Features

Regulated Converter

- 20 Watt PCB mount package
- Universal input voltage range
- 3000VAC / 1 minute isolation
- Low output ripple and noise
- Short circuit protected
- UL certified, CE marked

RECOM
AC/DC Converter

RAC20-A

20 Watt Single, Dual, Double, Triple Output

Description

Universal input voltage switching power module for PCB or DIN-rail mounting available with single, dual or triple output voltages.

Consider RAC20-K series for new designs

Selection Guide

Part Number	Input Voltage Range [VAC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ (1) [%]	Max. Capacitive Load [µF]
RAC20-3.3SA (2)	90-264	3.3	4500	75	25000
RAC20-05SA (2)	90-264	5	4000	79	13000
RAC20-09SA (2)	90-264	9	2230	82	1100
RAC20-12SA (2)	90-264	12	1670	83	920
RAC20-15SA (2)	90-264	15	1340	83	820
RAC20-24SA (2)	90-264	24	840	84	600
RAC20-05DA (2)	90-264	±5	±2000	79	±4300
RAC20-12DA (2)	90-264	±12	±833	82	±560
RAC20-15DA (2)	90-264	±15	±677	82	±220
RAC20-0512TA (2)	90-264	5/±12	2800/±250	81	3500/±200
RAC20-0515TA (2)	90-264	5/±15	2800/±200	81	3500/±150

Notes:

Note1: Efficiency is tested at nominal input and full load at +25°C ambient

UL60950-1 certified
CSA C22.2 No. 60950-1-07 certified
EN60950-1 certified
EN55032 compliant
EN55024 compliant

Model Numbering

RAC20- ___ A- ___

- nom. Output Power
- Output Voltage
- Connection (2)
- **S**ingle, **D**ual or **T**riple

Notes:

Note2: no suffix for standard package (THT)
add suffix "ST" for screw terminal module

Ordering Examples:

RAC20-05SA	20 Watt	5Vout	Single Output	THT
RAC20-05DA	20 Watt	±5Vout	Dual Output	THT
RAC20-0512TA-ST	20 Watt	5/±12Vout	Triple Output	Screw Terminal
RAC20-15SA-ST	20 Watt	15Vout	Single Output	Screw Terminal

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

BASIC CHARACTERISTICS

Parameter	Condition		Min.	Typ.	Max.
Input Voltage Range [3]	nom. Vin = 230VAC		90VAC 100VDC	230VAC	264VAC 375VDC
Input Current	115VAC 230VAC				400mA 270mA
Inrush Current	2ms max.	115VAC 230VAC			30A 50A
No load Power Consumption	115VAC/230VAC				470mW
Input Frequency Range	AC Input		47Hz		440Hz
Minimum Load	Single, Dual Triple		0%	 10%	
Hold-up Time	115VAC/230VAC		13ms		
Internal Operating Frequency				100kHz	
Output Ripple and Noise [4]	20MHz BW	Noise Ripple	<0.5% Vout + 50mVp-p max. <0.2% Vout + 40mVp-p max.		

Notes:

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

Note4: Measurements are made with a 0.1µF and 47µF MLCC across output (low ESR)

REGULATIONS

Parameter	Condition		Value
Output Accuracy			±2.0% max.
Line Regulation	low line to high line	Single, Dual Triple	±0.5% typ. ±1.0% typ. (+5Vout) /±5.0 typ. (±Vout)
Load Regulation [5]	10% to 100% load	Single Dual Triple	1.0% typ. 3.0% typ. 2.0% typ. (+5Vout) / 5.0 typ. (±Vout)

Notes:

Note5: Operation below 10% load will not harm the converter, but specifications may not be met

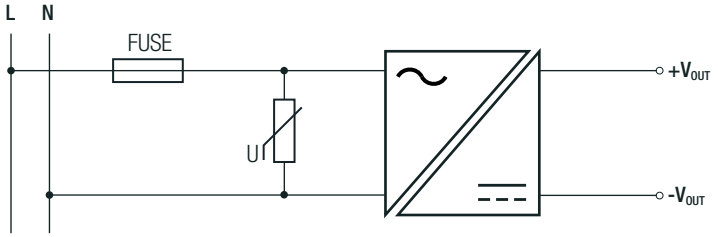
PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP)			Hiccup mode, auto recovery
Over Voltage Protection (OVP)			zener diode clamp
Over Current Protection (OCP)			105% typ.
Isolation Voltage	I/P to O/P	tested for 1 minute	3kVAC
Leakage Current			0.25mA max.

Notes:

Note6: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

Note7: An external MOV is recommended. The varistor should comply with IEC-61051-2. e.g. 14S471K series

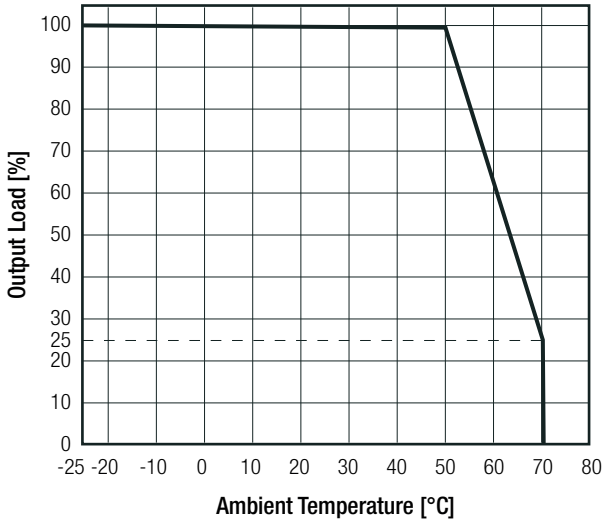


Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	@ natural convection 0.1m/s	full load refer to derating graph	-25°C to +50°C -25°C to +70°C
Temperature Coefficient			±0.02%/K typ.
Operating Humidity	non-condensing		95% RH max.
MTBF	according to MIL-HDBK-217F, G.B.	+25°C	>400 x 10^3 hours

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



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	E196683	UL60950-1, 2nd Edition, 2007 CAN/CSA-C22.2 No. 60950-1-07, 2nd Edition, 2007
Information Technology Equipment, General Requirements for Safety		EN60950-1:2006 + 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 + A1:2015
Limits for Harmonic Current Emissions		EN61000-3-2: 2014
Limitation of Voltage Fluctuations/Flicker in Low-Voltage Systems		EN61000-3-3: 2013

DIMENSION AND PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	epoxy with fibreglass (UL94V-0)
Dimension (LxWxH)	standard with suffix "-ST"	70.0 x 48.0 x 22.0mm 111.9 x 64.6 x 27.5mm
Weight	standard with suffix "-ST"	122g typ. 197g typ.

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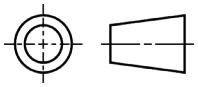
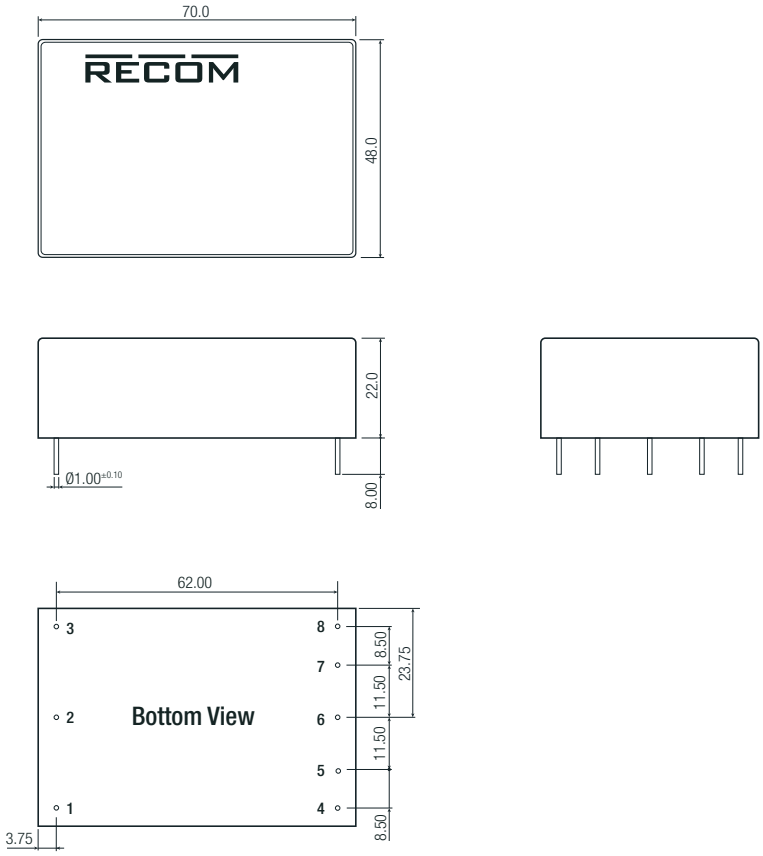
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Dimension Drawing (mm)



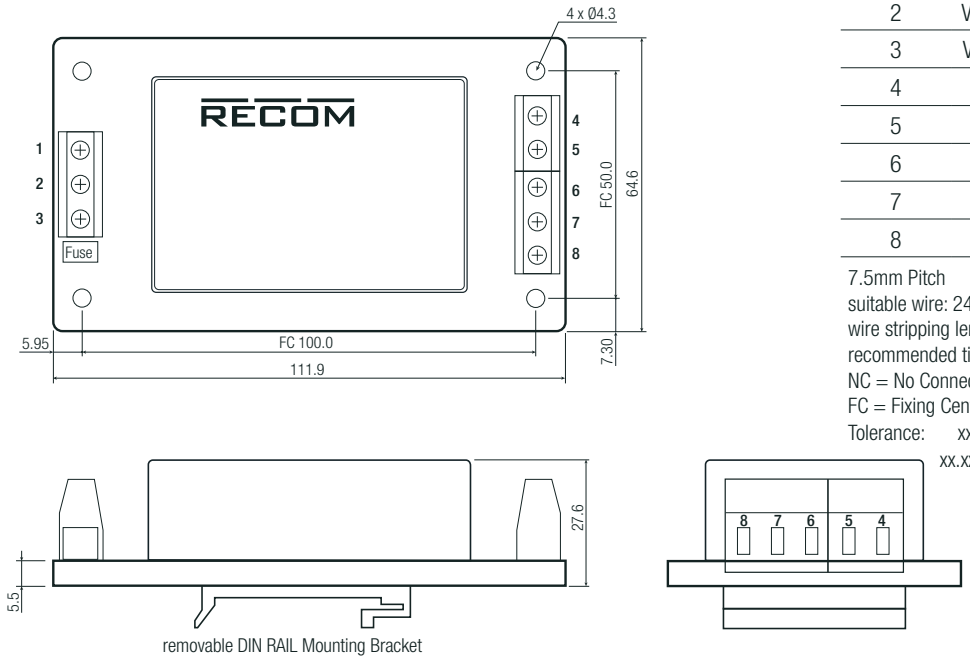


Pin Connections

Pin #	Single	Dual	Triple
1	FG	FG	FG
2	VAC in (N)	VAC in (N)	VAC in (N)
3	VAC in (L)	VAC in (L)	VAC in (L)
4	no Pin	no Pin	-Vout
5	-Vout	-Vout	Com
6	no Pin	Com	+Vout
7	+Vout	+Vout	+5V Rtn
8	no Pin	no Pin	+5Vout

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

Screw Terminal Module "ST" version



removable DIN RAIL Mounting Bracket

Screw terminal information

#	Single	Dual	Triple
1	FG	FG	FG
2	VAC in (N)	VAC in (N)	VAC in (N)
3	VAC in (L)	VAC in (L)	VAC in (L)
4	NC	NC	-Vout
5	-Vout	-Vout	Com
6	NC	Com	+Vout
7	+Vout	+Vout	+5V Rtn
8	NC	NC	+5Vout

7.5mm Pitch
suitable wire: 24-12AWG (0.5-2.5mm²)
wire stripping length: 7mm typ.
recommended tightening torque: 0.5Nm
NC = No Connection
FC = Fixing Centers
Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

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

PACKAGING INFORMATION			
Parameter	**Type**		**Value**
Packaging Dimension (LxWxH)	cardboard box	standard	260.0 x 70.0 x 42.0mm
		with suffix "-ST"	119.0 x 64.0 x 54.0mm
Packaging Quantity	standard		3pcs
	with suffix "-ST"		1pcs
Storage Temperature Range			-40°C to +85°C
Storage Humidity	non-condensing		95% RH

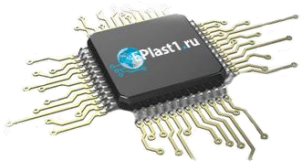
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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