

300-450W Half Brick DC-DC Converters

<https://product.tdk.com/en/power/pah>
www.emea.lambda.tdk.com/pah



The PAH300, PAH350 and PAH450 series of isolated half brick DC-DC converters operate from a 24V or 48V nominal dc input and are rated at 300W to 450W. Output voltages are 12V, 28V or 48V and can be adjusted over a wide range using the trim terminal by up to -40% to +18%. Remote sense and remote on/off are included as standard. The power modules can be conduction cooled to a cold plate or fitted with an optional heatsink. These efficient converters are well suited for distributed power architectures and power systems.

Features

- Wide Range Inputs
- Baseplate Cooled
- -40 to +100°C Baseplate Temperature
- Up to 92% Efficient
- Fixed Switching Frequency

Benefits

- Operates From Batteries or DC Power Systems
- Can be Conduction or Convection Cooled with a Heatsink
- Operates in Harsh Environments
- Easier To Cool In the End System
- Predictable Switching Noise

Model Selector

Model	Input Voltage (V)	Output Voltage (V)	Adjustment Range (V)	Maximum Current (A)	Maximum Power (W)	Input Current (A) nominal input, 100% load	Efficiency (%) nominal input, 100% load	Overvoltage Protection (%)
PAH300S24-12	18 - 36	12	7.2 - 13.2	25	300	14.71	87	115 - 135
PAH300S48-12	36 - 76	12	7.2 - 13.2	25	300	7.02	90	115 - 135
PAH350S48-12	36 - 76	12	7.2 - 13.2	29.2	350	8.25	89	115 - 135
PAH300S24-28	18 - 36	28	16.8 - 33.0	11	308	15.1	88	125 - 140
PAH350S24-28	18 - 36	28	16.8 - 33.0	12.5	350	17.36	88	125 - 140
PAH300S48-28	36 - 76	28	16.8 - 33.0	11	308	7.21	90	125 - 140
PAH350S48-28	36 - 76	28	16.8 - 33.0	12.5	350	8.24	89	125 - 140
PAH450S48-28	36 - 76	28	16.8 - 33.0	16	448	10.3	92	125 - 145
PAH350S24-48	18 - 36	48	28.8 - 52.8	7.3	350	17.36	87	115 - 140
PAH450S48-48	36 - 76	48	28.8 - 57.6	9.4	451	10.4	92	125 - 145

PAH	450	S	24	-	28	/T	
Series	Output Power (W) 300, 350, 450	Simple Function	Nominal Input 24 = 24V 48 = 48V		Output Voltage 12, 28, 48	Options	
						Suffix	Description
						Blank	M3 tapped mounting inserts
						/T	3.3mm non-threaded inserts
						/P	Positive logic remote On/Off (Not on PAH450S)*

* Contact factory for availability on other models

* Contact factory for availability on other models

Related Products

	Part Number	Description
DC-DC Converters	PAF600F24-48	600W, 24 & 48V Input Full Brick DC-DC Converters
DC-DC Converters	PH50A280 to PH600A280	50W to 600W, 200 to 425V Input DC-DC Converters
DC-DC Converters	i7A	500 to 700W, Non-isolated Step Down DC-DC Converters
Heatsink	HAH-10L	Half brick 25mm longitudinal fins
Heatsink	HAH-10T	Half brick 25mm transverse fins
Heatsink	HAH-15L	Half brick 38.1mm longitudinal fins

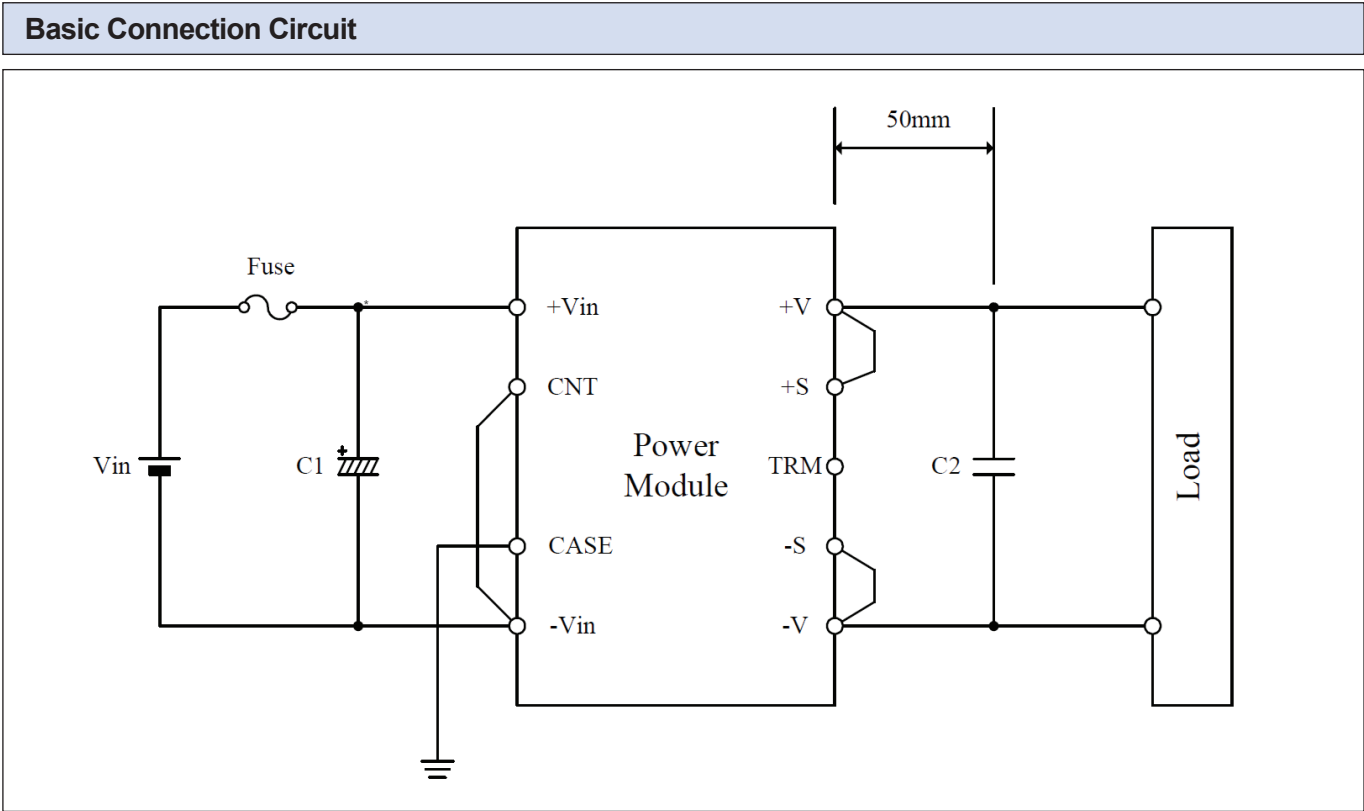
Specifications		
Model		PAH300-450
Input		
Input Voltage range	-	See model selector
Input Current	-	See model selector
Efficiency	-	See model selector
Conducted & Radiated EMI	-	EN55011/EN55032-A, FCC Class A, VCCI-A (External components are required, consult Instruction manual on website)
Immunity	-	IEC61000-4-2, -3, -4, -5, -6 (External component are required, consult Immunity Data on website)
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, 60950-1, CE Mark and UKCA Mark

Immunity				
Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air $\pm 10\text{kV}$ and contact $\pm 5\text{kV}$	A	External components are required (Consult Immunity Data on website)
Radiated Susceptibility	EN61000-4-3	80M -1GHz: 10V/m 1.4 - 2.0GHz: 3V/m 2.0 - 2.7GHz: 1V/m	A	
Electrical Fast Transient Burst	EN61000-4-4	$\pm 2.4\text{kV}$	A	
Surge	EN61000-4-5	Common, Normal $\pm 600\text{V}$	A	
Conducted Susceptibility	EN61000-4-6	10Vrms	A	

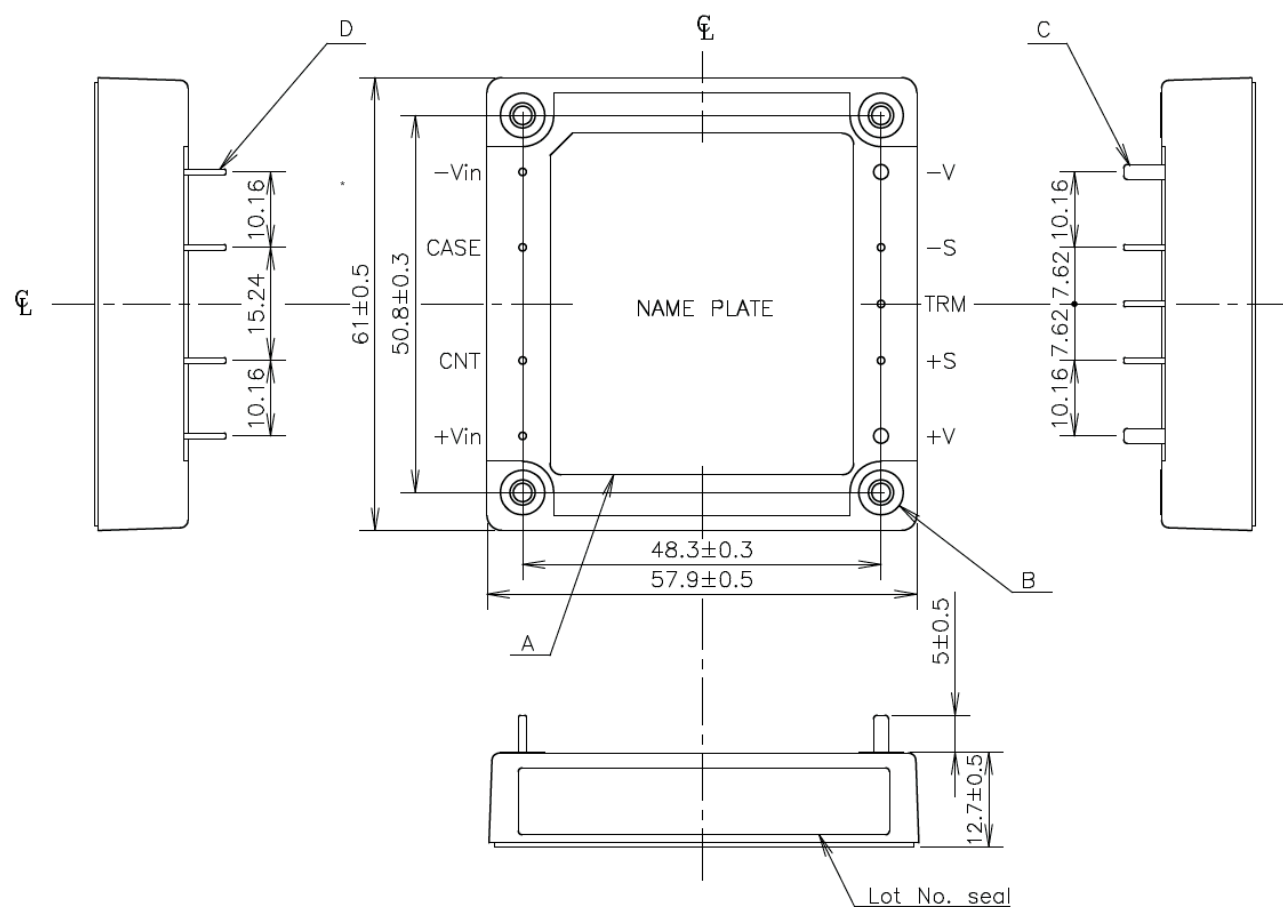
Specifications		
Model		PAH300-450
Output		
Output Voltage Tolerance	%	± 1
Output Voltage Adjustment	-	See model selector
Switching Frequency	kHz	PAH300-350S24: 330, PAH300-350S48: 370, PAH450S48-28 400, PAH450S48-48: 460
Line Regulation	mV	12V: 24, 28V: 56, 48V: 96
Load Regulation	mV	12V: 24, 28V: 56, 48V: 96
External Load Capacitance	-	Contact Technical Sales
Ripple & Noise	mV	12V: 200; 28V: 280 (240 for PAH300), 48V: 480
Temperature Coefficient	%/°C	0.02
Minimum Load	-	No minimum load required
Overcurrent Protection	%	105 - 140, constant current with automatic recovery
Overvoltage Protection	-	See model selector, cycle input or remote on/off to reset
Overtemperature Protection	°C	105 - 130 base-plate
Remote Sense	-	Yes
Remote On/Off	-	Yes; Low = ON, High = OFF
Parallel Operation	-	Not possible
Environmental		
Operating Temperature (Baseplate)	°C	-40 to +100. PAH350S24-28 & -48: derate linearly to 85% load from 90 to 100
Storage Temperature	°C	-40 to +100
Humidity (non condensing)	%RH	Operating and storage: 5 - 95
Cooling	-	Conduction. (See Instruction Manual for heatsink selection)
Altitude	m	3,000
Withstand Voltage (For 1 minute)	Vdc	Input to Base-plate: 1,500; Input to Output 1,500; Output to Baseplate: 500
Isolation Resistance	MΩ	>100 at 25°C, 70%RH & 500Vdc
Vibration	-	Non Operating, 10-55Hz (sweep for 1 min.) Amplitude 0.825mm constant (Max 49 m/s ²) X,Y,Z 1 hour each
Shock	-	196.1m/s ²

Specifications		
Model		PAH300-450
Other		
Weight (Typ)	g	PAH300: 90, PAH350-450: 100
Size (LxWxH)	mm	61 x 57.9 x 12.7
Size (LxWxH)	Inches	2.4 x 2.28 x 0.5
MTBF - Telcordia SR-332 issue 3*	Hours	PAH300: 5,133,191, PAH350: 5,181,681, PAH450: 1,733,846
Warranty	Years	2

Notes
See website for detailed specifications, test methods and installation manual
*Ground Benign 25°C



Outline Drawing



NOTES :

A: Model name, input voltage range, nominal output voltage, maximum output current, country of manufacture and safety marking (for only approved products) are shown here in accordance with the specifications.

B: M3 threaded holes 4 for customer chassis mounting (FG).

C: Output terminals : 2- ϕ 2.0

D: Input and signal terminals : 7- ϕ 1

E: Unless otherwise specified dimensional tolerance : ± 0.25



TDK-Lambda France SAS

Tel: +33 1 60 12 71 65
france@fr.tdk-lambda.com
www.emea.lambda.tdk.com/fr



Italy Sales Office

Tel: +39 02 61 29 38 63
info.italia@it.tdk-lambda.com
www.emea.lambda.tdk.com/it



Netherlands

info@nl.tdk-lambda.com
www.emea.lambda.tdk.com/nl



TDK-Lambda Germany GmbH

Tel: +49 7841 666 0
info@de.tdk-lambda.com
www.emea.lambda.tdk.com/de



Austria Sales Office

Tel: +43 2256 655 84
info@at.tdk-lambda.com
www.emea.lambda.tdk.com/at



Switzerland Sales Office

Tel: +41 44 850 53 53
info@ch.tdk-lambda.com
www.emea.lambda.tdk.com/ch



Nordic Sales Office

Tel: +45 8853 8086
info@dk.tdk-lambda.com
www.emea.lambda.tdk.com/dk



TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66
info@uk.tdk-lambda.com
www.emea.lambda.tdk.com/uk



TDK-Lambda Ltd.

Tel: +9 723 902 4333
info@tdk-lambda.co.il
www.emea.lambda.tdk.com/il



C.I.S.

Commercial Support:

Tel: +7 (495) 665 2627

Technical Support:

Tel: +7 (812) 658 0463
info@tdk-lambda.ru
www.emea.lambda.tdk.com/ru



TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324
powersolutions@us.tdk-lambda.com
www.us.lambda.tdk.com



TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599
sales.br@tdk-electronics.tdk.com
www.tdk-electronics.tdk.com/en



TDK-Lambda Corporation

Tel: +81-3-6778-1113
www.jp.lambda.tdk.com



TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777
powersolutions@cn.tdk-lambda.com
www.lambda.tdk.com.cn



TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211
tls.mkt@sg.tdk-lambda.com
www.sg.lambda.tdk.com



TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660
mathew.philip@in.tdk-lambda.com
www.sg.lambda.tdk.com

