Features

Unregulated Converters

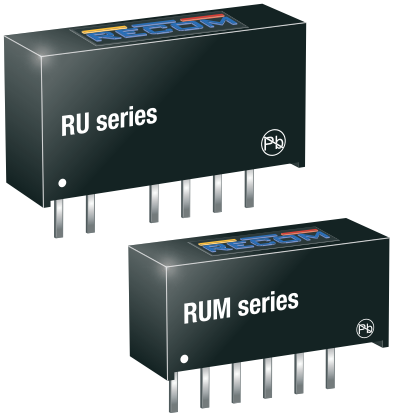
- Twin independent outputs
- 1kVDC or 2kVDC input/output basic isolation
- 1kVDC output/output isolation
- Power sharing on outputs
- Standard and miniature versions
- Optional continued short circuit protected
- Efficiency up to 76%

RECOM
DC/DC Converter

RU/RUM

1 Watt SIP7 Isolated Dual Output

YEAR 3 warranty



RoHS 2+ compliant 10 from 10 — RECOM·CONVERTERS COMPLIANT PRODUCTS

REACH compliant — RECOM·CONVERTERS COMPLIANT PRODUCTS

IEC60950-1 certified
EN60950-1 certified

Description

The RU DC/DC converter offers two independent isolated outputs. Typical applications include multiple channel circuits where inter-channel isolation is also required. The RUM offers similar specifications in a miniature case for applications where space is at a premium. Both converters offer 1KVDC input/output isolation and 1kVDC output/output isolation. The /H versions offer 2kVDC isolation between input and outputs.

Selection Guide

Part Number	nom. Input Voltage [VDC]	Output Voltage V1 [VDC]	Output Voltage V2 [VDC]	Output Current [mA]	Efficiency typ. (1) [%]	max. Capacitive Load (2) [µF]
RU-3.30505 (3,4)	3.3	5	5	100/100	76	470/470
RU-050505 (3,4)	5	5	5	100/100	72	470/470
RUM-3.30505 (3,4)	3.3	5	5	100/100	78	470/470
RUM-050505 (3,4)	5	5	5	100/100	72	470/470

Notes:

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

Note2: Max Cap Load is tested at nominal input and full resistive load and is defined as the capacitive load that will allow start up in under 1s without damage to the converter

Model Numbering

RU- __ ___/ _ _

- nom. Input Voltage
- Output Voltage
- Protection (3)
- Isolation Option (4)

RUM- __ ___/ _ _

- nom. Input Voltage
- Output Voltage
- Protection (3)
- Isolation Option (4)

Notes:

Note3: standard part is without continuous short circuit protection
add suffix „/P“ for continuous short circuit protection

Note4: add suffix „/H“ for 2kVDC isolation
or add suffix „/HP“ for 2kVDC isolation and continuous short circuit protection

Ordering Examples:

RU-050505/P= 5V Input Voltage, 5V Output Voltage (V1VDC), 5V Output Voltage (V2VDC) with continuous short circuit protection

RUM-3.30505/HP= 12V Input Voltage, 24V Output Voltage (V1VDC), 24V Output Voltage (V2VDC) with 2kVDC isolation and continuous short circuit protection

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

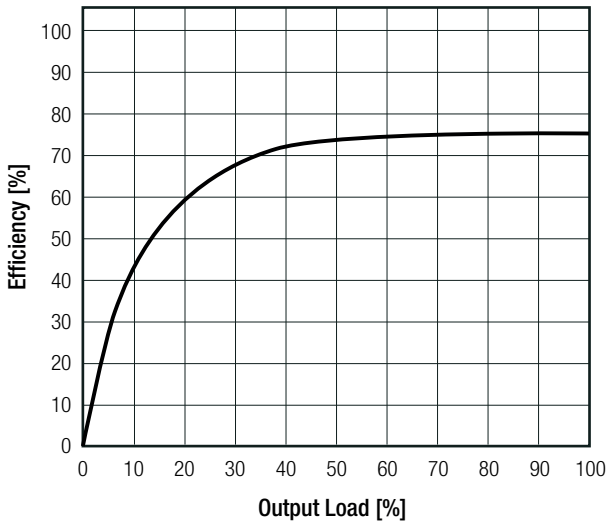
BASIC CHARACTERISTICS

Parameter	Condition		Min.	Typ.	Max.
Input Voltage Range				±10%	
Minimum Load [5]			0%		
Internal Operating Frequency			20kHz	70kHz	105kHz
Output Ripple and Noise	20MHz BW	RU RUM			75mVp-p 100mVp-p

Notes:

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

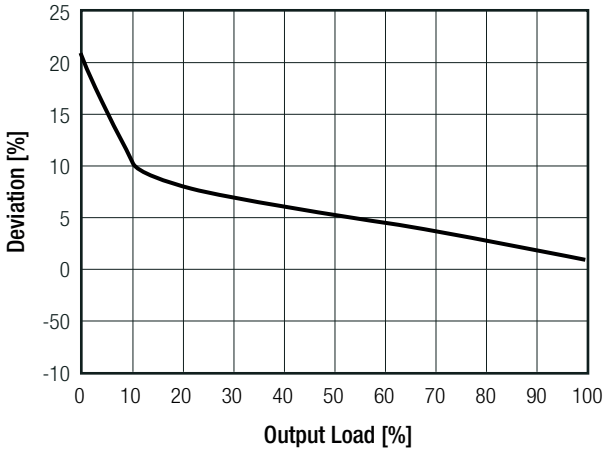
Efficiency vs. Load



REGULATIONS

Parameter	Condition		Value
Output Accuracy			±5.0% max.
Line Regulation	low line to high line		±1.2% of 1.0% Vin typ.
Load Regulation	10% to 100% load	3.3, 5Vout 12, 15, 24Vout	15.0% max. 10.0% max.

Deviation vs. Load



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

PROTECTIONS

Parameter	Type			Value
Short Circuit Protection (SCP)	without suffix with suffix "/P"			1 second continuous
Isolation Voltage (6)	I/P to O/P	without suffix	tested for 1 second rated for 1 minute	1kVDC 500VAC / 60Hz
		with suffix "/H"	tested for 1 second rated for 1 minute	2kVDC 1kVAC / 60Hz
	O/P1 to O/P2		tested for 1 second	1kVDC
Isolation Resistance				10GΩ min.
Isolation Capacitance				20pF min. / 94pF max.
Insulation Grade				basic

Notes:

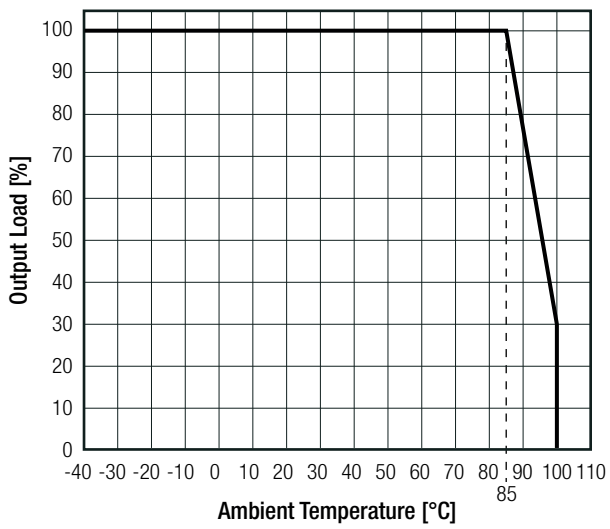
Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note7: Refer to local wiring regulations if input over-current protection is also required. Recommended fuse: T1A slow blow type

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	full load @ free air convection (see graph)		-40°C to + 85°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +85°C	1012 x 10³ hours 151 x 10³ hours

Derating Graph
(@free air convection)



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	1602031	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006 + A2:2013
EAC	RU-AT.49.09571	TP TC 004/2011
RoHs 2+		RoHS-2011/65/EU + AM-2015/863

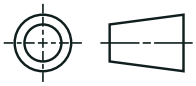
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

DIMENSION AND PHYSICAL CHARACTERISTICS

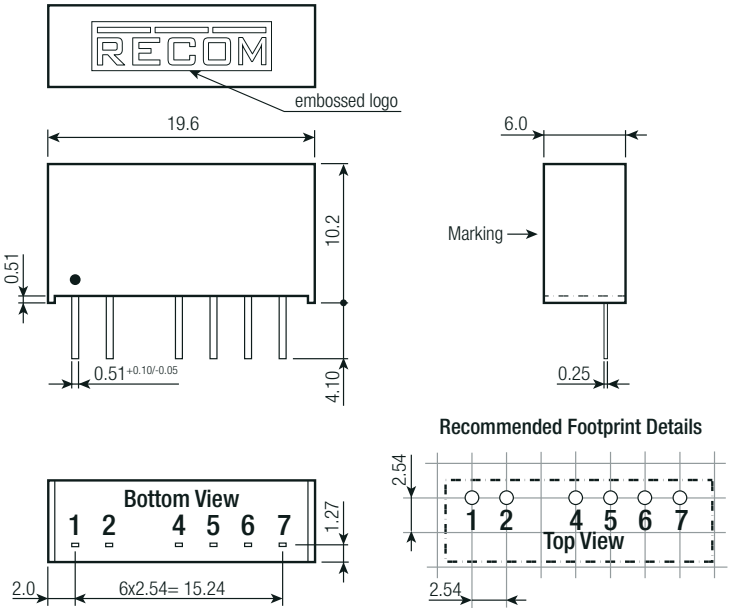
Parameter	Type	Value
Material	case potting PCB	non-conductive black plastic (UL94 V-1) epoxy, (UL94 V-0) FR4, (UL94 V-1)
Package Dimension (LxWxH)	RU RUM	19.65 x 7.0 x 10.2mm 16.55 x 6.0 x 7.7mm
Package Weight		2.7g typ.

Dimension Drawing (mm)

RU



SIP7 Package



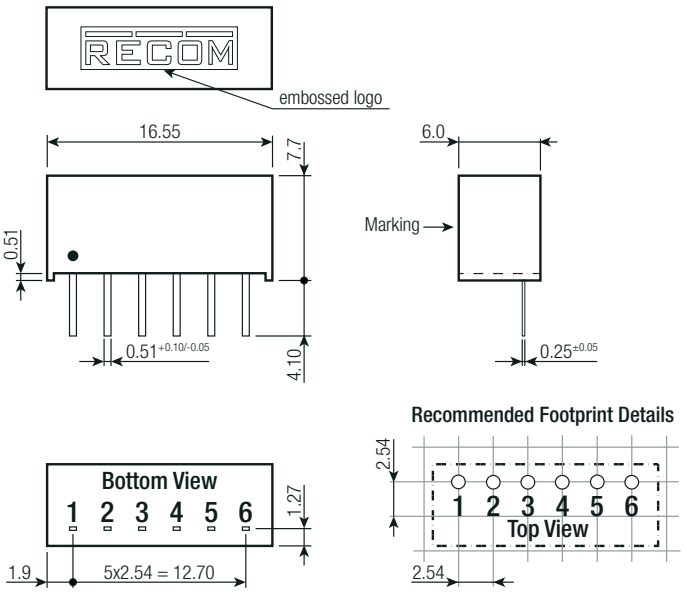
Pinning information

Pin #	Single
1	+Vin
2	-Vin
4	+Vout 1
5	-Vout 1
6	+Vout 2
7	-Vout 2

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

RUM

SIP6 Package



Pinning information

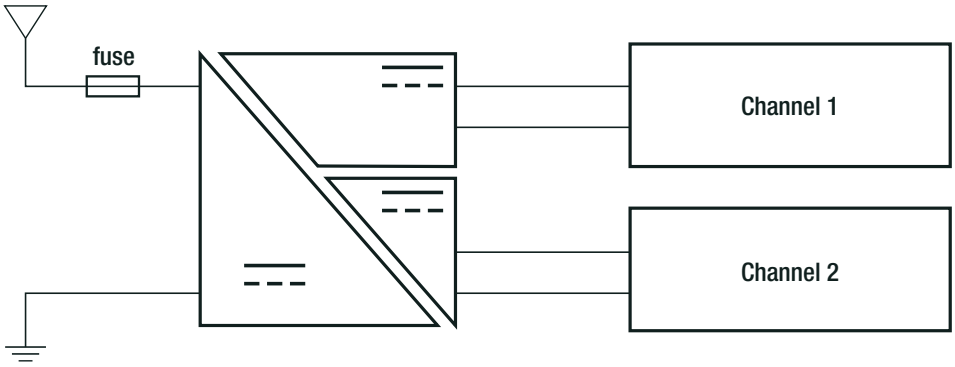
Pin #	Single
1	+Vin
2	-Vin
3	-Vout 1
4	+Vout 1
5	-Vout 2
6	+Vout 2

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)

INSTALLATION AND APPLICATION

Typical Application



PACKAGING INFORMATION

Parameter	Type		Value
Packaging Dimension (LxWxH)	tube		520.0 x 16.0 x 9.0mm
Packaging Quantity	tube	RU RUM	25pcs 30pcs
Storage Temperature Range			-55°C to + 125°C
Storage Humidity			95% RH max.

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