

# MRS-15-H series

15W Constant Voltage Enclosed Switching Power Supply



## ■ Features:

- Universal AC input / Full range: 85~305VAC / 100~430VDC
  - Low no-load power consumption < 0.5W
- Protections: Over current / Short circuit / Over Voltage
  - LED indicator for power on
- Wide range of operating temperature range: -30°C to +70°C
  - Design to meet EN61558 standard (OVP cat III)
  - Operating altitude up to 5000m



## MODEL NUMBERING

MRS	-	15	-	X	-	U	-	Y		
SERIES		RATED OUTPUT POWER		RATED OUTPUT VOLTAGE		INPUT VOLTAGE RANGE		OPTIONS		
ENCLOSED TYPE SWITCHING POWER SUPPLY, CONSTANT VOLTAGE DESIGN		15 means 25W		X = 03	3.3V	H means 85~300VAC / 100~430VDC		Y = C	Terminal block with cover	
				X = 05	5V					
				X = 12	12V				Y = Q	Conformal coating
				X = 15	15V					
				X = 24	24V					
				X = 48	48V					

## ELECTRICAL SPECIFICATION

MODEL	MRS-15-03-H	MRS-15-05-H	MRS-15-12-H	MRS-15-15-H	MRS-15-24-H	MRS-15-48-H
<b>OUTPUT</b>						
RATED VOLTAGE	3.3V	5V	12V	15V	24V	48V
ADJUSTABLE VOLTAGE RANGE (MIN.)	2.85V ÷ 3.6V	4.5V ÷ 5.5V	10.8V ÷ 13.2V	13.5V ÷ 18V	21.6V ÷ 28.8V	42V ÷ 54V
RATED CURRENT	3A	5A	1.3A	1.0A	0.625A	0.32A
RATED POWER	9.9W	15W	15.6W	15W	15W	15.36W
LINE REGULATION	± 1.0%	± 1.0%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
LOAD REGULATION	± 1.0%	± 1.0%	± 0.5%	± 0.5%	± 0.5%	± 0.5%
RIPPLE & NOISE (MAX.) [2]	80mV <sub>p-p</sub>	80mV <sub>p-p</sub>	120mV <sub>p-p</sub>	120mV <sub>p-p</sub>	150mV <sub>p-p</sub>	150mV <sub>p-p</sub>
HOLD UP TIME (TYP.)	48ms / 230VAC at full load; 7ms / 115VAC at full load					
<b>INPUT</b>						
VOLTAGE RANGE	85 ÷ 305VAC; 100 ÷ 430VDC					
FREQUENCY RANGE	47 ÷ 63Hz					
EFFICIENCY (TYP.)	73%	78%	82%	82%	83%	83%
AC CURRENT (TYP.)	0.25A / 230VAC; 0.35A / 115VAC					
INRUSH CURRENT (TYP.)	50A / 230VAC; 30A / 115VAC					
LEAKAGE CURRENT (MAX.)	0.5mA / 277VAC					

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## PROTECTIONS

<b>OVER CURRENT</b>	Range: 110% ÷ 200% rated current
	Type: hiccup mode, auto-recovery
<b>SHORT CIRCUIT</b>	Type: hiccup mode, auto-recovery, recovery time < 5s
<b>OVER VOLTAGE</b>	≤ 6.75VDC    ≤ 6.75VDC    ≤ 16.2VDC    ≤ 21.8VDC    ≤ 33.6VDC    ≤ 60VDC
	Type: hiccup mode or clamp

## WORKING ENVIRONMENT

<b>WORKING TEMPERATURE</b>	-30°C ÷ 70°C (Refer to Temperature Derating Curve)
<b>WORKING HUMIDITY</b>	20 ÷ 90% RH non-condensing
<b>STORAGE TEMPERATURE AND HUMIDITY</b>	-40°C ÷ 85°C, 10 ÷ 95% RH non-condensing
<b>TEMPERATURE COEFFICIENT</b>	± 0.03% / °C
<b>OPERATION ALTITUDE (MAX.)</b>	[5] 5000m

## SAFETY AND EMC REGULATIONS

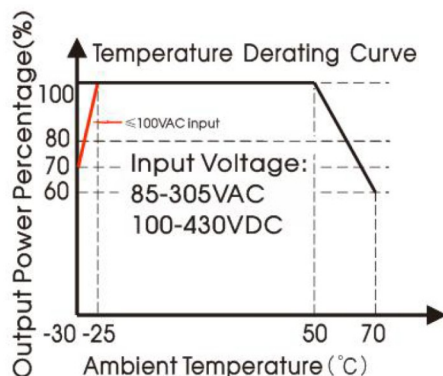
<b>SAFETY STANDARDS</b>	Compliance to EN62368-1
<b>WITHSTAND VOLTAGE</b>	IN/OUT: 4000VAC (< 10mA); IN/GND: 2000VAC (< 10mA) ; OUT/GND: 1250VAC (< 10mA)
<b>ISOLATION RESISTANCE</b>	IN/OUT, IN/GND, OUT/GND: 100MΩ/500VDC
<b>EMC EMISSION</b>	Compliance to EN55032
<b>EMC IMMUNITY</b>	Compliance to EN55035; EN61000-4-2, -3, -4, -5, -6, -11
<b>HARMONIC CURRENT</b>	Compliance to EN61000-3-3, EN61000-3-2

## OTHERS

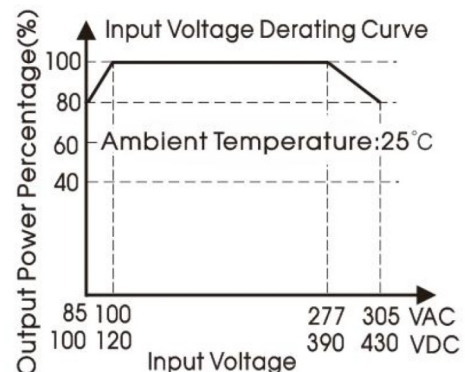
<b>MTBF (MIN.)</b>	700 000h / 25°C per MIL-HDBK-217F
<b>DIMENSIONS AND CASE MATERIAL</b>	65 x 55 x 25mm (L x W x H); Metal (AL5052, SGCC)
<b>NET WEIGHT</b>	0.09kg

1. All parameters NOT specially mentioned are measured at 230VAC input, rated load, 25°C of ambient temperature and humidity < 75% RH.
2. Ripple & noise is measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF i 47μF parallel capacitor.
3. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability.
4. Case needs to be connected to the earth (⊕) of the system when the terminal equipment is operating.
5. The room temperature derating of 3.5°C / 1000m is needed for operating altitude greater than 2000m.
6. Power supply is considered as component not intended to apply by end-user. Power supply meets safety and EMC standards however the final equipment with power supply must be re-quality to comply with EMC Directives.

DERATING CURVE



STATIC CHARACTERISTIC

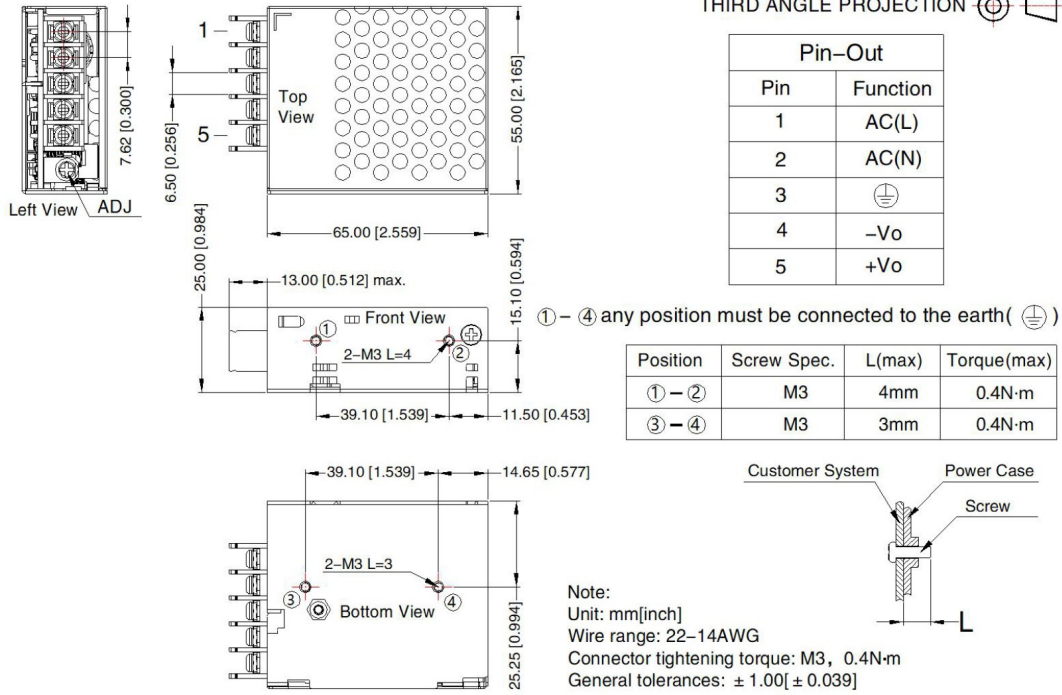


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## MECHANICAL SPECIFICATION of MRS-15-H and MRS-15-H-Q



## MECHANICAL SPECIFICATION of MRS-15-H-C

