Features

Regulated Converter

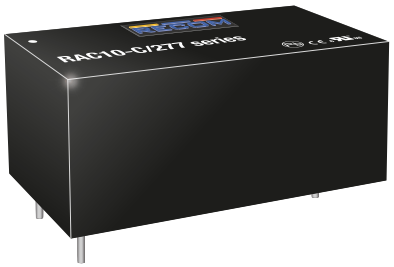
- Very compact low AC-DC power supply
- High efficiency
- Single and dual output options
- Continous short circuit protection
- Isolated output 3.75kVAC / 1 minute
- EN55032 Class B compliant
- High operating temperature
- Low standby power consumption

RECOM

AC/DC Converter

RAC10-C/277

10 Watt Single and Dual Output



Description

The RAC10-K/277 series are multipurpose 10 watt AC/DC power supplies for an extended mains input from 80VAC up to 305VAC. These modules are designed to power on-board applications in automation, Industry 4.0, IoT, lighting and smart buildings worldwide. The efficiency is constant over a wide load range and the standby power consumption is less than 0.3W. With universal input voltage covering 100/115/230/277VAC or 113-430VDC, fully protected single or dual outputs and EMC Class B emissions compliance without any external components, these are one of the easiest to use modular power solutions in the industry.

Selection Guide

Part Number	Input Voltage Range [VAC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ (1) [%]	Max. Capacitive Load (2) [µF]
RAC10-3.3SC/277	80-305	3.3	2500	75	50000
RAC10-05SC/277	80-305	5	2000	78	36000
RAC10-12SC/277	80-305	12	840	80	8600
RAC10-15SC/277	80-305	15	670	78	6000
RAC10-24SC/277	80-305	24	420	80	2700
RAC10-05DC/277	80-305	±5	±1000	77	±21000
RAC10-12DC/277	80-305	±12	±420	79	±3700
RAC10-15DC/277	80-305	±15	±340	79	±2900

Notes:

Note1: Measured @ 230VAC / 50Hz / Ta=25°C with constant resistant mode at full load

Note2: If used @ 115VAC / 60Hz with full load, max. capacitive load is less, please contact RECOM Tech Support for detailed information

IEC/EN60950-1 certified
UL60950-1 certified
CAN/CSA-22.2 No. 60950-1-07 certified
EN55032 compliant
EN55024 compliant

Model Numbering

RAC10-__ __C/277

nom. Output Power

Output Voltage

Single or **D**ual

Ordering Examples:

RAC10-05SC/277	10 Watt	5Vout	Single Output
RAC10-12DC/277	10 Watt	12Vout	Dual Output

Specifications (measured @ Ta= 25°C, full load and after warm-up unless otherwise stated)

BASIC CHARACTERISTICS

Parameter	Condition		Min.	Typ.	Max.
Input Voltage Range (3,4)			80VAC 113VDC	277VAC	305VAC 430VDC
Input Current	115VAC 230VAC			250mA 160mA	
Inrush Current	cold start at +25°C	115VAC 230VAC			15A 30A
No load Power Consumption	230VAC				300mW
Input Frequency Range	AC Input		47Hz		63Hz
Minimum Load			0%		
Hold-up Time	230VAC/50Hz		60ms		
Internal Operating Frequency	full load at nominal Vin			100kHz	
Output Ripple and Noise (5)	20MHz BW	3.3, 5Vout 12, 15, 24, ±12Vout ±5, ±15Vout		50mVp-p 125mVp-p 200mVp-p	

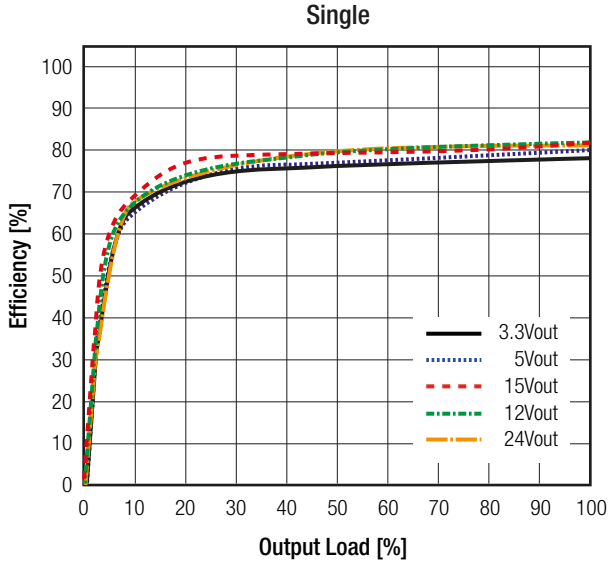
Notes:

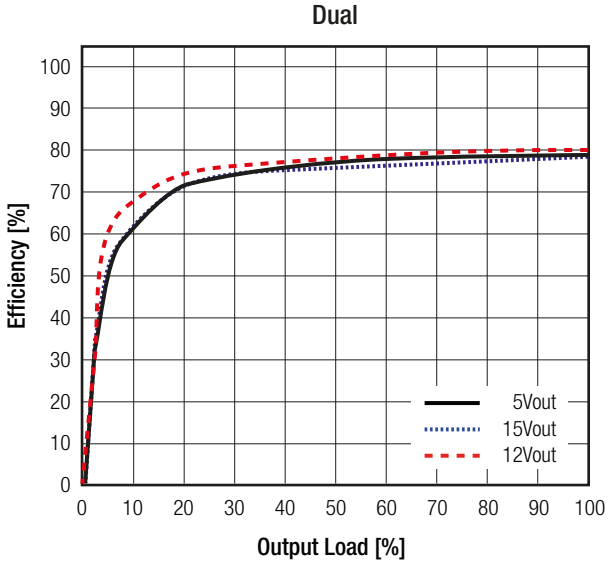
Note3: The products were submitted for safety files at AC-Input operation

Note4: Refer to line derating graph on page PA-4

Note5: Ripple and Noise is the maximum peak-to-peak voltage value measured at the output with a 20MHz bandwidth, at rated line voltage at full load and with a 0.1µF ceramic capacitor across output. Do not use scope ground lead to measure the output ripple and noise

Efficiency vs. Load



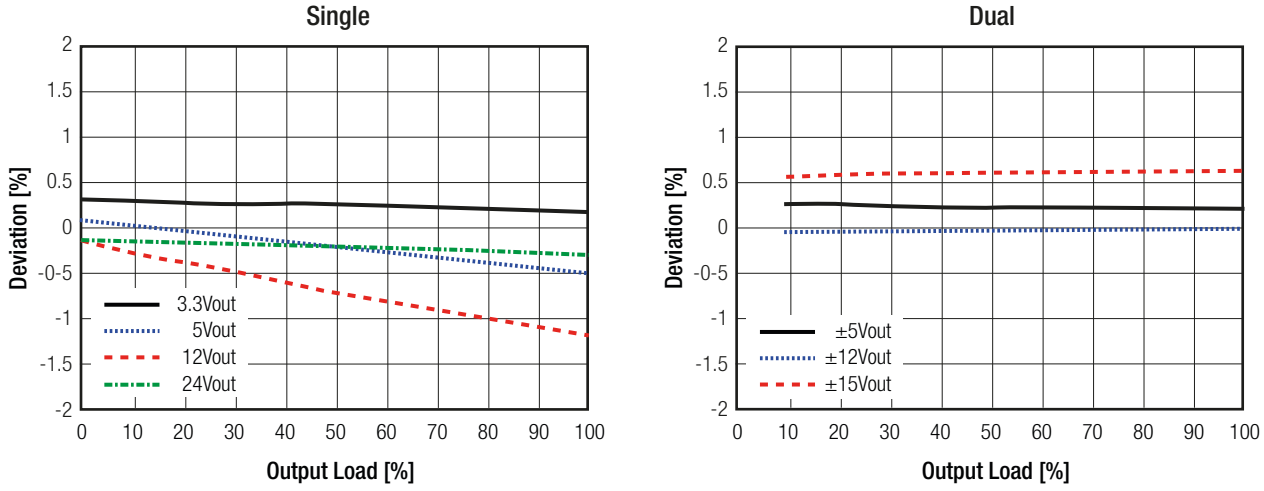


REGULATIONS

Parameter	Condition		Value
Output Accuracy	3.3Vout all others		±3.0% typ. ±2.0% typ.
Line Regulation	low line to high line, full load		±0.3% typ.
Load Regulation	0% to 100% load	3.3, 5Vout 12Vout all others	1.5% typ. 1.0% typ. 0.5% typ.

Specifications (measured @ Ta= 25°C, full load and after warm-up unless otherwise stated)

Deviation vs. Load



PROTECTIONS			
Parameter	**Type**		**Value**
Short Circuit Protection (SCP)	below 100mΩ		Hiccup mode, automatic recovery
Over Voltage Protection (OVP)			Latch off
Over Current Protection (OCP)			automatic recovery
Over Voltage Category			OVCII
Isolation Voltage	I/P to O/P	tested for 1 minute	3.75kVAC
Leakage Current	230VAC/50Hz		0.25mA max.

Notes:

Note6: 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	@ free air convection	full load	-20°C to +70°C
Operating Humidity	non-condensing		5% - 95% RH max.
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +70°C	320 x 10^3 hours 120 x 10^3 hours

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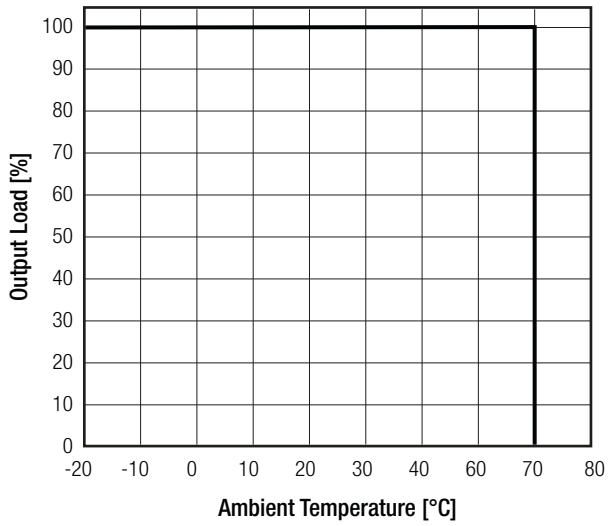
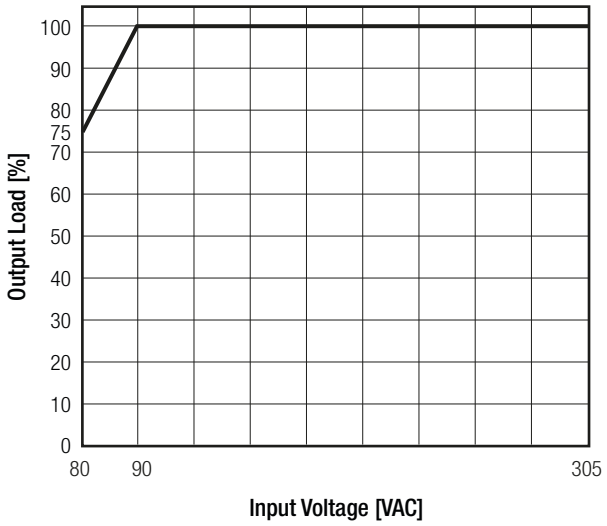
Specifications (measured @ Ta= 25°C, full load and after warm-up unless otherwise stated)

Derating Graph
(@ Chamber and free air convection)



Line Derating



SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	**Report / File Number**	**Standard**
Information Technology Equipment, General Requirements for Safety	E224736-A49-UL	UL60950-1, 2nd Edition, 2011 CAN/CSA-C22.2 60950-1, 2nd Edition, 2011
Information Technology Equipment, General Requirements for Safety	SPCLVD1605077-05	EN60950-1:2006 + A2:2013 IEC60950-1:2005, 2nd Edition + A2:2013
EAC Safety of Low Voltage Equipment	RU-AT.49.09571	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, Class B
Information technology equipment - Immunity characteristics - Limits and methods of measurement		EN55024:2010
ESD Electrostatic discharge immunity test	±8kV Air, ±4kV Contact	EN61000-4-2:2009, Criteria B
Radiated, radio-frequency, electromagnetic field immunity test	3V/m	EN61000-4-3:2006 + A2:2010, Criteria A
Fast Transient and Burst Immunity	AC Power Port: +/-1.0kV	IEC61000-4-4:2004+A1:2010, 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 3V	IEC61000-4-6:2008, Criteria A
Power Magnetic Field Immunity	50Hz, 1A/m	EN61000-4-8:2010, Criteria A
Voltage Dips and Interruptions	Voltage Dips >95% Voltage Dips 30% Voltage Interruptions >95%	EN61000-4-11:2004, Criteria A EN61000-4-11:2004, Criteria A EN61000-4-11:2004, Criteria B
Limits of Voltage Fluctuations & Flicker		EN61000-3-3:2013

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	**Type**	**Value**
Material	case	epoxy with fibreglass, (UL94V-0)
Dimension (LxWxH)		52.5 x 27.4 x 23.5mm
Weight		62g typ.

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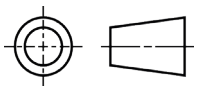
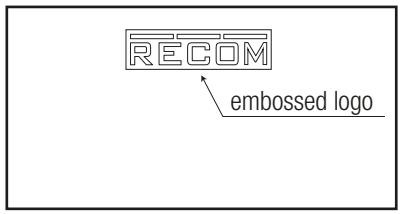
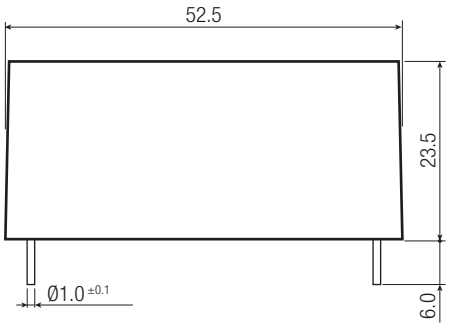
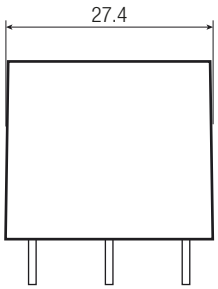
Specifications (measured @ Ta= 25°C, full load and after warm-up unless otherwise stated)

Dimension Drawing (mm)







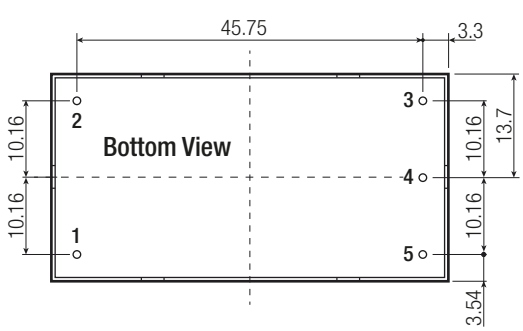


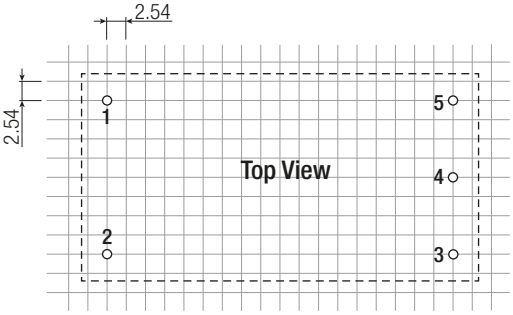
Pin Connections

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

Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

Recommended Footprint Details





PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)		520.0 x 56.0 x 32.0mm
Packaging Quantity		16pcs.
Storage Temperature Range		-40°C to +75°C
Storage Humidity	non-condensing	95% RH max.

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