

# 7 W AC-DC Modules PA07A-Series



PHI-CON

- AC-DC Power module
- Universal input 85-265 VAC
- High efficiency up to 79 %
- Short circuit protection
- Internal input filter
- 3 years warranty
- Open frame



## Model selection guide

Type	Output power [W]	Input voltage range [V <sub>AC</sub> ]	Output voltage [V <sub>DC</sub> ]	Output current [mA]	Efficiency typ. [%]
<b>Single output</b>					
PA07A03	6.6	85 – 265	+3.3	2000	72
PA07A05	7.5	85 – 265	+5	1500	75
PA07A12	7.5	85 – 265	+12	630	78
PA07A15	7.5	85 – 265	+15	500	78
PA07A24	7.6	85 – 265	+24	320	79
<b>Dual output</b>					
PA07A12D	7.6	85 – 265	±12	±320	77
PA07A15D	7.5	85 – 265	±15	±250	78
PA07A503D	6.3	85 – 265	+5 / +3.3	+1000 / +600	68
PA07A512D	6.6	85 – 265	+5 / +12	+600 / +300	75

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## Specifications

All specifications typical at normal line, full load, 25 °C unless otherwise noticed.

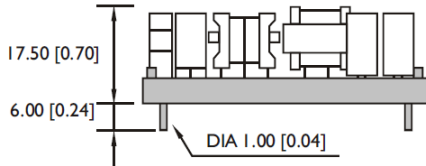
<b>Input</b>	
Voltage range	85 – 265 VAC 120 – 375 VDC
Rated input voltage	85 – 240 VAC
Line frequency	47 – 63 Hz
Inrush current	max. 10 A @ 115 VAC max. 18 A @ 230 VAC
Input current	115/230 VAC, I <sub>o</sub> nom 160 / 120 mA
Rated input current	V <sub>i</sub> : 85 VAC, I <sub>o</sub> nom: 250 mA
Leakage current	Input – Output: 0.25 mA Input – FG: 3.5 mA
<b>Isolation</b>	
Voltage Input Output	3000 / 4242 VAC/VDC
Voltage Input - FG	1500 / 2121 VAC/VDC
Resistance	100 MΩ @ 500 VDC
<b>Output</b>	
Voltage accuracy	± 2 % max
Minimum Load	single output models: 0% dual output models: 20% (each output)
Line voltage regulation	± 1%, max.
Load voltage regulation	single models: ± 2% max. dual models: ± 5% max.
Cross regulation (dual model)	Asymmetrical load 20 % / 100 % FL: + 6 %
Hold up time	V <sub>i</sub> : 115/230 VAC, I <sub>o</sub> nom: 15 / 30 ms min
Turn on time	1000 ms
Rise time	150 ms
Fall time	150 ms
Transient recovery time	V <sub>i</sub> nom, 1 ~0.5 I <sub>o</sub> nom: 1 ms
Ripple & noise (V <sub>i</sub> nom, I <sub>o</sub> nom, BW = 20 MHz)	3,3 V model : 60 mV, 5, 12, 15, 24 V & dual : 100 mV
Temperature coefficient	± 0.03% / °C

<b>General</b>	
Efficiency	Up to 79 %, see model list and typ efficiency curve
Switching frequency	80 –100 kHz
MTBF	Bellcore issue 6 @ 40 °C, GB 3,3V, & 503D models: 1510000 hours 5 V & 512D models: 1530000 hours 12 V & 15 V models: 1550000 hours 24 V, 12D & 15D models 1580000 hours
Altitude during operation	IEC 60068-2-13 max 4850 m
<b>Environmental</b>	
Operating temperature (ambient)	-40 °C – +71 °C
Storage temperature	-40 °C – +100 °C
Derating V <sub>i</sub> nom, 51 to 71°	2% / °C
Humidity	20 - 95% RH
Cooling	Free-air convection
<b>Physical</b>	
Dimensions	58x45x17.5 mm
Weight	50 g
Case material	plastic
<b>Control and protection</b>	
Input fuse	T2A / 250 VAC internal
Internal surge voltage protection	IEC 61000-4-5 Varistor
Output short circuit	Fold forward
Rated over load protection	V <sub>i</sub> nom (see typ current limited curve) 130 –170 %
<b>Approvals and standards</b>	
UL / cUL	UL60950-1, Recognized
TUV	EN60950-1, CB scheme
CE	EN 61000-6-3, EN 55022 Class B, EN 61000-3-2 EN 61000-3-3, EN 61000-6-2, EN 55024, EN61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 61204-3
Vibration resistance	Meet IEC 60068-2-6 (10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)
Shock resistance	Meet IEC 60068-2-27 (15G 11 ms, 3 axes, 6 faces, 3 times for each face)

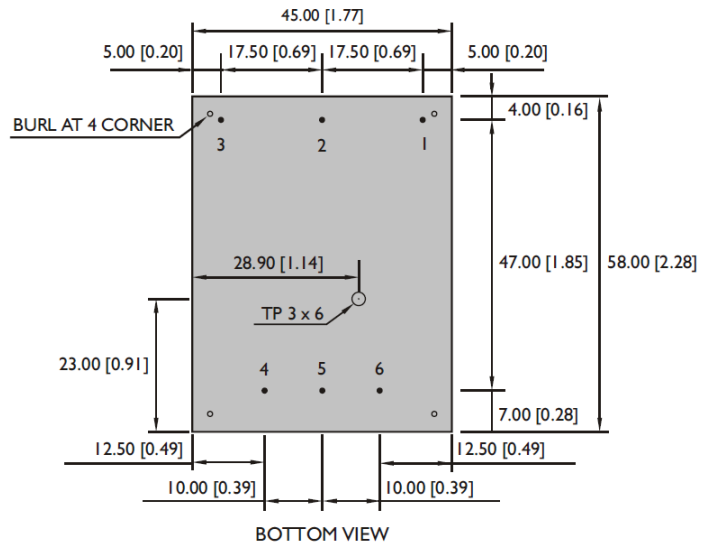
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## Mechanism & Pin Configuration



GENERAL TOLERANCE	
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

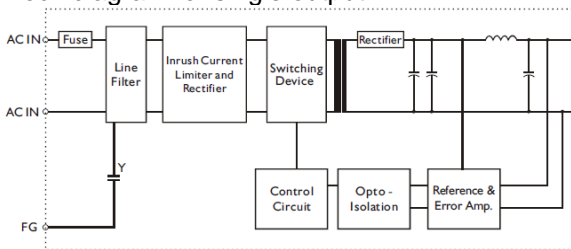


## PIN Assignment

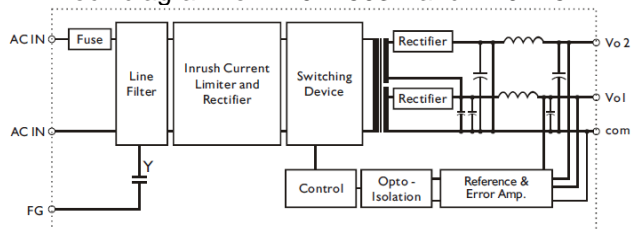
PIN No.	1	2	3	4	5	6
Single	AC IN	AC IN	F.G.	Vo -	NO PIN	Vo +
Dual 12D 15D	AC IN	AC IN	F.G.	Vo -	Com	Vo +
Dual 503D	AC IN	AC IN	F.G.	+ 5 V	Com	+ 3.3 V
Dual 512D	AC IN	AC IN	F.G.	+ 12 V	Com	+ 5 V

## Circuit Schematic

Block diagram for single output

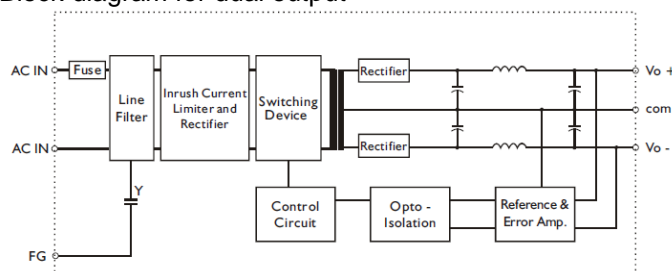


Block diagram for PA07A503D and PA07A512D



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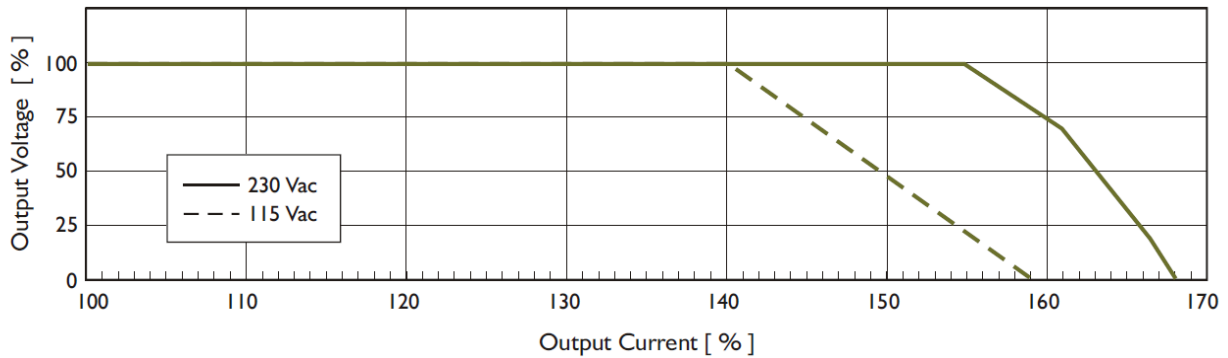
Block diagram for dual output



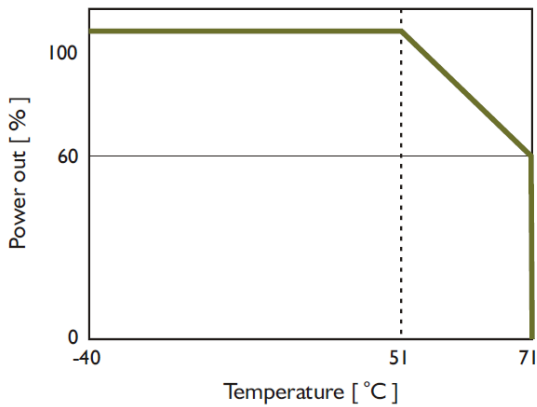
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Typ. Current limited curve



Derating Curve



Typ. Efficiency Curve

