

# PMR15H Series

15W, Encapsulated DIP Package AC/DC Power Converters



## Features

- Rated power: 15W Max
- Universal input: 85~305VAC, 47~63Hz
- Regulated single output
- Isolation voltage 4000VAC
- Typical efficiency 81 ... 87%
- Energy saving, standby power only less than 0.1W
- Operating temperature range: -40~+85°C
- RoHS compliance
- No external components required for operating
- Over voltage, over current and short circuit protection
- Meet IEC/EN/UL62368-1, OVC III, EN60335-1, EN61558-1, FCC, UKCA, CISPR32, EN55032 Class B with NO externals
- 3 year warranty



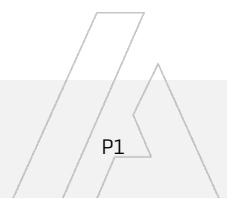
## Overview

PMR15H 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 meet IEC/EN/UL62368-1, OVC III, EN60335-1, EN61558-1, FCC, UKCA and EMC performance meets CISPR32, EN55032 Class B without support from any external components, ideally suitable for industrial, and critical commercial applications.

## Model Numbers

| Model Number | Input Voltage [VAC]     | Output Voltage [VDC] | Output Current [mA] Rated | Output Current [mA] Max. | Efficiency [%] Typ. | Capacitive Load [uF] Max. |
|--------------|-------------------------|----------------------|---------------------------|--------------------------|---------------------|---------------------------|
| PMR15H-033   | 85~305VAC<br>100~430VDC | 3.3                  | 4000                      | 4500                     | 81                  | 8000                      |
| PMR15H-050   |                         | 5.0                  | 3000                      | 4000                     | 85                  | 8000                      |
| PMR15H-090   |                         | 9.0                  | 1670                      | 2200                     | 85                  | 5400                      |
| PMR15H-120   |                         | 12.0                 | 1250                      | 1670                     | 86                  | 4000                      |
| PMR15H-150   |                         | 15.0                 | 1000                      | 1330                     | 87                  | 3000                      |
| PMR15H-240   |                         | 24.0                 | 625                       | 830                      | 87                  | 1000                      |

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



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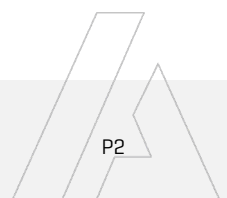


## Electrical Specifications

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                       | -   | -          | 0.5  | A                     |      |
|   | 230VAC                       | -   | -          | 0.3  | A                     |      |
| Inrush current<br>Cold start                                    | 115VAC                       | -   | 20         | -    | A                     |      |
|   | 230VAC                       | -   | 45         | -    | A                     |      |
| Leakage current   | 277VAC, 50Hz                 | -   | -          | 0.1  | mA RMS                |      |
| Output voltage accuracy   |                              | -   | $\pm 3$    | -    | %                     |      |
| Line regulation   | Full load                    | -   | $\pm 0.5$  | -    | %                     |      |
| Load regulation<br>$I_{OUT}=0\% \sim 100\%$ of $I_{OUT, rated}$ |                              | -   | $\pm 1.0$  | -    | %                     |      |
| Ripple and noise<br>20MHz bandwidth, peak to peak               |                              | -   | 100        | 150  | mV                    |      |
| Temperature coefficient   |                              | -   | $\pm 0.02$ | -    | %/ $^{\circ}\text{C}$ |      |
| Standby power consumption                                       |                              | -   | 0.1        | -    | W                     |      |
| Hold up time<br>Full load                                       | 115VAC                       | -   | 10         | -    | mS                    |      |
|   | 230VAC                       | -   | 50         | -    | mS                    |      |
| Over voltage protection<br>Hiccup or clamping by zener diode    | $V_{OUT}=3.3, 5.0\text{V}$   | -   | -          | 7.5  | VDC                   |      |
|   | $V_{OUT}=9.0\text{V}$        | -   | -          | 15   | VDC                   |      |
|   | $V_{OUT}=12.0, 15.0\text{V}$ | -   | -          | 20   | VDC                   |      |
|   | $V_{OUT}=24.0\text{V}$       | -   | -          | 30   | VDC                   |      |
| Over current protection   | Automatic recovery           | 110   | -          | -    | % $I_{OUT}$           |      |
| 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.



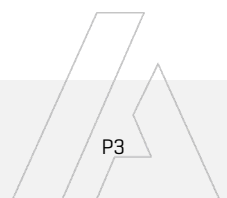
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## General Specifications

| Parameters   | Condition                                    | Min.  | Typ. | Max. | Unit  | Note |
|--|--|---|------|------|-------|------|
| <b>Isolation voltage</b><br>Tested for 1 minute    | I/P to O/P                                   | 4000  | -    | -    | VAC   |      |
| <b>Isolation resistance</b><br>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   | -    | 105  | °C    |      |
| <b>Storage humidity</b>                            |  | 10  | -    | 95   | %RH   |      |
| <b>Maximum case temperature</b>                    |  | -   | -    | 95   | °C    |      |
| <b>Soldering temperature</b>                       |  | -   | 260  | -    | °C    |      |
| <b>Case material</b>                               |  | Black plastic UL94-V0   |      |      |       |      |
| <b>Cooling method</b>                              |  | Free air convection   |      |      |       |      |
| <b>Class II power</b>                              |  | Yes, no FG  |      |      |       |      |
| <b>Vibration</b>                                   |  | 10Hz to 55Hz, 5G, 30 minutes along X, Y and Z axis  |      |      |       |      |
| <b>MTBF</b>  | MIL-HDBK-217F                                | > 1,000,000 Hours, 25°C   |      |      |       |      |
| <b>Design based on standards</b>                   |  | RoHS & REACH directives, IEC/EN/UL 62368-1, OVC III, EN 60335-1, EN 61558-1, UKCA   |      |      |       |      |
| <b>Safety certifications</b>                       |  | IEC/EN/UL 62368-1, EN 60335-1, EN 61558-1, FCC, UKCA  |      |      |       |      |
| <b>EMC</b>   | CE<br>ESD<br>RS<br>EFT<br>Surge<br>CS<br>DIP | CISPR32, EN55032 Class B with "NO External Circuit"<br>IEC/EN61000-4-2, Contact ±6kV, Air ±8kV, Criteria B<br>IEC/EN61000-4-3, 10V/m, Criteria A<br>IEC/EN61000-4-4, ±2kV, Criteria B<br>IEC/EN61000-4-5, Line to Line ±2kV, Criteria B<br>IEC/EN61000-4-6, 10Vrms, Criteria A<br>IEC/EN61000-4-11, 0%, 70%, Criteria B |      |      |       |      |
| <b>Size, and Weight</b>                            |  | 52.4x27.2x24mm, 55g   |      |      |       |      |
| <b>Packing</b>                                     |  | 200pcs/Carton, size: 335x345x210mm, 12.5Kg G.W.   |      |      |       |      |

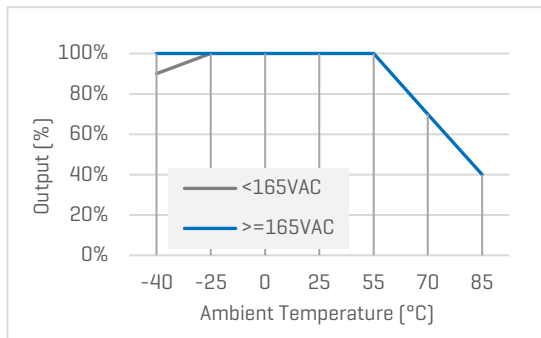


## Characteristic Curves

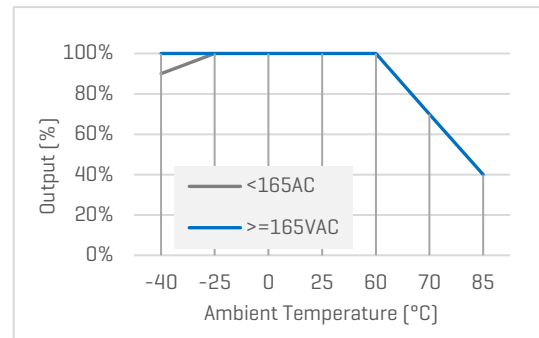
### Derating Curves

#### Output vs Ambient Temperature

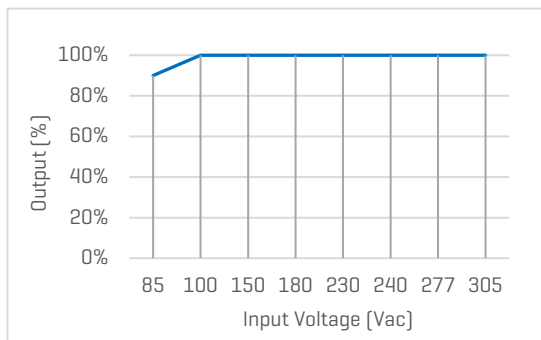
$V_{out}=3.3 \dots 9V$



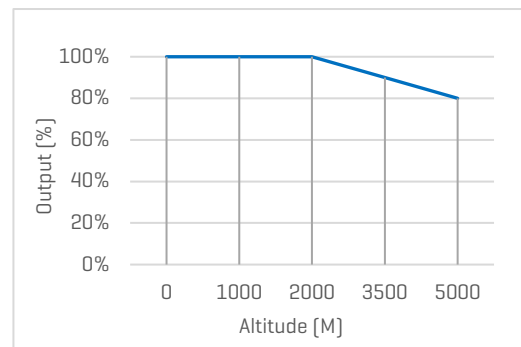
$V_{out}=12 \dots 24V$



#### Output vs Input Voltage

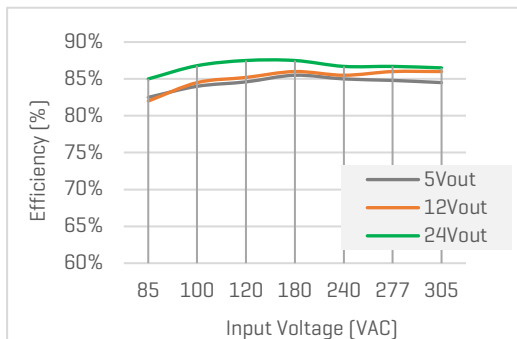


#### Output vs Altitude

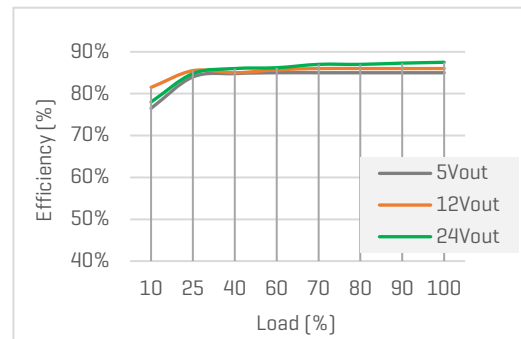


### Efficiency Curves

#### Efficiency vs Input Voltage



#### Efficiency vs Load



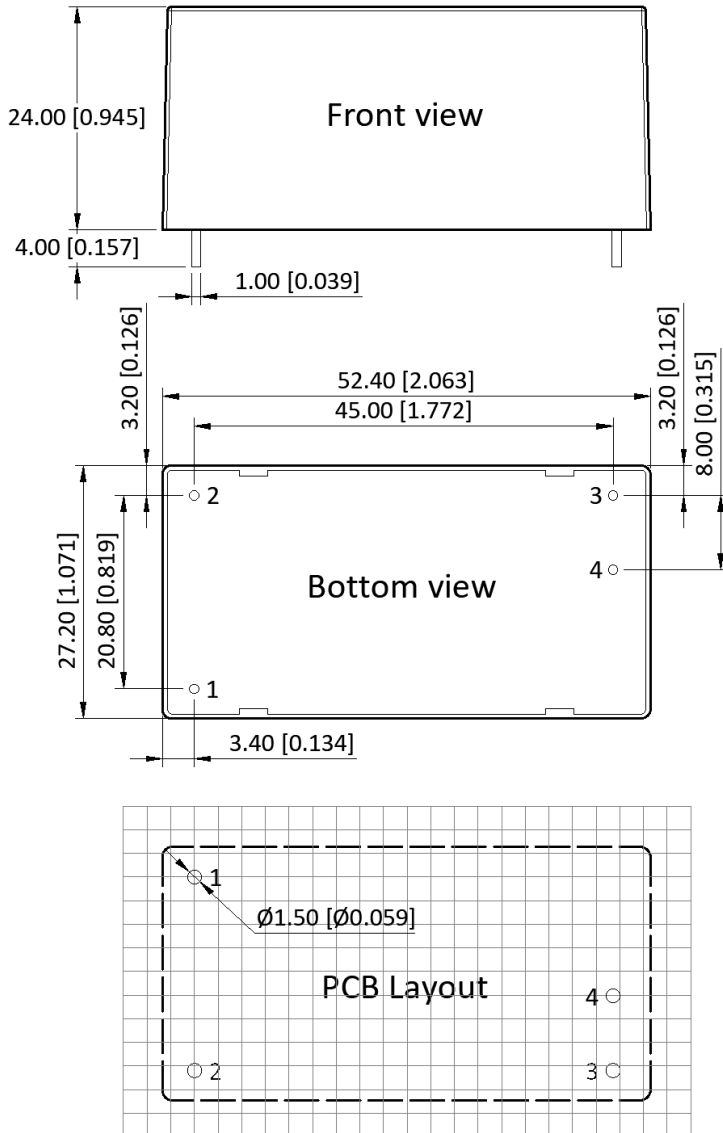
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## Mechanical Specifications

### Default Package



### 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: ±1.00 [±0.040]

\* Pin thickness: ±0.15 [±0.006]

\* Pin distance: ±0.50 [±0.020]

\* Footprint grid 2.54 x 2.54 mm

