



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Features

Regulated Converters

- Long 5 Year Warranty
- 2MOPP/250VAC
- Suitable for built in Class II Applications
- Wide Input Voltage Range (85-264VAC)
- Low Leakage Current (<100µA)
- 5000m Operation
- Active Power Factor Correction

Description

The RACM150-S(/F) is a compact 4" x 2" high efficiency AC/DC power supply with 2xMOPP safety approval for medical applications. These space saving enclosed power supplies have a universal input voltage range (85-264VAC), 4kVac isolation, require no minimum load and can be used at ambient temperatures of between -25°C and +80°C. The 12V, 15V, 24V or 48V output voltages are fully protected and have tolerances of less than ±0.2% over the entire input voltage range and less than ±0.5% over the entire load range. The RACM150-S(/F) series is certified to medical safety standard IEC/ES/EN-60601-1 3rd Edition and feature BF rated outputs with less than 100µA leakage current. It has a built-in Class B EMI filter and comes with a five year warranty.

Selection Guide

Part Number	Input Voltage Range [VAC]	Output Voltage [VDC]	Output Current [A] 115/230VAC	Efficiency typ. [%]	max. cont. Power Rating [W] 115/230VAC
RACM150-12S	85-264	12	10.0 / 10.84	91	120 / 130
RACM150-15S	85-264	15	8.33 / 9.0	92	125 / 135
RACM150-24S	85-264	24	5.2 / 5.63	92	125 / 135
RACM150-48S	85-264	48	2.5 / 2.71	91	120 / 130
RACM150-12S/F ⁽¹⁾	85-264	12	12.5	91	150
RACM150-15S/F ⁽¹⁾	85-264	15	10.0	92	150
RACM150-24S/F ⁽¹⁾	85-264	24	6.25	92	150
RACM150-48S/F ⁽¹⁾	85-264	48	3.13	91	150

Notes:

Note1: Please note that removing the fan from the /F version will not give the same performance as the equivalent fanless type. The two versions are not identical.

Specifications (measured @ ta= 25°C, 230VAC, full load and after warm-up)

BASIC CHARACTERISTICS				
Parameter	Condition	Min.	Typ.	Max.
Input Voltage		85VAC 120VDC		264VAC 370VDC
Input Current	115VAC, full load 230VAC, full load			1.7A 0.8A
Inrush Current	cold start, 115VAC cold start, 230VAC			30A 60A
No Load Input Power	230VAC, with fan 230VAC, without fan		0.6W 0.25W	1W 0.3W
Input Frequency Range	AC Input	47Hz		63Hz
Start-up Time			0.7s	1s
Rise Time			20ms	
Hold up Time			30ms	
Minimum Load				0%
Power Factor		0.95		
Internal Operating Frequency			60kHz	
Output Ripple and Noise (measured @ 20MHz BW)	12VDC, with 1µF/25V MLCC 15VDC, with 1µF/25V MLCC 24VDC, with 1µF/50V MLCC 48VDC, with 0.1µF/100V MLCC		120mVp-p 150mVp-p 220mVp-p 250mVp-p	

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RACM150

150 Watt
Enclosed
Case Style
Single Output

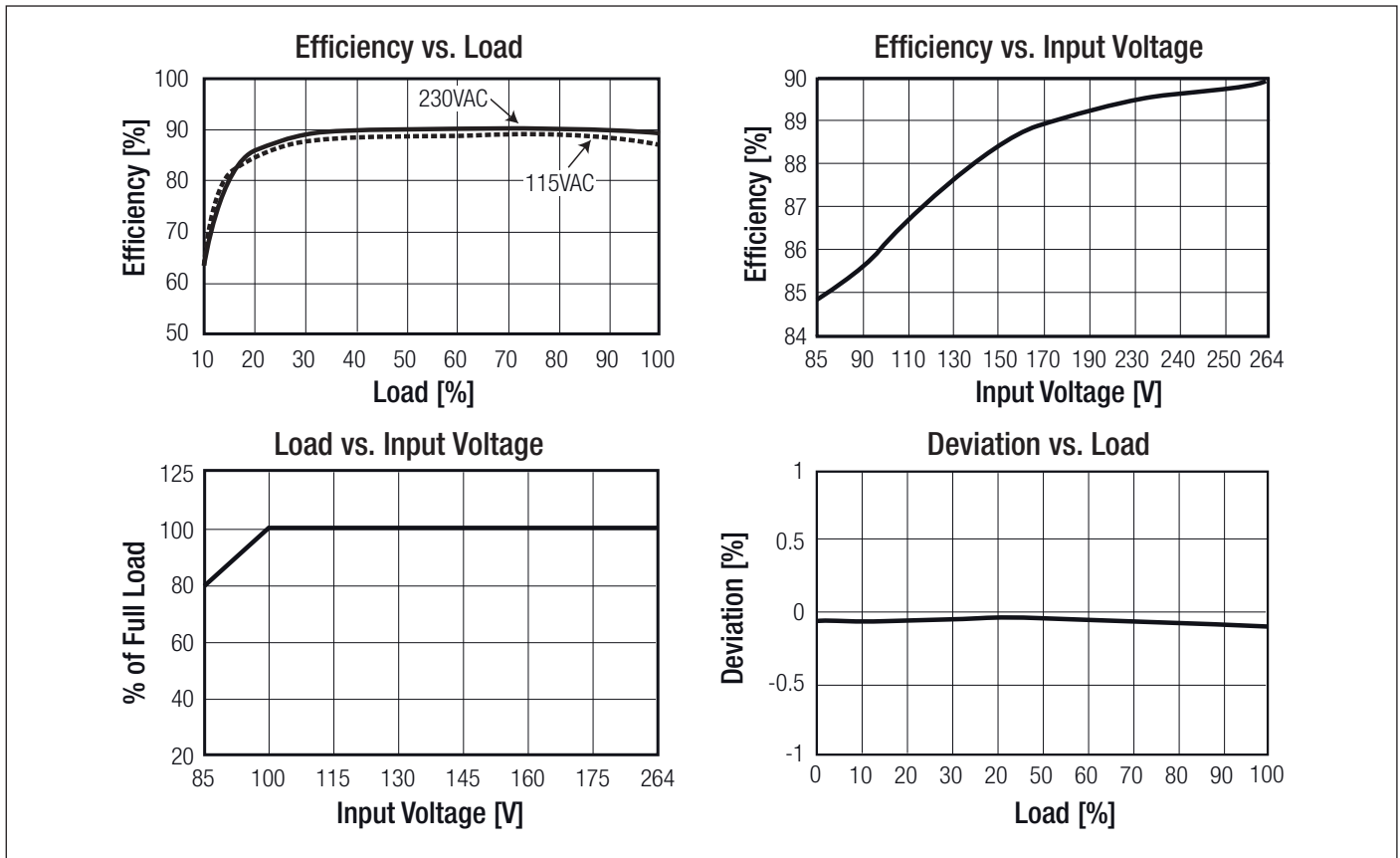


2MOPP
250VAC



EN-55011 Certified
EN-55022 Certified
ES-60601 Certified
IEC/EN-60601 Certified

Specifications (measured @ $t_a = 25^\circ\text{C}$, 230VAC, full load and after warm-up)



REGULATIONS		
Parameter	Condition	Value
Output Voltage Accuracy	230VAC, full load	$\pm 0.1\%$ typ. / $\pm 1\%$ max.
Line Voltage Regulation	low line to high line, full load	$\pm 0.1\%$ typ. / $\pm 0.2\%$ max.
Load Voltage Regulation	0% to 100% load	$\pm 0.1\%$ typ. / $\pm 0.5\%$ max.
Output Voltage Trim		$\pm 10\%$
Transient Peak Deviation	load step from 50% - 75% change at 2.5A/ μs	3% Vout max.
Transient Recovery Time	load step from 50% - 75% change at 2.5A/ μs	500 μs typ.

PROTECTIONS		
Parameter	Condition	Value
Input Fuse	internal line and neutral	T3.15A / 250VAC, slow blow type
Short Circuit Protection (SCP)		continuous, auto-recovery
Over Load Protection (OLP)	% of Iout rated	Hiccup Mode, 115% min. / 150% max.
Over Voltage Protection (OVP)	% of Vout nominal	Latch Mode, 115% min. / 135% max.
Isolation Voltage	I/P to O/P	4kVAC / 1 minute
	I/P to Chassis	2kVAC / 1 minute
	O/P to Chassis	2kVAC / 1 minute
	working voltage	250VAC / continuous

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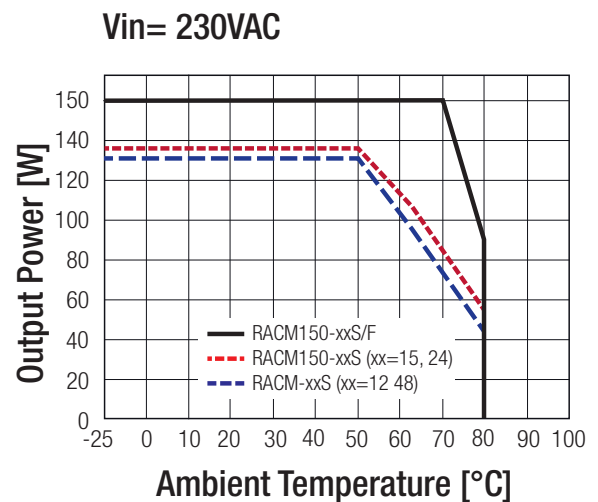
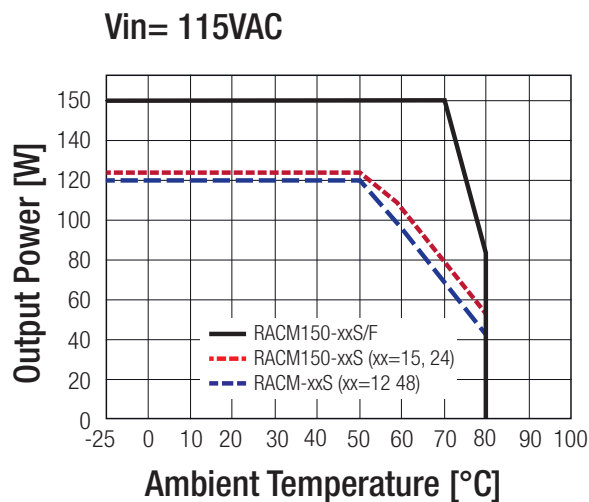
Specifications (measured @ $t_a = 25^\circ\text{C}$, 230VAC, full load and after warm-up)

Means of Protection		2MOPP
Leakage Current	264VAC	100 μ A max.
Medical Device Classification		Type BF applied device
Internal Clearance	I/P to O/P	8mm min.
Creepage	I/P to O/P	8mm min.
Isolation Resistance	500VDC	100M Ω min.
Insulation Grade		Reinforced Insulation

ENVIRONMENTAL

Parameter	Condition	Value
Relative Humidity	non-condensing	5% to 95% RH
Temperature Coefficient		$\pm 0.02\%$ / $^\circ\text{C}$
Operating Temperature Range (refer to derating graph)	without fan and with derating with fan and with derating	-25°C to $+80^\circ\text{C}$ -25°C to $+80^\circ\text{C}$
Operating Altitude		5000m max.
MTBF ($+25^\circ\text{C}$)	according to MIL-HDBK-217F, full load	786.1×10^3 hours

Derating Graph



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
IEC/EN Medical Safety	1408016004	IEC/EN-60601-1
ANSI/AAMI Medical Safety		ES60601-1
CAN/CSA Medical Safety		C22.2 No. 60601-1
Risk Management	1408016005	Medical Report + ISO14971 Risk Assessment

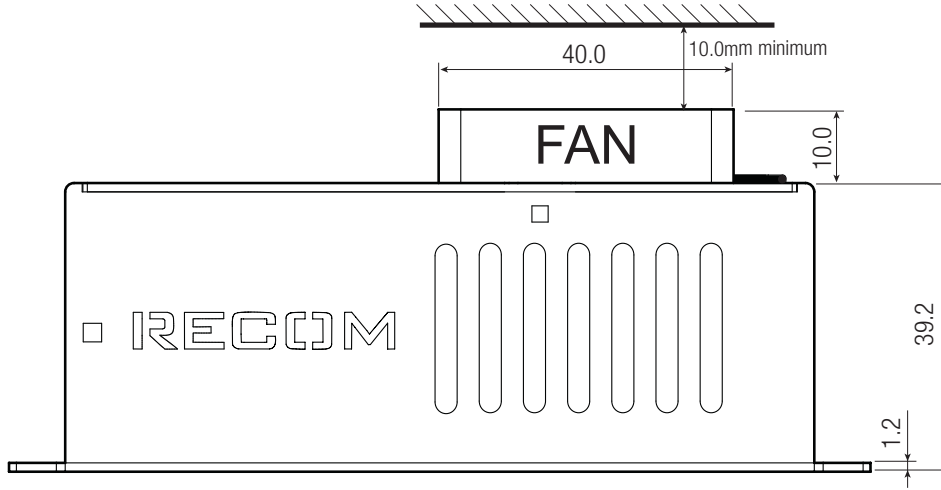
EMC Compliance	Conditions	Standard / Criterion
EMI	Conducted	CISPR 11, EN-55011, Class B
	Radiated	CISPR 11, EN-55011, Class A
	Conducted and Radiated	FCC18, Class B
ESD	Air $\pm 8\text{kV}$; Contact $\pm 6\text{kV}$	EN61000-4-2, Criteria A
Radiated Immunity	20V/m	EN61000-4-3, Criteria A
Fast Transient	$\pm 2\text{kV}$	EN61000-4-4, Criteria A

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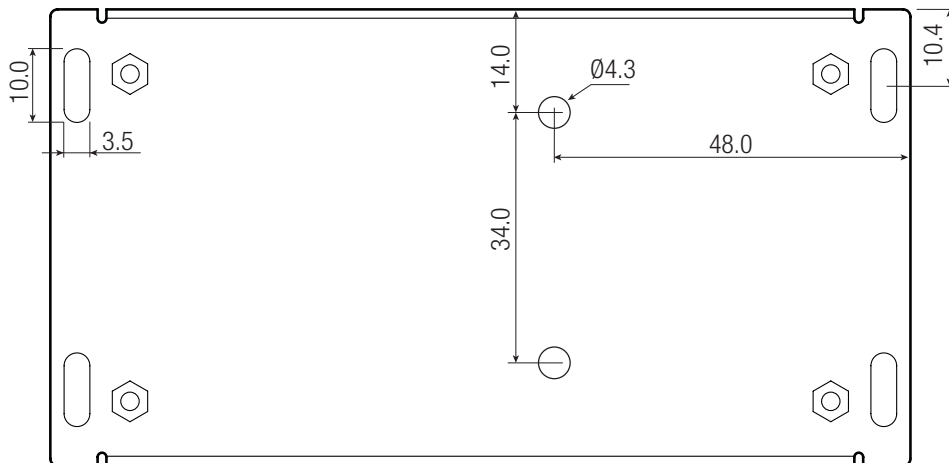
Specifications (measured @ ta= 25°C, 230VAC, full load and after warm-up)

Dimension Drawing (mm)

Side View



Bottom View



AC Input Connector CON1

Pin1 Line
Pin3 Neutral

Mates with
JST housing: VHR-3N
JST crimp terminals: SVH-21T-P1.1

DC Output Connector CON2

Pin1,2,3 -Vout
Pin4,5,6 +Vout

Mates with
JST housing: VHR-6N
JST crimp terminals: SVH-21T-P1.1

FAN Output Connector CON3

Pin1 -Fan
Pin2 +Fan

Mates with
Molex housing: 22-01-1022
Molex crimp terminals: 2759

Tolerance: ±0.5mm
FC: fixing center

FAN

Rated Voltage:	12V (7-13.8)
Input Power:	0.96W typ. 1.8W max.
Speed:	6000RPM
Air Flow:	7CFM/Min.; 30dBA max.
expected Lifetime (40°C):	>70khours continuous
Cable length:	55mm including connector

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	Cardboard Box	418 x 308 x 105mm
Packaging Quantity		10pcs
Storage Temperature Range	with fan	-40°C to +80°C
	without fan	-40°C to +80°C

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