

# PMR60H Series

60W, Encapsulated DIP Package AC/DC Power Converters

## Features

- ▶ Rated power: 60W Max
- ▶ Universal input: 85~305VAC, 47~63Hz
- ▶ Regulated single output
- ▶ Isolation voltage 4200VAC
- ▶ Typical efficiency up to 91%
- ▶ Energy saving, standby power only less than 0.1W
- ▶ Operating temperature range: -40~+85°C
- ▶ RoHS compliance
- ▶ Compact DIP package
- ▶ Over voltage, over current and short circuit protection
- ▶ Meet CISPR32, EN55032 Class B without external component
- ▶ \*Meet to IEC/EN/ UL62368 OVC III, and UKCA, EN 60335, EN 61558, FCC etc.
- ▶ 5 year warranty



\* Certification is pending

## Overview

PMR60H series are compact size AC/DC power converters, featuring universal input voltage range, low stand by power consumption, high efficiency. Designed for high reliability industrial applications, these converters are encapsulated to protect from dust and moisture. They are certified to IEC/EN/UL62368-1, EN60335, EN61558 and EMC performance meets CISPR32, EN55032 Class B without external components, ideally suitable for industrial, and critical commercial applications.

## Model Numbers

Model Number	Input Voltage [VAC]	Output Voltage [VDC]	Output Current [A] Max.	Efficiency [%] Typ.	Capacitive Load [uF] Max.
PMR60H-050	85~305VAC 100~430VDC	5	10	89	20,000
PMR60H-120		12	5	90	5,000
PMR60H-150		15	4	91	3,000
PMR60H-240		24	2.5	91	1,800
PMR60H-480		48	1.25	91	470

\* Only typical models are listed, other models may be available, upon request.

## Electrical Specifications

Unless otherwise indicated, specifications are measured at  $T_A=25^{\circ}\text{C}$ , humidity<75%, nominal input voltage and rated output load.

Parameters	Condition	Min.	Typ.	Max.	Unit	Note
Input voltage range	AC in	85	-	305	VAC	
	DC in	100	-	430	VDC	
Input frequency		47	-	63	Hz	
Nominal input voltage		100	-	277	VAC	
Input current	115VAC 230VAC	-	-	1.8 1.0	A	
Inrush current Cold start	115VAC 230VAC	-	30 60	-	A	
Leakage current	277VAC, 50Hz	-	-	0.25	mA RMS	
Output voltage accuracy		-	$\pm 2$	-	%	
Line regulation	Full load	-	$\pm 1$	-	%	
Load regulation $I_{OUT}=0\%\sim 100\%$ of $I_{OUT, rated}$		-	$\pm 1.5$	-	%	
Ripple and noise	20MHz bandwidth	-	80	150	mVp-p	
Temperature coefficient		-	$\pm 0.02$	-	%/ $^{\circ}\text{C}$	
Standby power consumption		-	0.3	0.45	W	
Hold up time Full load	115VAC 230VAC	-	8 60	-	mS	
Over voltage protection Hiccup or clamping by zener diode	$V_{OUT}=5\text{V}$ $V_{OUT}=12\text{V}$ $V_{OUT}=15\text{V}$ $V_{OUT}=24\text{V}$ $V_{OUT}=48\text{V}$	-	-	9 16 25 35 60	VDC	
Over current protection	Automatic recovery	140	-	-	% $I_{OUT}$	
Short circuit protection		Continuous, hiccup mode, automatic recovery				
Minimum load		No minimum load is required				
Built in fuse		3.15A, 300V slow blow				

\* Ripple and noise measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 1uF ceramic capacitor and a 10uF electrolytic capacitor in parallel.

### General Specifications

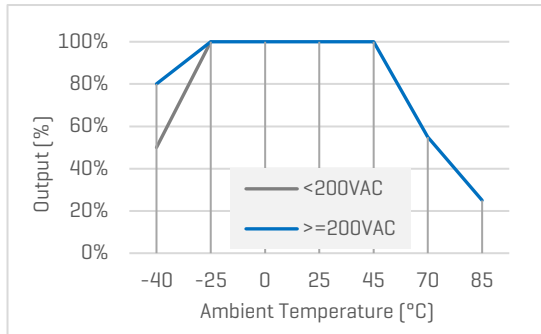
Parameters	Condition	Min.	Typ.	Max.	Unit	Note
<b>Isolation voltage</b> Tested for 1 minute	I/P to O/P	4200	-	-	VAC	
<b>Isolation resistance</b> 500VDC, 25°C, 70%RH	I/P to O/P	100	-	-	M Ohm	
<b>Switching frequency</b>		-	65	-	KHz	
<b>Operating temperature range</b>	See "Derating Curve"	-40	-	85	°C	
<b>Storage temperature</b>		-40	-	85	°C	
<b>Storage humidity</b>		10	-	95	%RH	
<b>Maximum case temperature</b>		-	-	95	°C	
<b>Soldering temperature</b>	Wave Manual	-	260 360	-	°C	
<b>Case material</b>		Black plastic UL94-V0				
<b>Cooling method</b>		Free air convection				
<b>Vibration</b>		10Hz to 55Hz, 5G, 30 minutes along X, Y and Z axis				
<b>Class II power</b>		Yes, no FG				
<b>MTBF</b>	MIL-HDBK-217F	> 1,000,000 Hours, 25°C				
<b>Design based on standards</b>		RoHS & REACH directives, IEC/EN/UL 62368, OVC III, FCC, UKCA, IEC EN 60335, IEC EN 61558				
<b>*Safety certifications</b>		IEC/EN/UL 62368, OVC III, FCC, UKCA, IEC EN 60335, IEC EN 61558				
<b>EMC</b>	CE ESD RS EFT Surge CS DIP	CISPR32, EN55032 Class B with "NO External Circuit" IEC/EN61000-4-2, Contact ±6kV, Air ±8kV, Criteria B IEC/EN61000-4-3, 10V/m, Criteria A IEC/EN61000-4-4, ±2kV, Criteria B IEC/EN61000-4-5, Line to Line ±2kV, Criteria B IEC/EN61000-4-6, 10Vrms, Criteria A IEC/EN61000-4-11, 0%, 70%, Criteria B				
<b>Size, and Weight</b>		70 x 48 x 27mm, 130g				
<b>Packing</b>						

\* Certification is pending

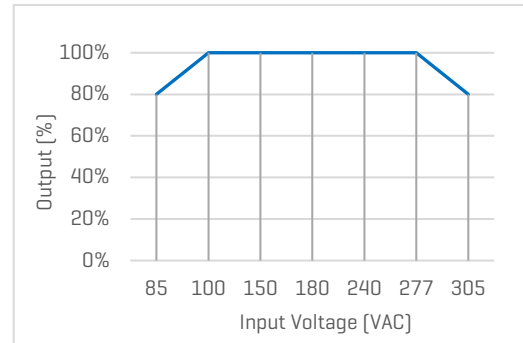
## Characteristic Curves

### Derating Curves

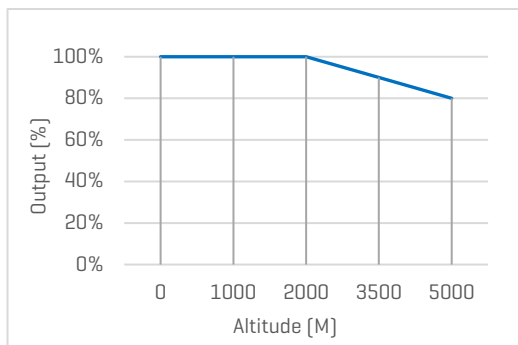
#### Output vs Ambient Temperature



#### Output vs Input Voltage

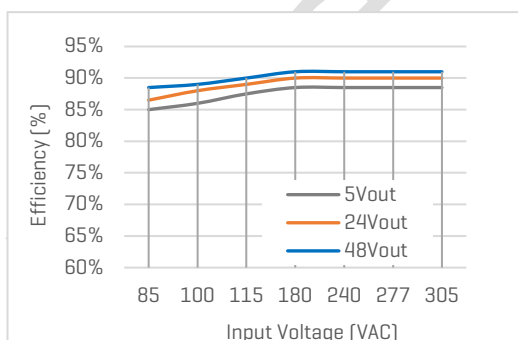


#### Output vs Altitude

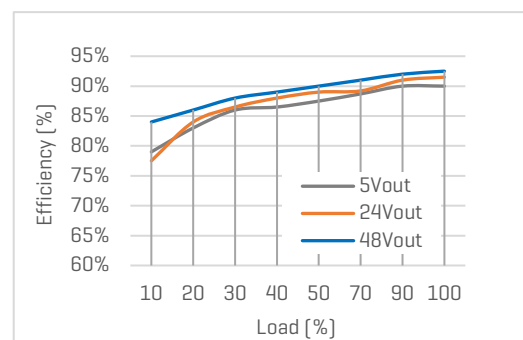


### Efficiency Curves

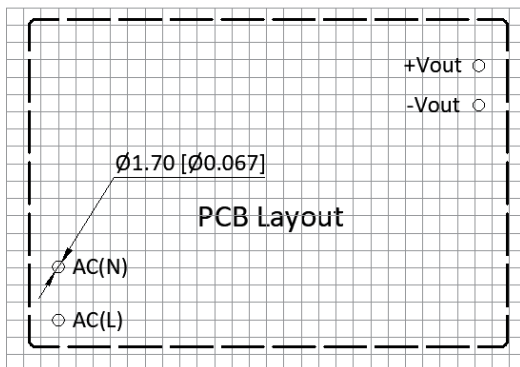
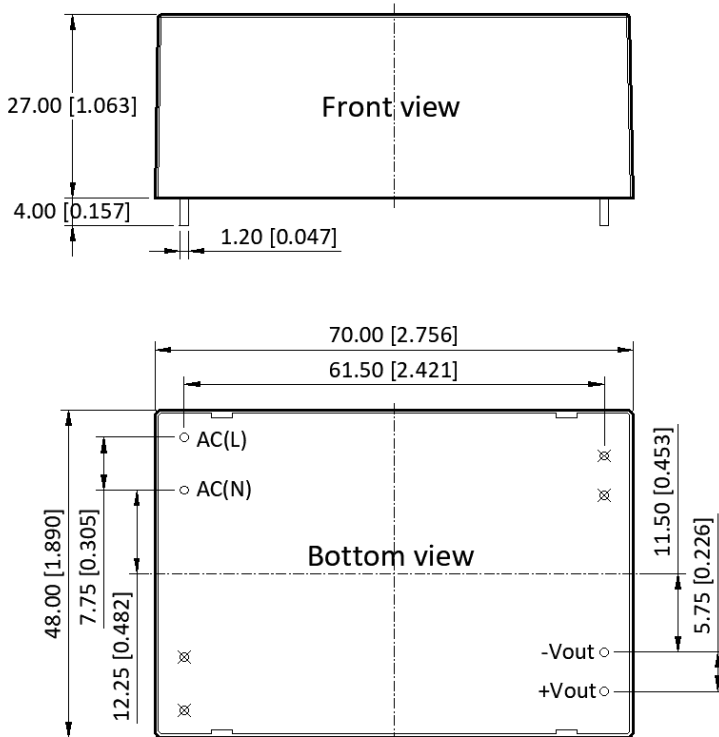
#### Efficiency vs Input Voltage



#### Efficiency vs Load



### Mechanical Specifications



### Pin Definition

Pin #	Single Out
1	AC [L]
2	AC [N]
3	+V <sub>OUT</sub>
4	-V <sub>OUT</sub>

\* Unless otherwise specified unit: mm [inch]

\* General tolerance:  $\pm 1.00$  [ $\pm 0.040$ ]

\* Pin thickness:  $\pm 0.15$  [ $\pm 0.006$ ]

\* Pin distance:  $\pm 0.50$  [ $\pm 0.020$ ]

\* Footprint grid 2.54 x 2.54 mm