Series HVP

5W Non-Isolated Regulated Programmable High Voltage DC-DC Converter

PRODUCT OVERVIEW

The HVP series modules are 0% to 100% output voltage programmable by internal reference or external voltage plus additional 10% fine-tune calibration. These modules have a voltage monitor and shutdown features. Protections include input overvoltage, output short-circuit, output overload, and over temperature. Precise line & load regulation with low ripple down to 0.007% peak to peak.

The 2.55" x 1.3" x 0.5" low profile 6-sided shielded metal case size will mitigate EMI noise and inteference.



PICO

Electronics, Inc.

FEATURES

- 0-100% programmable output feature
- 11-16 VDC input voltage range
- 5W output power
- 100 to 6kV nominal output voltage models
- Compact 2.55" x 1.3" x 0.5" 6-sided metal case
- Protected against input overvoltage, output shortcircuit, output overload and over temperature
- 3 voltage programming methods
- Down to 0.007% peak to peak ripple
- <0.01% load regulation
- Shutdown feature
- Output voltage monitor feature
- 10% fine-tune calibration adjustment screw

Contact Pico for part number of available options:

- Expanded operating temp: -55°C to +85°C
- Select screening per MIL-STD-883: Stabilization Bake Temperature Cycle Burn-In
- Special Input Voltage, Output Voltage, Isolation Voltage or Output Power





SPECIFICATIONS (Nominal V_{IN}, Full Load, $T_A = +25$ °C, 1 hour warm up unless otherwise specified)

INPUT

Parameter	Condition	Min.	Тур.	Max.	Units
Input Voltage Range		11	12	16	VDC
Input Current	100% load	-	-	650	mA
	0% load	-	-	150	

OUTPUT

Parameter	Condition	Min.	Тур.	Max.	Units	
Load Regulation	0-100% load	0.01		0.01	%	
Line Regulation		-	-	0.005	%	
	100V output models		-	50	mA	
	250V output models		-	20		
Output Current	500V output models		-	10		
	1000V output models		-	5		
	2000V output models	0	-	2.5		
	3000V output models			1.67		
	4000V output models			1.25		
	5000V output models			1		
	6000V output models			0.84		
Output Power		-	-	5	W	
Output Voltage Ripple (1MHz BW)	100V output models	-	0.15	-	%	
	250V to 4000V output models	-	0.007	-		
	5000 to 6000V output models	-	0.15	-		

ENVIRONMENTAL

Parameter	Condition	Min.	Тур.	Max.	Units
Operating Temperature Range	Baseplate	-25	-	+70	°C
Storage Temperature Range	Baseplate	-55	-	+125	°C
Temperature Coefficient		-	-	0.005	%/°C
Cooling	Free Air Convection				

GENERAL

Parameter	Condition	Min.	Тур.	Max.	Units
Efficiency		-	70	-	%
Operating Frequency		55	-	110	kHz
Isolation Voltage	None				
Stability		-	-	0.005	%/hour
Size	L x W x H 2.55 x 1.3 x 0.5 (64.77 x 33.02 x 12.7) inches			inches (mm)	
Weight		-	70	-	grams
Case	Non-insulated Metal				
Potting	None				
Box Packaging (W x L x H)	8 x 7.5 x 1.5 (203.2 x 190.5 x 38.1) or 12 x 9 x 1.5 (304.8 x 228.6 x 38.1) inches (mr			inches (mm)	



SPECIFICATIONS (Nominal V_{IN}, Full Load, $T_A = +25$ °C, 1 hour warm up unless otherwise specified)

PROTECTIONS & FEATURES

Parameter	Condition	Min.	Тур.	Max.	Units
Short circuit	Output Current Limit, self-recovery	-	130	-	%
Overtemperature	Baseplate, latching	-	95	-	°C
Input Over Voltage	Latched shutdown	-	18	-	VDC
	Non-latching shutdown	-	0.25	-	VDC
Output Voltage Programming	Voltage	0.25	5	5.5	VDC
(PROG) ⁽¹⁾	Linearity, 10-100% Vout	-	-	1	%
	Impedance	100	-	-	kΩ
Drogramming Deference (DEE)	Voltage	4.9	5	5.1	VDC
Figratining Reference (REF)	Current	0	-	1	mA
Voltage Monitor (MON) ⁽²⁾	Linear, 0-100% Vout	0	-	5	VDC

Note 1: Unit requires Output Voltage Programming (PROG) to be >0.25V to turn on and operate normally. Note 2: Voltage Monitor (MON) returns a proportional voltage (0-5V) to the output voltage. It is useful to identify an overload condition by comparing it to Output Voltage Programming (PROG). For negative output models, Voltage Monitor (MON) returns a buffered signal of the internal programming voltage.

OPTIONS AVAILABLE - CONTACT PICO FOR PART NUMBER

Parameter	Referenced Standard	Description
Stabilization Bake	MIL-STD-883	Referenced Method 1008 Non-operating maximum storage temperature for 24 hours
Temperature Cycle	MIL-STD-883	Referenced Method 1010 Non-operating at temperature extremes, 15 mins/temp, 10 cycles
Burn-In	MIL-STD-883	Referenced Method 1015 Max operating temperature for 160 hours



TYPICAL CONNECTION CIRCUIT

OUTPUT PROGRAMMING

EXTERNAL VOLTAGE & SHUTDOWN



INTERNAL VOLTAGE REFERENCE & RESISTIVE DIVIDER



Note 1: Unit require Output Voltage Programming (PROG) to be >0.25V to turn on and operate normally. Note 2: COM IN, COM OUT & case are internally connected.

OUTPUT PROGRAMMING CURVE











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NOTES a. ALL DIMENSIONS ARE IN INCHES, [] = MM b. METAL CASE CONNECTED TO PIN NUMBERS #5 & #6 2025 REV 0 wv

off





MECHANICAL DRAWINGS



Pico warrants each product manufactured by us and sold by us or an authorized representative, to be free from defects in material and workmanship. If properly used, it will perform within its applicable specifications for a period of one year after original shipment. Pico's obligation under this guarantee is limited to repairing or replacing our product to the original purchaser. This warranty is in lieu of all other warranties, express or implied and constitutes fulfillment of our obligations to the purchaser. We do not guarantee that the products can be used for a particular purpose other than those solely covered by the product's specifications. Pico must be notified if the product must meet particular certifications and/or standards. We assume no liability, in any event, for consequential damages, for anticipated or lost profits, incidental damages or loss of time or other losses incurred by the purchaser or any third party in connection with products covered by this warranty or otherwise. The purchaser will indemnify and hold Pico harmless for any damages, losses, costs, etc. from usage not within the product's specifications. Pico must be consulted before usage of its products in a nuclear, radioactive or space environment.

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