Features

Regulated Converters

- Universal input 80-264VAC
- High efficiency up to 77%
- Isolated output 3kVAC/1 minute
- Short circuit protection
- Meet EN55032 class B
- Low standby power consumption

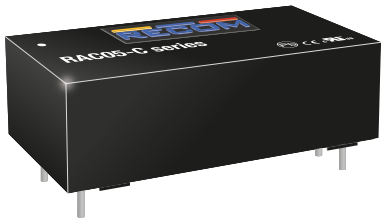
RECOM

AC/DC Converter

RAC05-C

5 Watt Single & Dual Output

YEAR 3 warranty



UL60950-1 certified
CAN/CSA-C22.2 No. 60950-1 certified
IEC/EN60950-1 certified
EN55032 compliant
EN55024 compliant

Description

Compact, low cost, high efficiency, universal input switching AC/DC power module for PCB or wired mounting with single or dual outputs. CE/EAC marked and UL/cUL certified.

Selection Guide

Part Number	Input Voltage Range [VAC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ (1) [%]	Max. Capacitive Load (2,3) [µF]
RAC05-3.3SC (4)	80-264	3.3	1250	70	12000
RAC05-05SC (4)	80-264	5	1000	73	6800
RAC05-09SC (4)	80-264	9	556	75	2500
RAC05-12SC (4)	80-264	12	420	76	1500
RAC05-15SC (4)	80-264	15	340	76	750
RAC05-24SC (4)	80-264	24	210	77	330
RAC05-05DC (4)	80-264	±5	±500	73	±3000
RAC05-12DC (4)	80-264	±12	±210	76	±560
RAC05-15DC (4)	80-264	±15	±170	76	±220

Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient
Note2: Measured @ 230VAC / 50Hz / Ta=25°C with constant resistant mode at full load
Note3: If used @ 115VAC / 60Hz with full load, max. capacitive load is less, please contact RECOM Techsupport for detailed information

Model Numbering

RAC05-__ _C/W

- nom. Output Power
- nom. Output Voltage
- **W**ired option (4)
- **S**ingle or **D**ual

Notes:

Note4: add suffix „/W“ for wired version
without suffix, standard THT version

Ordering Examples:

RAC05-05SC	5 Watt	5Vout	Single Output	THT version
RAC05-05SC/W	5 Watt	5Vout	Single Output	wired version
RAC05-12DC	12 Watt	5Vout	Dual Output	THT version
RAC05-12DC/W	12 Watt	5Vout	Dual Output	wired version

sales@prom-elec.com / ООО ПРОМЭЛЕКТРОНИКА

Specifications (measured at Ta= 25°C, full load otherwise noted)

BASIC CHARACTERISTICS

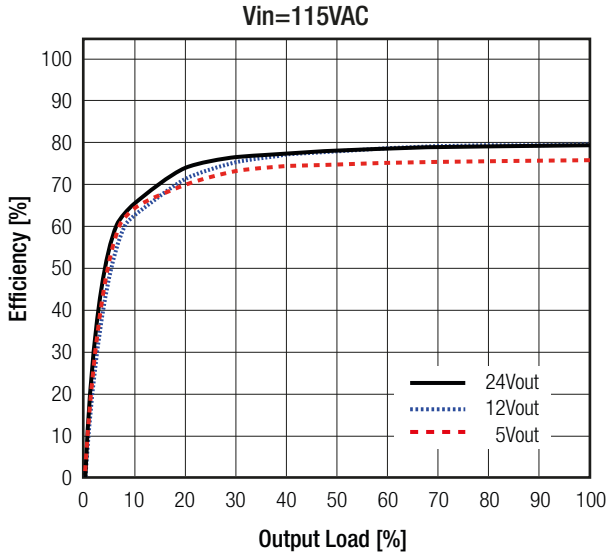
Parameter	Condition		Min.	Typ.	Max.
Input Voltage Range [5]	nom. Vin = 230VAC		80VAC 115VDC		264VAC 370VDC
Input Current	115VAC 230VAC			110mA 70mA	
Inrush Current	<2ms	115VAC 230VAC			30A 60A
No load Power Consumption					250mW
Input Frequency Range	AC Input		47Hz		440Hz
Minimum Load			0%		
Hold-up time	115VAC			10ms	
Internal Operating Frequency	100% load at nominal Vin			132kHz	
Output Ripple and Noise [6]	20MHz BW	3.3Vout all others			120mVp-p 150mVp-p

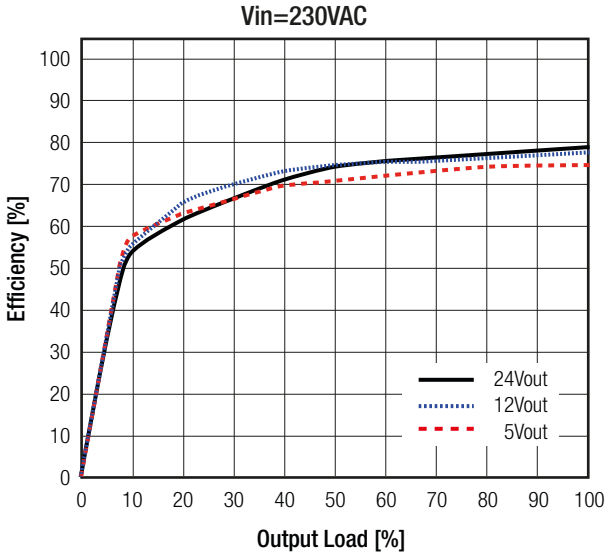
Notes:

Note5: Refer to line derating graph on page PA-3

Note6: Measurements are made with a 0.1µF MLCC across output (low ESR)

Efficiency vs. Load





REGULATIONS

Parameter	Condition	Value
Output Accuracy		±2.0% max.
Line Regulation	low line to high line	±0.3% typ.
Load Regulation [7]	5% to 100% load	0.5% typ.

Notes:

Note7: Operation below 5% load will not harm the converter, but specifications may not be met

Specifications (measured at Ta= 25°C, full load otherwise noted)

PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP)	below 100mΩ		Hiccup mode, automatic recovery
Over Voltage Protection (OVP)	zener diode clamp	3.3Vout all others	145% - 165% 110% - 135%
Over Voltage Category			OVCII
Isolation Voltage	I/P to O/P	tested for 1 minute	3kVAC
Isolation Resistance	I/P to O/P		1GΩ min.
Isolation Capacitance			1000pF typ.
Leakage Current			0.85mA max.

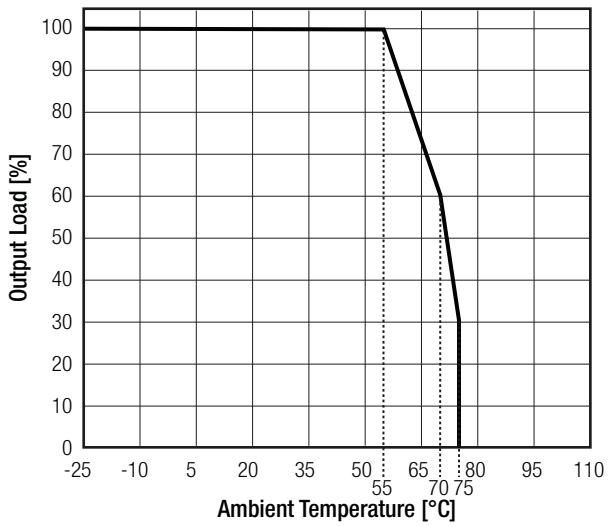
Notes:

Note8: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

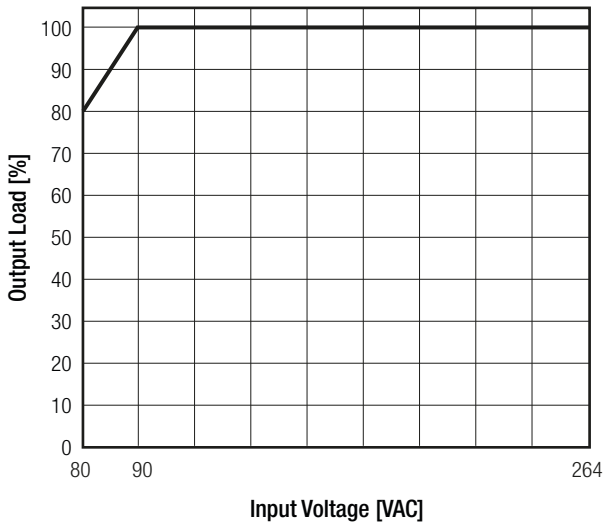
ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range [8]	@ natural convection 0.1m/s	full load	-25°C to +55°C
		refer to derating graph	-25°C to +75°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +55°C	>400 x 10^3 hours >200 x 10^3 hours

Derating Graph
(@Chamber and natural convection 0.1m/s)



Line Derating



Specifications (measured at Ta= 25°C, full load otherwise noted)

SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	**Report / File Number**	**Standard**
Information Technology Equipment - General Requirments for Safety	E224736-A1-UL	UL60950-1, 2nd Edition, 2007 CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition, 2007
Information Technology Equipment - General Requirments for Safety	SPCLVD1605077-06	IEC60950-1:2005 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
EAC Safety of Low Voltage Equipment	RU-AT.AB37.B.02367	TP TC 004/2011
RoHS2+		RoHS-2011/65/EU + AM-2015/863
EMC Compliance	**Condition**	**Standard / Criterion**
Electromagnetic compatibility of multimedia equipment – Emission Requirements		EN55032:2015
Information technology equipment - Immunity characteristics - Limits and methods of measurement		EN55024:2010 + A1:2015
ESD Electrostatic discharge immunity test	Air ±8.0kV, Contact ±4.0kV	IEC61000-4-2:2008, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	IEC61000-4-3:2008, Criteria A
Fast Transient and Burst Immunity	AC Power Port: ±1.0kV	IEC61000-4-4:2004, Criteria A
Surge Immunity	AC Power Port: L-N ±1.0kV	IEC61000-4-5:2005, Criteria A
Immunity to conducted disturbances, induced by radio-frequency fields	AC Power Port 3.0V	IEC61000-4-6:2008, Criteria A
Power Magnetic Field Immunity	50Hz, 1A/m	IEC61000-4-8:2009, Criteria A
Voltage Dips and Interruptions	Voltage Dips >95% Voltage Dips 30% Voltage Interruptions > 95%	IEC61000-4-11:2004, Criteria A IEC61000-4-11:2004, Criteria A IEC61000-4-11:2004, Criteria B
Limits of Harmonic Current Emissions		EN61000-3-2:2014, Class A
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	**Type**	**Value**
Material	case potting	black plastic (UL94V-0) epoxy (UL94V-0)
Dimension (LxWxH)	single dual	50.9 x 25.5 x 16.4mm 53.5 x 27.8 x 16.4mm
Weight	THT version wired version	35g typ. 38g typ.

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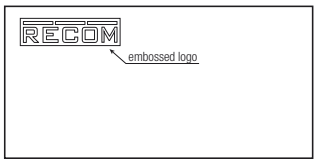
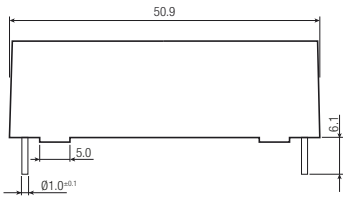
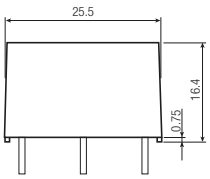
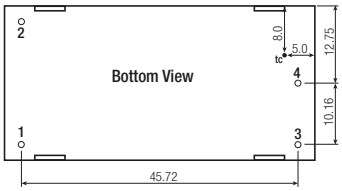
Specifications (measured at Ta= 25°C, full load otherwise noted)

Dimension Drawing Single (mm)

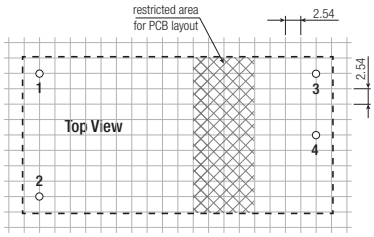


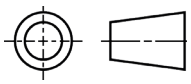






Recommended Footprint Details



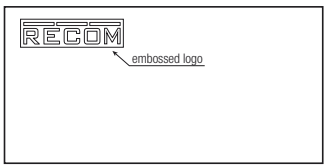


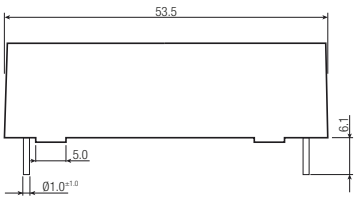
Pin Connections

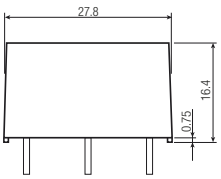
Pin #	Single
1	VAC in (N)
2	VAC in (L)
3	+VDC out
4	-VDC out
5	no pin

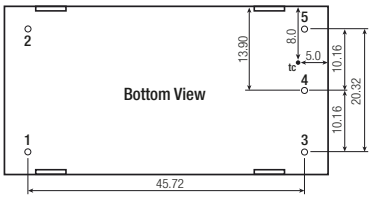
tc= case temperature measuring point
Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

Dimension Drawing Dual (mm)

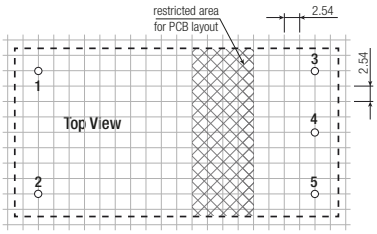








Recommended Footprint Details



Pin Connections

Pin #	Dual
1	VAC in (N)
2	VAC in (L)
3	+VDC out
4	Com
5	-VDC out

tc= case temperature measuring point
Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

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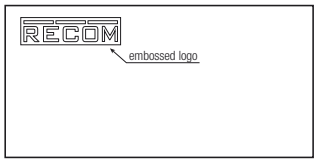
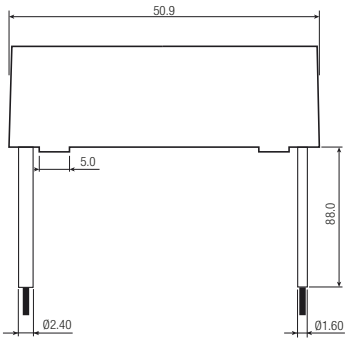
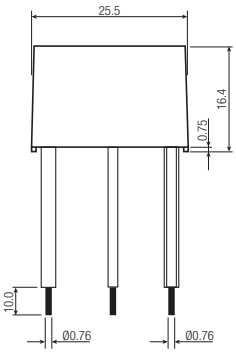
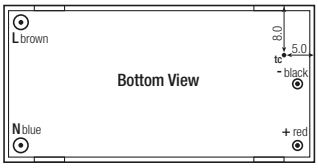
Specifications (measured at Ta= 25°C, full load otherwise noted)

Dimension Drawing Single wired (mm)







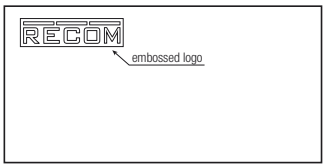


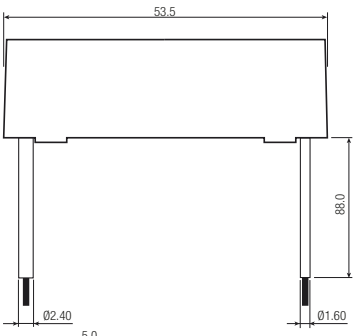
Wired information

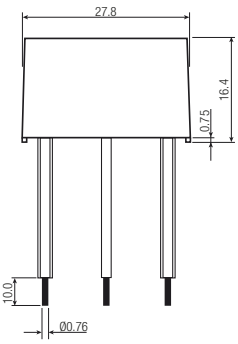
#	Function	Wire color	Type	AWG
1	VAC in (N)	blue	UL-1015	22
2	VAC in (L)	bown	UL-1015	22
3	+VDC out	red	UL-1007	22
4	-VDC out	black	UL-1007	22

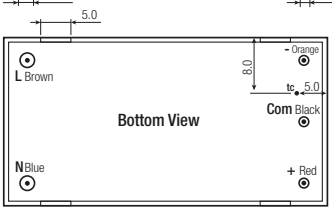
tc= case temperature measuring point
Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

Dimension Drawing Dual wired (mm)









Wired information

#	Function	Wire color	Type	AWG
1	VAC in (N)	blue	UL-1015	22
2	VAC in (L)	bown	UL-1015	22
3	+VDC out	red	UL-1007	22
4	Com	black	UL-1007	22
5	-VDC out	orange	UL-1007	22

tc= case temperature measuring point
Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

Specifications (measured at Ta= 25°C, full load otherwise noted)

PACKAGING INFORMATION			
Parameter	**Type**		**Value**
Packaging Dimension (LxWxH)	tube cardbox	THT wired	520.0 x 56.0 x 26.0 520.0 x 195.0 x 67.0
Packaging Quantity	THT single THT dual wired		10pcs 9pcs 20pcs
Storage Temperature Range			-40°C to +100°C
Storage Humidity	non-condensing		95% RH max.

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