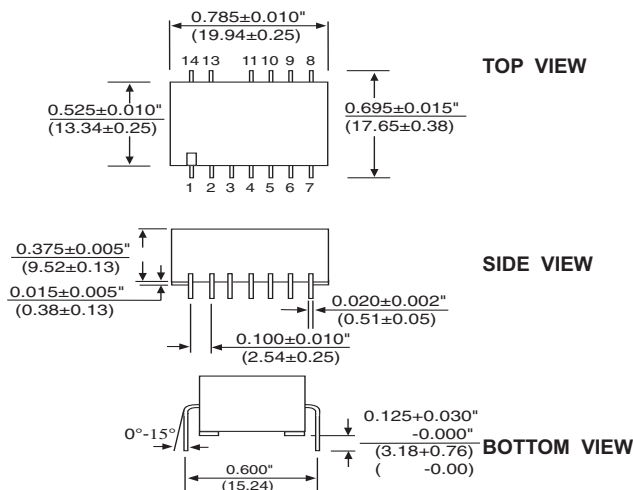
NOTES:

- 1.) When operated within the SAFE OPERATING AREA as defined by the above curves, the output voltage of HPR1XXC devices is guaranteed to be within 95% of its steady-state value within 100 milliseconds after the input voltage has reached 95% of its steady-state value.
- 2.) For dual output models, total load capacitance is the sum of the capacitances on the plus and minus outputs.

MECHANICAL

PACKAGE/PINOUT "V"

DIP PACKAGE



PIN CONNECTIONS

PIN#	SINGLES	DUALS	PIN#	SINGLES	DUALS
1	+VIN	+VIN	7	+VOUT	+VOUT
2	-VIN	-VIN	8	NC	NC
3	NC	NC	9	NC	NC
4	NC	NC	10	NC	NC
5	-VOUT	-VOUT	11	NC	NC
6	NC	Common	13	NC	NC
			14	NC	NC

NOTES:

NC = Do Not Connect.

Duplicate pin functions are internally connected.

All dimensions are in inches (millimeters).

GRID: 0.100 inches (2.54 millimeters)

MATERIAL: Lead material is phosphor bronze; lead finish is 100-300 microinches of matte tin over a nickel barrier layer of 5-40 microinches.

ABSOLUTE MAXIMUM RATINGS

Internal Power Dissipation 450mW
Short Circuit Duration..... Momentary

ORDERING INFORMATION

Device Family **HPR** **1XX** **V** **C**
 HPR Indicates DC/DC Converter
 Model Number _____
 Selected from Table of Electrical Characteristics
 Package Option _____
 V = DIP Package
 RoHS Compliant Version _____

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