

KEY FEATURES

- Switching Power Module for PCB Mountable
- Fully Encapsulated Plastic Case
- Universal Input Range 90-305VAC, 47-440 Hz
- Single and Dual Output
- Regulated Output
- Low Ripple and Low Noise
- Isolation Class II
- Maximum No-Load Watts < 0.3W
- Small Size as AHC 5Watt with 8Watt Higher Power
- CE, UL Approval
- 3-Year Product Warranty



ELECTRICAL SPECIFICATIONS

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No. (Single Output)	VPHC08 -3.3S	VPHC08 -3.8S	VPHC08 -5S	VPHC08 -8S	VPHC08 -9S	VPHC08 -12S	VPHC08 -14S	VPHC08 -15S	VPHC08 -24S											
Max Output Wattage (W)	6.6W	8W	8W	8W	8W	8W	8W	8W	8W											
Input	Voltage										90-305 VAC or 120-430 VDC									
	Frequency (Hz)										47-440 Hz									
	Current (Full load)										180 mA max. (115 VAC) / 110 mA max. (230 VAC)									
	Inrush Current (<500us)										25 A max. (115 VAC) / 45 A max. (230 VAC)									
	Leakage Current										0.25 mA max.									
	External Fuse (recommend)										2 A slow blow type									
Output	Voltage (V.DC.)		3.3V	3.8V	5V	8V	9V	12V	14V	15V	24V									
	Voltage Accuracy		±2%																	
	Current (mA) max		2000	2100	1600	1000	888	666	571	533	335									
	Line Regulation (LL-HL) (typ.)		±0.2%																	
	Load Regulation (balanced)		±1%					±0.5%												
	Minimum Load		0%																	
	Maximum Capacitive Load (at 230VAC)		26000uF	25000uF	6000uF	2500uF	2300uF	1050uF	500uF	440uF	180uF									
	Ripple		3.3S~15S : <100mV max (Vp-p)					24S : <150mV max (Vp-p)												
	Noise		3.3S~15S : <150mV max (Vp-p)					24S : <200mV max (Vp-p)												
	Efficiency		69%	71%	72%	79%	79%	79%	80%	80%	81%									
Hold-up Time		10 ms min.																		
Protection	Over Power Protection		Hiccup technique, auto-recovery																	
	Over Voltage Protection		Zener diode clamp																	
	Short Circuit Protection		Hiccup mode, indefinite (automatic recovery)																	
Isolation	Input-Output (V.AC)		3000V																	
Environment	Operating Temperature		-40°C...+70°C (with derating)																	
	Storage Temperature		-40°C...+85°C																	
	Temperature Coefficient		±0.02%/°C																	
	Humidity		95% RH																	
	MTBF		>450,000 h @ 25°C (MIL-HDBK-217F)																	
Physical	Dimensions (L x W x H)		2.055 x 1.055 x 0.75 Inches (52.2 x 26.8 x 19.0 mm) Tolerance ±0.5 mm																	
	Case Material		Plastic resin (flammability to UL 94V-0)																	
	Weight		35 g																	
	Cooling Method		Free air convection																	
Safety	Agency Approvals		CE, UL, cUL																	
EMC	EMI (Conducted & Radiated Emission)		EN 55032 class B																	
	EMS (Noise Immunity)		EN 55024																	

ELECTRICAL SPECIFICATIONS

All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Model No. (Dual Output)	VPHC08-5S3.3S	VPHC08-8S5S	VPHC08-12S5S	VPHC08-12S7.5S
Max Output Wattage (W)	9W	8.75W	9W	8.6W
Input	Voltage			
	90-305 VAC or 120-430 VDC			
	Frequency (Hz)			
	47-440 Hz			
	Current (Full load)			
	200 mA max. (115 VAC) / 125 mA max. (230 VAC)			
Inrush Current (<500us)				
25 A max. (115 VAC) / 45 A max. (230 VAC)				
Leakage Current				
0.25 mA max.				
External Fuse (recommend)				
2 A slow blow type				
Output	Voltage (V.DC.)			
	Vo : 5V Vr : 3.3V			
	Vo : 8V Vr : 5V			
	Vo : 12V Vr : 5V			
	Vo : 12V Vr :7.5V			
	Voltage Accuracy			
	Vo : ±2% Vr : ±15%			
	Vo : ±2% Vr : ±5%			
	Current (mA) max			
	1600 / 310			
	1000 / 150			
	666 / 200			
560 / 250				
Line Regulation (LL-HL) (typ.)				
Vo : ±0.2% Vr : ±3%				
Load Regulation (balanced)				
Vo : ±0.5% Vr : ±5%				
Minimum Load				
25%				
Maximum Capacitive Load (at 230VAC)				
Vo : 1200uF Vr : 1000uF				
Vo : 800uF Vr :3800uF				
Vo : 260 uF Vr : 3800uF				
Vo : 260 uF Vr : 4000uF				
Ripple				
<100mV max (Vp-p)				
Noise				
<150mV max (Vp-p)				
Efficiency				
71%				
77%				
78%				
78%				
Hold-up Time				
10 ms min.				
Protection	Over Power Protection			
	Hiccup technique, auto-recovery			
	Over Voltage Protection			
Zener diode clamp				
Short Circuit Protection				
Hiccup mode, indefinite (automatic recovery)				
Isolation	Input-Output (V.AC)			
3000V				
Environment	Operating Temperature			
	-40°C...+70°C (with derating)			
	Storage Temperature			
	-40°C...+85°C			
	Temperature Coefficient			
±0.02%/°C				
Humidity				
95% RH				
MTBF				
>450,000 h @ 25°C (MIL-HDBK-217F)				
Physical	Dimensions (L x W x H)			
	2.055 x 1.055 x 0.75 Inches (52.2 x 26.8 x 19.0 mm) Tolerance ±0.5 mm			
	Case Material			
	Plastic resin (flammability to UL 94V-0)			
Weight				
35 g				
Cooling Method				
Free air convection				
Safety	Agency Approvals			
CE, UL, cUL				
EMC	EMI (Conducted & Radiated Emission)			
	EN 55032 class B			
EMS (Noise Immunity)				
EN 55024				

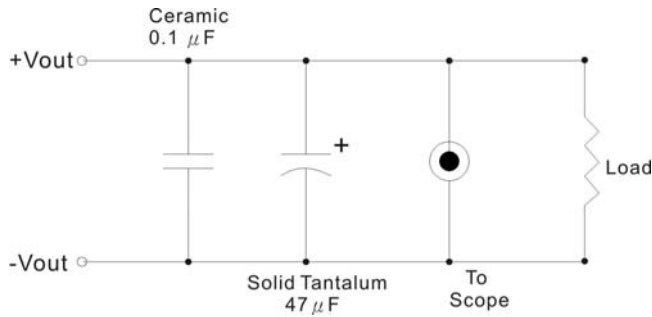
NOTE

- Ripple & Noise are measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.
- Cross Regulation for dual output:
 - If $I_o=100\% \sim 80\%$ & $I_r=100\% \sim 80\%$ then Corss Regulation $\leq \pm 10\%$
 - If $I_o=100\% \sim 25\%$ & $I_r=100\% \sim 25\%$ then Corss Regulation $\leq \pm 18\%$
- It's necessary Varistor 14S561K at L / N input side in parallel.
- It's necessary 10R / 15p thermistor at L input side in series connection.

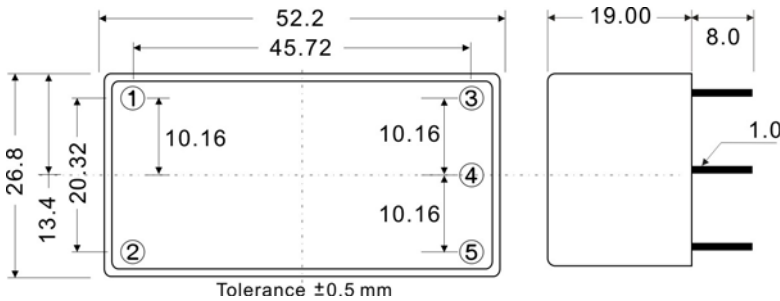


OUTPUT NOISE

The output noise is measured with 47µF tantalum capacitor and 0.1µF ceramic capacitor across output.



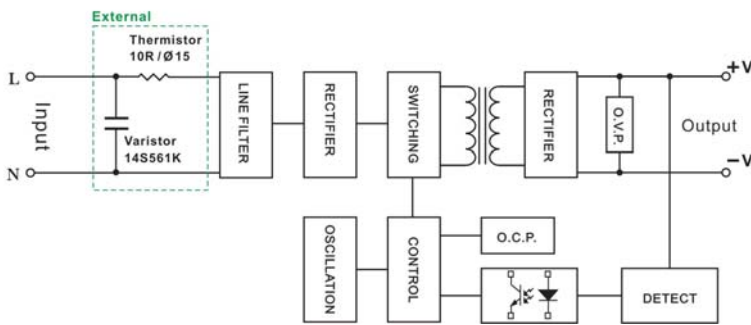
MECHANICAL DIMENSIONS (Top View)



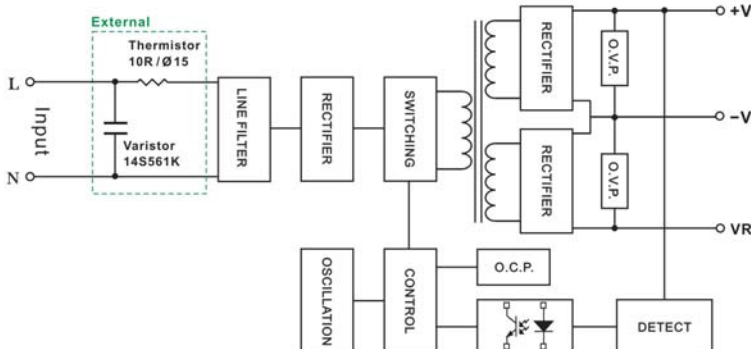
PIN#	Single	Dual
1	AC IN (N)	AC IN (N)
2	AC IN (L)	AC IN (L)
3	+DC OUT	+DC OUT
4	-DC OUT	-DC OUT
5	NO PIN	VR

BLOCK DIAGRAM

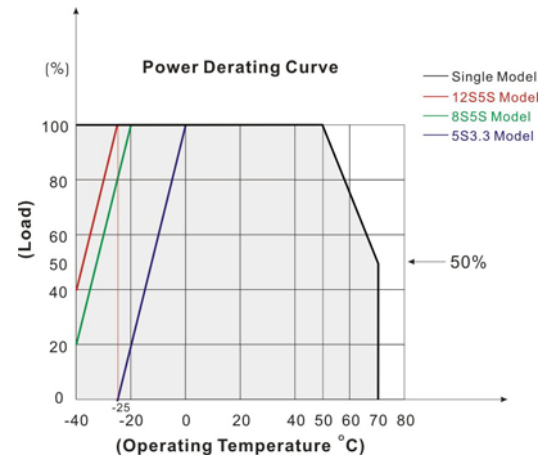
Single Output



Dual Output



DERATING



We reserve the right to make alterations in the product materials and specifications without prior notification and consent to improve reliability, function or design or otherwise.