



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/inch<sup>3</sup> of output power density. Operation down to no load will not impact the reliability

of the series, although a  $\geq 1$  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 $V_{DC}$	Rated Output Voltage $V_{OC}$	Rated Output Current mA	Input Current		Reflected Ripple Current mAp-p	Efficiency %	Recommended Alternatives	
				No Load	Rated Load Typ.				
				mA					
<b>To Be Discontinued*</b>	HPR117VC	15	$\pm 15$	$\pm 25$	8	63	5	79	MEA1D1515DC
<b>Discontinued</b>	HPR100VC	5	5	150	20	216	10	69	NKE0505DC / NME0505DC
<b>Discontinued</b>	HPR105VC	5	$\pm 15$	$\pm 25$	20	200	5	75	NMA0515DC / MEA1D0515DC
<b>Discontinued</b>	HPR101VC	5	12	62	20	212	5	70	NKE0512DC / NME0512DC
<b>Discontinued</b>	HPR102VC	5	15	50	20	212	5	71	NKE0515DC / NME0515DC
<b>Discontinued</b>	HPR103VC	5	$\pm 5$	$\pm 72$	20	218	5	68	NMA0505DC / MEA1D0505DC
<b>Discontinued</b>	HPR104VC	5	$\pm 12$	$\pm 30$	20	212	5	68	NMA0512DC / MEA1D0512DC
<b>Discontinued</b>	HPR106VC	12	5	150	10	90	5	69	NKE1205DC / NME1205DC
<b>Discontinued</b>	HPR107VC	12	12	62	10	81	5	77	NKE1212DC / NME1212DC
<b>Discontinued</b>	HPR108VC	12	15	50	10	81	5	77	NKE1215DC / NME1215DC
<b>Discontinued</b>	HPR109VC	12	$\pm 5$	$\pm 72$	10	88	5	71	NMA1205DC / MEA1D1205DC
<b>Discontinued</b>	HPR110VC	12	$\pm 12$	$\pm 30$	10	81	5	74	NMA1212DC / MEA1D1212DC
<b>Discontinued</b>	HPR111VC	12	$\pm 15$	$\pm 25$	10	81	5	77	NMA1215DC / MEA1D1215DC
<b>Discontinued</b>	HPR112VC	15	5	150	8	72	5	69	MEV1S1505DC
<b>Discontinued</b>	HPR113VC	15	12	62	8	72	5	69	MEV1S1512DC
<b>Discontinued</b>	HPR114VC	15	15	50	8	72	5	69	MEV1S1515DC
<b>Discontinued</b>	HPR115VC	15	$\pm 5$	$\pm 72$	8	72	5	69	MEA1D1505DC
<b>Discontinued</b>	HPR116VC	15	$\pm 12$	$\pm 30$	8	63	5	76	MEA1D1512DC
<b>Discontinued</b>	HPR118VC	24	5	150	8	48	15	65	NME2405DC / MEV1S2405DC
<b>Discontinued</b>	HPR119VC	24	12	62	8	48	15	65	NME2412DC / MEV1S2412DC
<b>Discontinued</b>	HPR120VC	24	15	50	8	45	15	76	NME2412DC / MEV1S2415DC
<b>Discontinued</b>	HPR121VC	24	$\pm 5$	$\pm 72$	8	45	15	69	MEA1D2405DC
<b>Discontinued</b>	HPR122VC	24	$\pm 12$	$\pm 30$	8	45	15	67	MEA1D2412DC
<b>Discontinued</b>	HPR123VC	24	$\pm 15$	$\pm 25$	8	45	15	69	MEA1D2415DC



**\*LAST TIME BUY: 3/31/2017. CLICK HERE FOR DISCONTINUANCE NOTICES.**

### 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	<b>INPUT</b>						
	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	<b>OUTPUT</b>						
	Rated Power				750	mW	
	Voltage Setpoint Accuracy	Rated Load, Nominal $V_{IN}$			$\pm 5$	%	
	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	
Temperature Coefficient			.01	.05	%/°C		
REGULATION	<b>REGULATION</b>						
	Load Regulation (All other modes)	Rated Load to 1mA Load		3		%	
GENERAL	<b>GENERAL</b>						
	<b>ISOLATION</b>						
	Rated Voltage		750			VDC	
	Test Voltage	60 Hz, 10 Seconds	750			Vrms	
	Resistance		10			$\text{G}\Omega$	
	Capacitance			25	100	pF	
	Leakage Current	$V_{ISO} = 240\text{VAC}, 60\text{Hz}$		2	8.5	$\mu\text{Arms}$	
	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		
<b>TEMPERATURE</b>							
Specification		-25	+25	+85	°C		
Operation		-40		+100	°C		
Storage		-40		+110	°C		

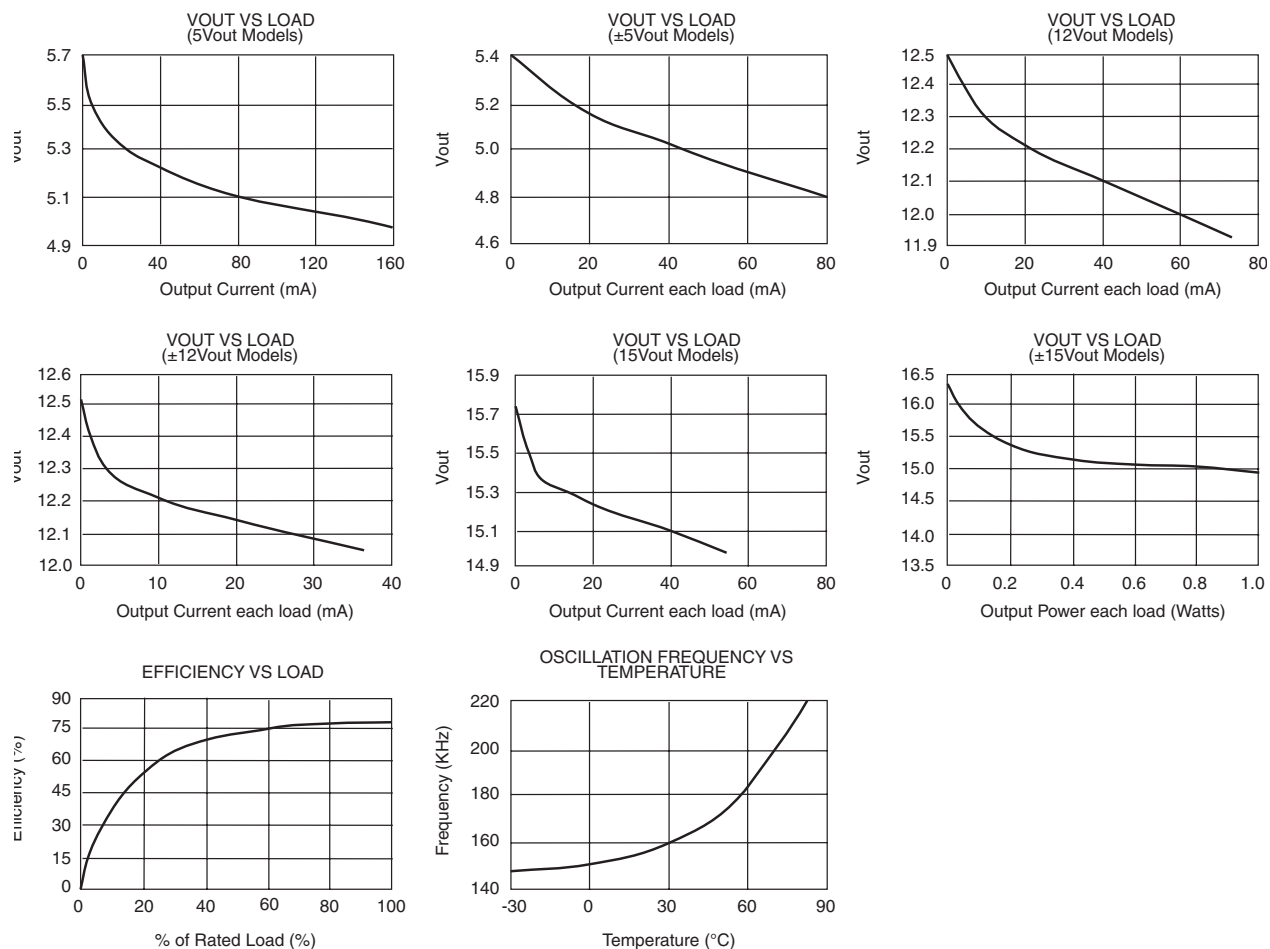
### SOLDERING INFORMATION

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.**

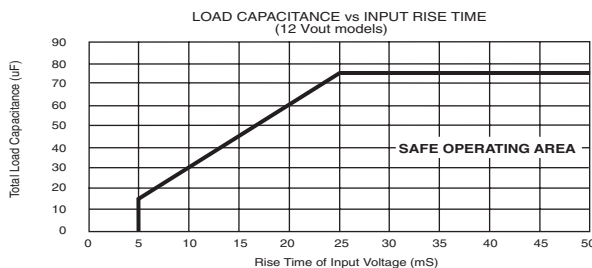
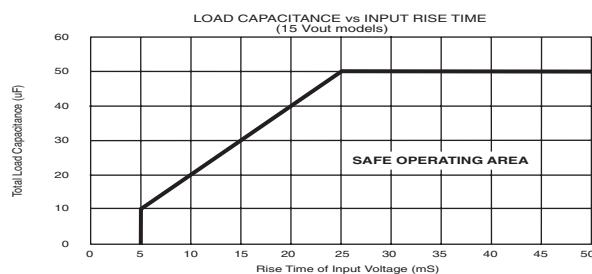
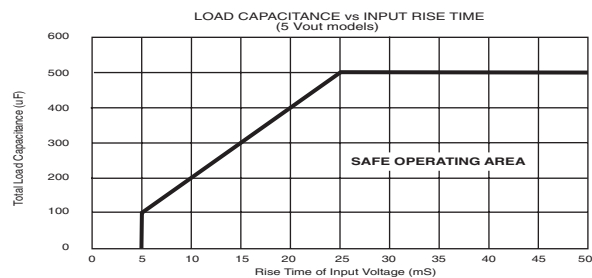
The normal wave soldering process can be used with these devices where the device is subjected to a maximum wave temperature of  $260^\circ\text{C}$  for a period of no more than 10 seconds. Within this time and temperature range, the integrity of the device's plastic body will not be compromised and internal temperatures within the converter will not exceed  $175^\circ\text{C}$ . 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**

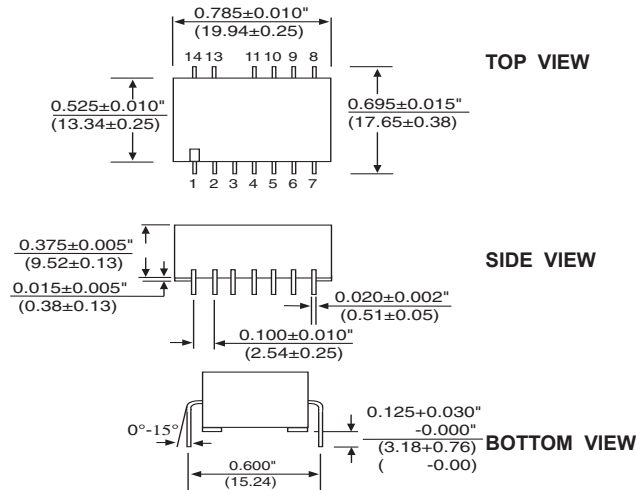


**NOTES:**

- 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).

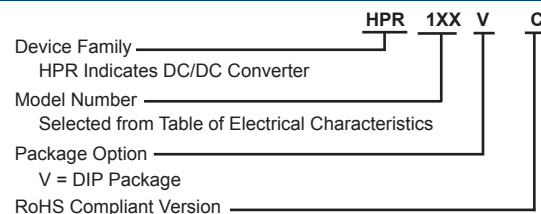
GRID: 0.100 inches (2.54 millimeters)

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**



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 ISO 9001 and 14001 REGISTERED



**This product is subject to the following operating requirements and the Life and Safety Critical Application Sales Policy:**

Refer to: <http://www.murata-ps.com/requirements/>

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