



## 50W to 300W DC-DC Converters, Single Output High Density Power Modules

Features	Benefits
• High Density	• Smaller Package Size
• Up to 425 Vdc Input	• Cover HVDC Telecom Requirements
• Fixed Operating Frequency	• Easier System Filtering
• High Efficiency	• Better System Thermal Management



Quarter brick shown

Specification		PH50A280	PH75A280	PH100A280	PH150A280	PH300A280
ITEMS						
Input Voltage range	-			200 - 425 VDC		
Input Current (1)	A			See Model selector		
Output Voltage Accuracy	%			+/-2		
Maximum Ripple and Noise (5)	mV	3.3 & 5V: 100mV, 12 & 15V: 150mV, 24V: 240mV, 28V: 280mV, 48V: 400mV (300W 480mV)				
Temperature Coefficient	-			<0.02°C / W		
Overvoltage protection (2) (4)	-			See model selector		
Overcurrent protection (6)	%			102-150		
Remote sense (2)	-			Yes		
Remote ON/OFF control (2)	-			yes - SHORT=ON OPEN=OFF		
Series Operation (2)	-			Yes		
Parallel Operation	-			No		
Operating Temperature (2)	°C			-40°C to +100°C (Baseplate), -40°C to +85°C (Ambient)		
Storage Temperature	°C			-40°C to +100°C		
Humidity (non condensing)	-			Operating: 5 - 95%RH, Storage: 5 - 95%RH		
Cooling	-			Conduction cooled		
Withstand Voltage (3)	-	I/P to Baseplate 2.5kVAC (20mA), I/P to O/P: 3kVAC (20mA), O/P to Baseplate: 500VAC (20mA) for 1min				
Isolation Resistance	MΩ			>100MΩ at 25°C & 70%RH, Output to Baseplate: 500VDC		
Vibration	-	10 - 55Hz (1 minute sweep), Amplitude 0.825mm Constant (Maximum 49.0m/s <sup>2</sup> ) X, Y, Z 1 hour each				
Shock	-			196.1 m/s <sup>2</sup>		
Safety Agency Approvals	-			UL60950-1, CSA60950-1, EN60950-1, CE mark (LVD)		
Weight (Typ)	g			50 - 150W: 55, 300W: 100		
Size (W x H x D) (7)	mm			Quarter Brick Format 37.2 x 12.7 x 58.3		Half Brick Format 61.0 x 12.7 x 57.9
Warranty	yrs			5		

### Notes:

- (1) At 280 VDC input and maximum output current (baseplate temperature = 25°C)
- (2) Refer to detailed Specifications & Instruction Manual
- (3) This specification applies to the Power Module as a stand-alone item
- (4) OVP reset: Line OFF or Control OFF
- (5) 200 - 425 VDC input, Constant load
- (6) Constant current limitation - Automatic recovery
- (7) Refer to outline drawing

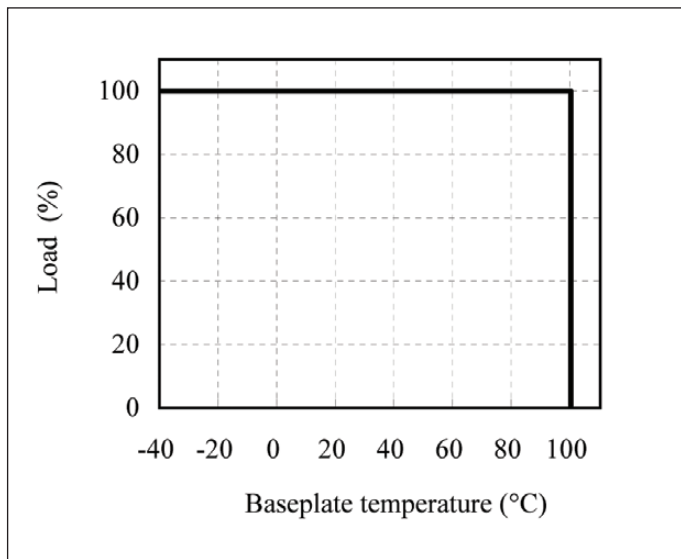
Read Instruction Manual carefully before using the Power module unit

## Model Selector

Model	Output Voltage	Output Adjust Range (V)	Max Output Current (A)	Max Output Power (W)	Efficiency <sup>(3)</sup> (%)	Input Current (A)	Load Reg <sup>(1)</sup> (mV)	Line Reg <sup>(2)</sup> (mV)	OVP (V)
PH50A280-5	5V	4 - 6	10	50	86	0.21	10	10	6.25 - 7.5
PH50A280-12	12V	9.6 - 13.2	4.2	50.4	89	0.20	24	24	13.8 - 17.4
PH50A280-24	24V	19.2 - 26.4	2.1	50.4	89	0.20	48	48	27.6 - 34.8
PH50A280-48	48V	38.4 - 52.8	1.1	52.8	89	0.21	96	96	55.2 - 69.6
PH75A280-3.3	3.3V	2.97 - 3.96	15	49.5	83	0.22	10	10	4.3 - 6.6
PH75A280-5	5V	4 - 6	15	75	86	0.32	10	10	6.25 - 7.5
PH75A280-12	12V	9.6 - 13.2	6.3	75.6	89	0.31	24	24	13.8 - 17.4
PH75A280-15	15V	12.5 - 16.5	5	75	90	0.30	30	30	17.2 - 21.8
PH75A280-24	24V	19.2 - 26.4	3.2	76.8	90	0.31	48	48	27.6 - 34.8
PH75A280-28	28V	23.3 - 30.8	2.7	75.6	90	0.30	56	56	32.2 - 40.6
PH75A280-48	48V	38.4 - 52.8	1.6	76.8	90	0.31	96	96	55.2 - 69.6
PH100A280-3.3	3.3V	2.97 - 3.96	20	66	83	0.29	10	10	4.3 - 6.6
PH100A280-5	5V	4 - 6	20	100	86	0.42	10	10	6.25 - 7.5
PH100A280-12	12V	9.6 - 13.2	8.4	100.8	88	0.41	24	24	13.8 - 17.4
PH100A280-24	24V	19.2 - 26.4	4.2	100.8	89	0.41	48	48	27.6 - 34.8
PH100A280-48	48V	38.4 - 52.8	2.1	100.8	90	0.40	96	96	55.2 - 69.6
PH150A280-12	12V	9.6 - 13.2	12.5	150	88	0.62	24	24	13.8 - 17.4
PH150A280-15	15V	12.5 - 16.5	10	150	90	0.6	30	30	17.2 - 21.8
PH150A280-24	24V	19.2 - 26.4	6.3	151.2	89	0.61	48	48	27.6 - 34.8
PH150A280-28	28V	23.3 - 30.8	5.4	151.2	90	0.61	56	56	32.2 - 40.6
PH150A280-48	48V	38.4 - 52.8	3.2	153.6	90	0.60	96	96	55.2 - 69.6
PH300A280-12	12V	7.2 - 14.4	25	300	89	1.22	24	24	15 - 17.4
PH300A280-24	24V	14.4 - 28.8	12.5	300	90.5	1.20	48	48	30 - 34.8
PH300A280-28	28V	16.8 - 33.6	10.8	302.4	91	1.20	56	56	35 - 40.6
PH300A280-48	48V	28.8 - 57.6	6.3	302.4	92	1.19	96	96	60 - 69.6

Notes: (1) No load - Full load, Constant input voltage (2) 200 - 425 VDC input, Constant load (3) At 280VDC input and maximum output current

## Derating Curve PH-A 280 Series

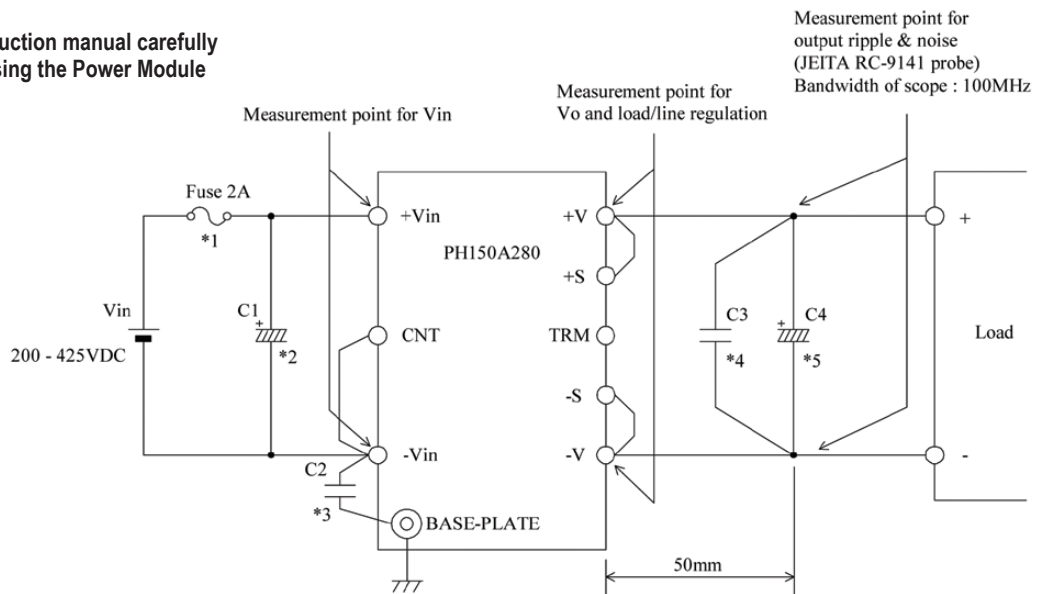


## Pin Assignments

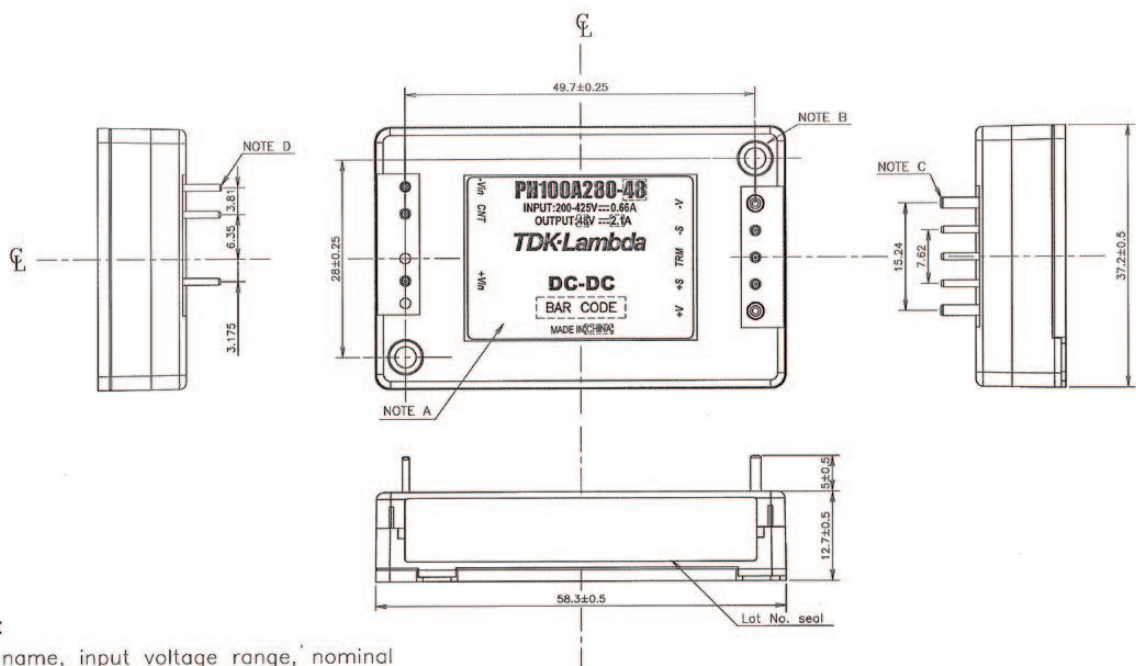
Pin Description	Function
+Vin	Positive Input Terminal
-Vin	Negative Input Terminal
+S	Positive Remote Sense
-S	Negative Remote Sense
+V	Positive Output Terminal
-V	Negative Output Terminal
CNT	On/Off Control Terminal
TRM	Output Adjustment Trim Pin

## Basic Connection PH-A 280 Series

Read instruction manual carefully before using the Power Module



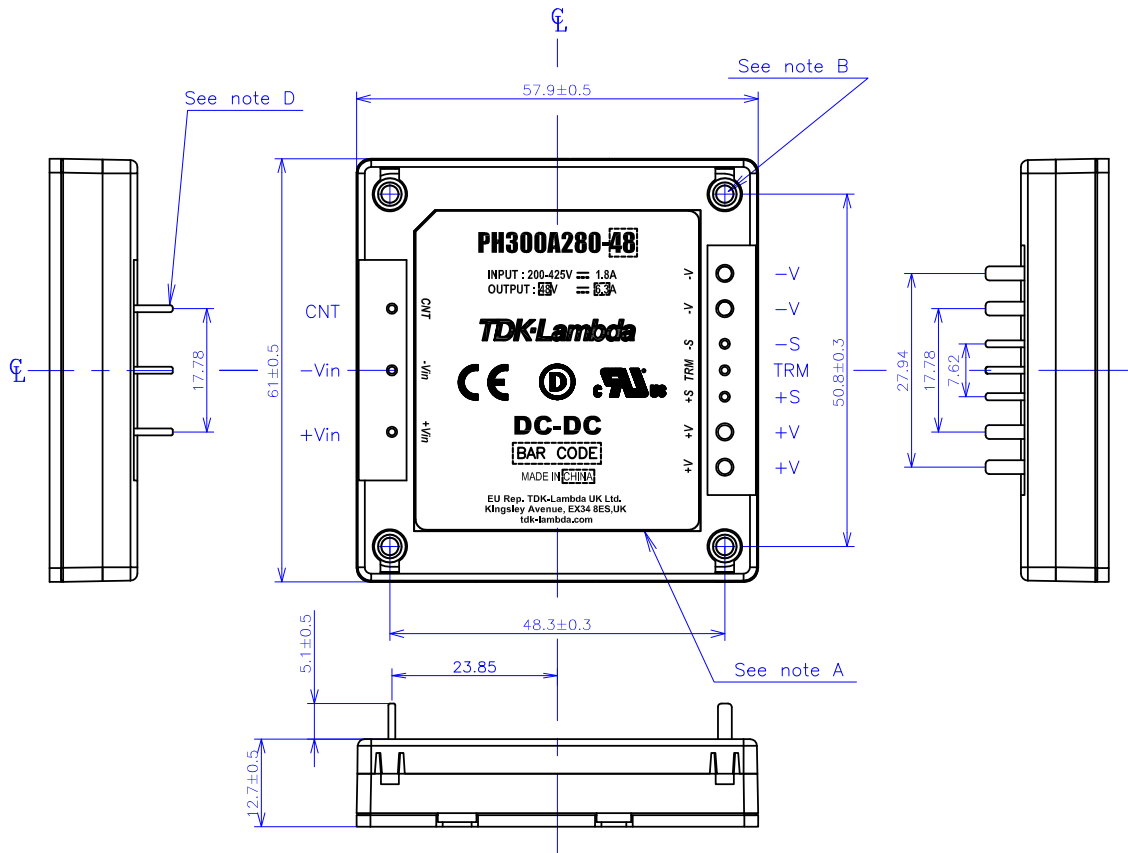
## Outline Drawing PH50-A to PH150-A 280 Series



### NOTES :

- A: Model name, input voltage range, nominal output voltage, maximum output current, country of manufacture and safety marking (C-UL-US & CE marking) are shown here in accordance with the specifications.
- B: M3 tapped holes 2 for customer chassis mounting (FG).
- C: Output pin : 2- $\phi$ 1.5
- D: Input and Signal pin : 6- $\phi$ 1.0
- E: Unless otherwise specified dimensional tolerance :  $\pm$ 0.25mm

## Outline Drawing PH300-A 280 Series



### NOTES :

- A: Model name, input voltage, output voltage, Maximum output current, country of manufacture and safety marking (C-UL-US, DEMKO & CE marking) are shown here in accordance with the specifications.
- B: M3 threaded holes 4 for customer chassis mounting (FG).
- C: Output terminals : 4- $\emptyset$ 2
- D: Input and signal terminals : 6- $\emptyset$ 1
- E: Unless otherwise specified dimensional tolerance :  $\pm 0.25$



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