

# MRS-50-U series

50W Constant Voltage Enclosed Switching Power Supply



## ■ Features:

- Universal AC input / Full range
- Low no-load power consumption < 0.3W
- Protections: Over current / Short circuit / Over Voltage
- Compact size with a low 1U profile
- LED indicator for power on
- Wide range of operating temperature range: -30°C to +70°C
- Operating altitude up to 5000m



## © MODEL NUMBERING

MRS	-	50	-	X	-	U	-	Y	
SERIES		RATED OUTPUT POWER		RATED OUTPUT VOLTAGE		INPUT VOLTAGE RANGE		OPTIONS	
ENCLOSED TYPE SWITCHING POWER SUPPLY, 1U PROFILE, CONSTANT VOLTAGE DESIGN		50 means 50W		X = 05	5V	U means 85~264VAC / 120~373VDC		Y = C	Terminal block with cover
			X = 12	12V			Y = Q	Conformal coating	
			X = 15	15V					
			X = 24	24V					
			X = 36	36V					
			X = 48	48V					

## © ELECTRICAL SPECIFICATION

MODEL	MRS-50-05-U	MRS-50-12-U	MRS-50-15-U	MRS-50-24-U	MRS-50-36-U	MRS-50-48-U
<b>OUTPUT</b>						
RATED VOLTAGE	5V	12V	15V	24V	36V	48V
ADJUSTABLE VOLTAGE RANGE (MIN.)	4.5V ÷ 5.5V	10.2V ÷ 13.8V	13.5V ÷ 18V	21.6V ÷ 28.8V	32.4V ÷ 39.6V	43.2V ÷ 52.8V
RATED CURRENT	10A	4.2A	3.4A	2.2A	1.45A	1.1A
RATED POWER	50W	50.4W	51W	52.8W	52.8W	52.8W
LINE REGULATION	± 0.5%					
LOAD REGULATION	± 1.0%		± 0.5%			
RIPPLE & NOISE (MAX.) [2]	80mV <sub>p-p</sub>	120mV <sub>p-p</sub>	120mV <sub>p-p</sub>	150mV <sub>p-p</sub>	200mV <sub>p-p</sub>	200mV <sub>p-p</sub>
HOLD UP TIME (TYP.)	30ms / 230VAC at full load; 8ms / 115VAC at full load					
<b>INPUT</b>						
VOLTAGE RANGE	85 ÷ 264VAC; 120 ÷ 373VDC					
FREQUENCY RANGE	47 ÷ 63Hz					
EFFICIENCY (TYP.)	86%	87%	88%	89%	89%	90%
AC CURRENT (TYP.)	0.8A / 230VAC; 1.2A / 115VAC					
INRUSH CURRENT (TYP.)	50A / 230VAC; 30A / 115VAC					
LEAKAGE CURRENT (MAX.)	0.75mA / 240VAC					

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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.					
<b>OVER VOLTAGE</b>	≤ 6.3VDC	≤ 16.2VDC	≤ 21.75VDC	≤ 33.6VDC	≤ 48.6VDC	≤ 60.0VDC
	Type: shut down output voltage. Re-power on to recovery.					

## 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

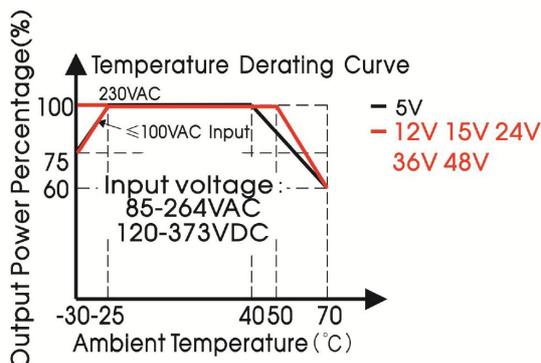
<b>SAFETY STANDARDS</b>	Compliance to EN62368-1, EN60335-1, EN61558-1, EN61558-2-16
<b>WITHSTAND VOLTAGE</b>	IN/OUT: 4000VAC (< 10mA); IN/GND: 2000VAC (< 10mA) ; OUT/GND: 1250VAC (< 10mA)
<b>ISOLATION RESISTANCE</b>	IN/OUT, IN/GND, OUT/GND: 100MΩ/500VDC
<b>EMC EMISSION</b>	Compliance to EN55032
<b>EMC 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

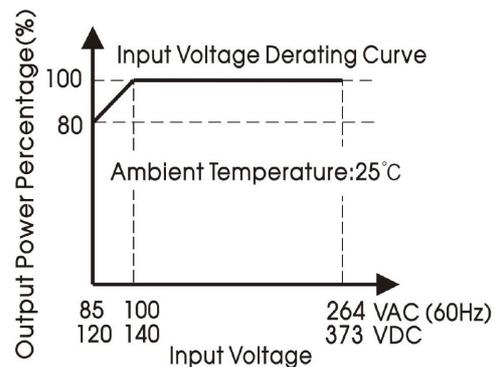
<b>MTBF (MIN.)</b>	300 000h / 25°C per MIL-HDBK-217F
<b>DIMENSIONS AND CASE MATERIAL</b>	99 x 82 x 30mm (L x W x H); Metal (AL1100, SGCC)
<b>NET WEIGHT</b>	0.18kg

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 in operating.
5. The room temperature derating of 5°C / 1000m is needed for operating altitude greater than 2000m.
6. Power supply is considered as component not indented 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

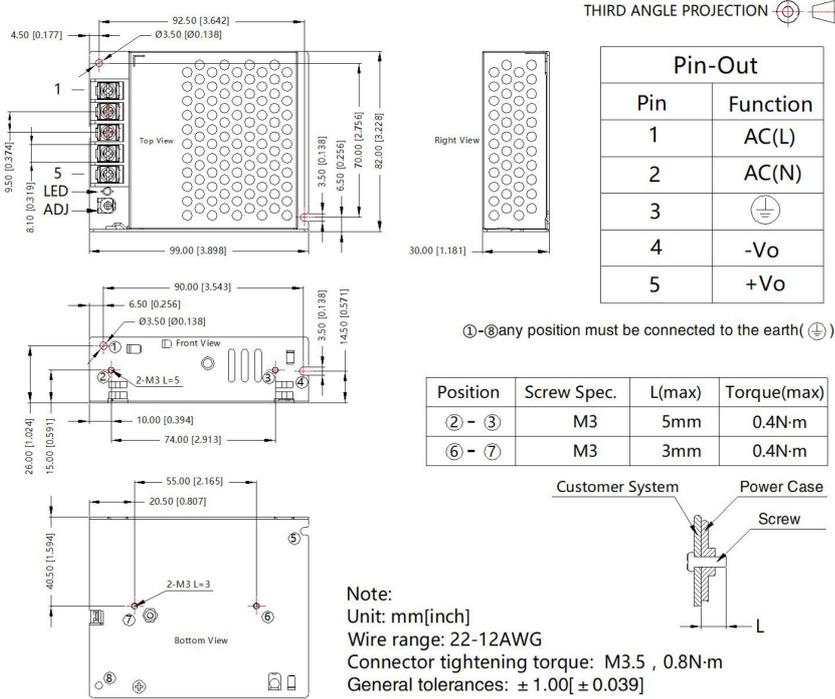


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## © MECHANICAL SPECIFICATION of MRS-50-U and MRS-50-U-Q



## © MECHANICAL SPECIFICATION of MRS-50-U-C

