Features

Regulated Converters

- 1kVDC isolation
- DIP24 low profile or SMD package style
- UL94 V-0 package material
- Short circuit protected
- IEC/EN60950-1 certified
- Feedback regulated output

RECOM
DC/DC Converter

RW-S

3 Watt DIP24 (low profile) or SMD Single Output

YEAR 3 warranty

IEC/EN60950-1 certified

Description

The RW-S series with 2:1 input voltage ranges and max. height of 7.0 mm has been designed for the industrial automation markets. They are aimed at applications where pcb-space is at a premium so SMD pinning is also available. The converters supply the full 3 watts without additional heat-sinks over the temperature range -40°C to +80°C (3.3Vout excepted).

Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. (1) [%]	max. Capacitive Load (2) [µF]
RW-053.3S	4.5-9	3.3	650	68	4700
RW-0505S	4.5-9	5	600	69	4700
RW-0509S	4.5-9	9	333	70	3300
RW-0512S	4.5-9	12	250	72	2200
RW-0515S	4.5-9	15	200	73	2200
RW-123.3S	9-18	3.3	650	70	4700
RW-1205S	9-18	5	600	73	4700
RW-1209S	9-18	9	333	78	3300
RW-1212S	9-18	12	250	79	2200
RW-1215S	9-18	15	200	79	2200
RW-243.3S	18-36	3.3	650	75	4700
RW-2405S	18-36	5	600	78	4700
RW-2409S	18-36	9	333	82	3300
RW-2412S	18-36	12	250	84	2200
RW-2415S	18-36	15	200	85	2200
RW-483.3S	36-72	3.3	650	73	4700
RW-4805S	36-72	5	600	78	4700
RW-4809S	36-72	9	333	82	3300
RW-4812S	36-72	12	250	84	2200
RW-4815S	36-72	15	200	85	2200

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 resisitive load

PREFERRED ALTERNATIVES
For new medical applications:
REM3.5E

Model Numbering

RW- ___ ___S /___

- nom. Input Voltage
- Output Voltage
- Case Style (3)

Notes:

Note3: without suffix = standard DIP24 THT package, add suffix „**/SMD**“ for SMD package

Ordering Examples:

RW-2405S	18-36Vin	Single	5Vout	DIP24
RW-0512S/SMD	4.5-9Vin	Single	12Vout	SMD
RW-48015S/SMD	36-72Vin	Single	15Vout	SMD

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	nom. Vin= 5VDC 12VDC 24VDC 48VDC	4.5VDC 9VDC 18VDC 36VDC		9VDC 18VDC 36VDC 72VDC
No Load Power Consumption				250mW
Minimum Load (4)		10%		
Internal Operating Frequency		85kHz	100kHz	
Output Ripple and Noise (5)	20MHz BW			70mVp-p

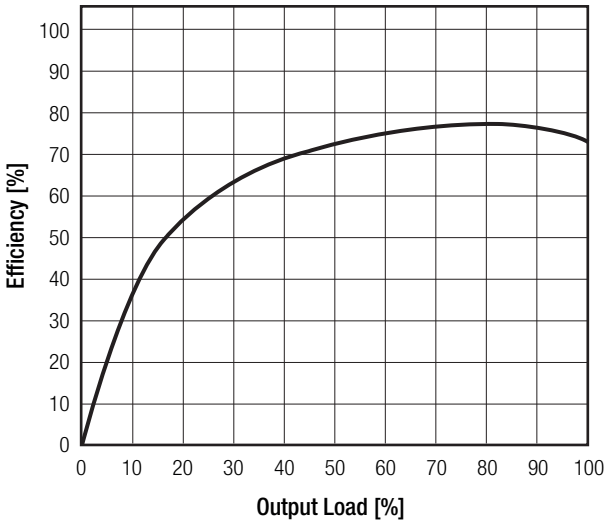
Notes:

Note4: Operation below 10% load won't harm the converter, but specifications may not be met.

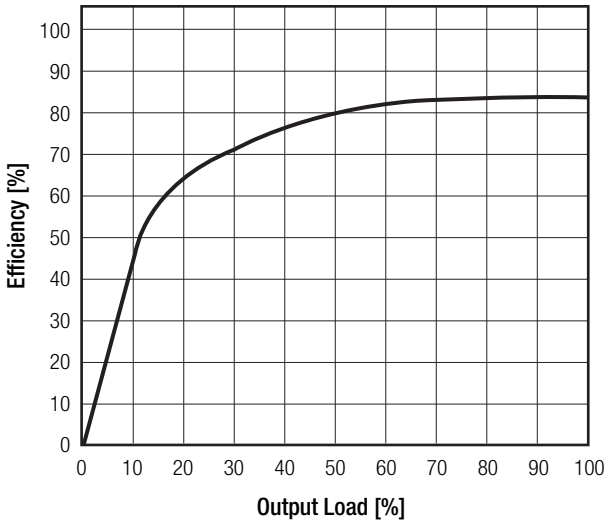
Note5: Measurements are made with a 0.1µF MLCC across output. (low ESR)

Efficiency vs. Load

RW-1205S

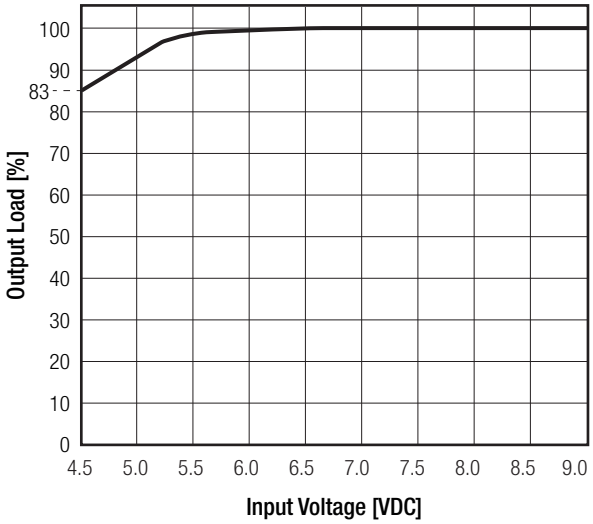


RW-2412S



Input Voltage vs Output Voltage

RW-05xx types



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

REGULATIONS

Parameter	Condition	Value
Output Accuracy		±2.0% max.
Line Regulation		±0.2% typ.
Load Regulation	10% to 100% load	0.5% typ.

PROTECTIONS

Parameter	Type	Value
Short Circuit Protection	below 100mΩ	continuous, auto recovery
Isolation Voltage (6)	tested for 1 second	1kVDC
	rated for 1 minute	500VAC/60Hz
Isolation Resistance		1GΩ min.
Isolation Capacitance		40pF min./ 60pF max.
Insulation Grade		functional

Notes:

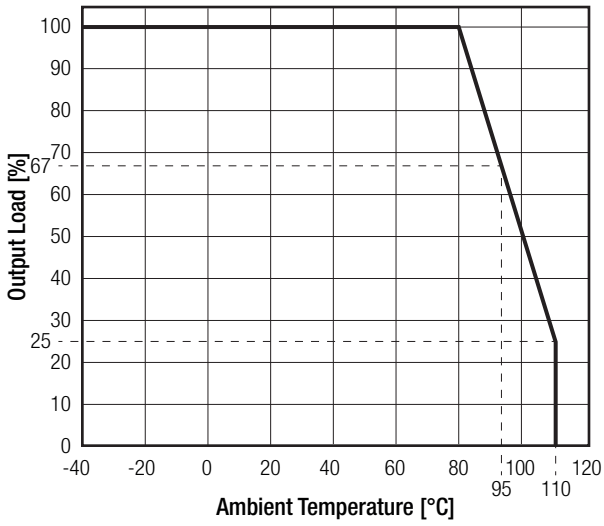
Note6: For repeat Hi-Pot testing, reduce the time and/or the test voltage

Note7: 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	full load @ free air convection (refer to **"Derating Graph"**)		-40°C to +80°C
Operating Altitude			2000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +80°C	1034 x 10^3 hours 168 x 10^3 hours

Derating Graph
(@ Chamber and free air convection)

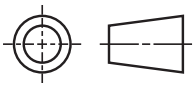


Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

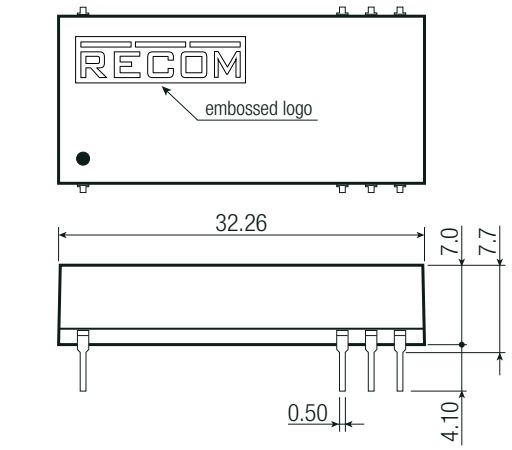
SAFETY AND CERTIFICATIONS		
Certificate Type (Safety)	**Report / File Number**	**Standard**
Information Technology Equipment, General Requirements for Safety	SPCLVD1605077-10	IEC60950-1: 2005, 2nd Edition + A2: 2013 EN60950-1:2006 + A2:2013
Medical Electric Equipment, General Requirements for Safety and Essential Performance	SPC1006048	IEC60601-1:1988 + A2:1995 EN60601-1:1990 + A13 :1996
EAC	RU-AT.AB49.B.09571	TP TC 004/2011
RoHS2		RoHS 2011/65/EU + AM-2015/863

DIMENSION AND PHYSICAL CHARACTERISTICS		
Parameter	**Type**	**Value**
Material	case potting	non-conductive black plastic, (UL94 V-0) epoxy, (UL94 V-0)
Dimension (LxWxH)	DIP24 SMD	32.3 x 14.7 x 7.0mm 32.2 x 14.5 x 10.2mm
Weight	DIP24 SMD	7.0g typ. 7.7g typ.

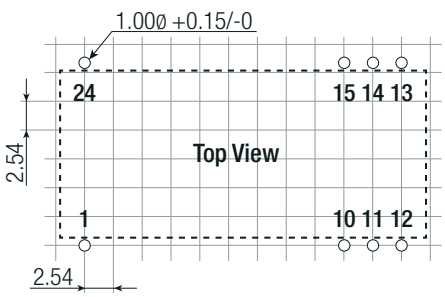
Dimension Drawing (mm)



DIP24 Version



Recommended Footprint Details



Pinning information

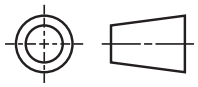
Pin #	Single
1,24	+Vin
10,15	-Vout
11,14	+Vout
12,13	-Vin

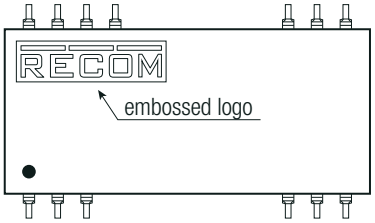
Tolerance: xx.x= ±0.5mm
xx.xx= ±0.25mm

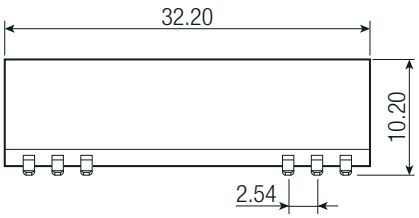
continued on next page

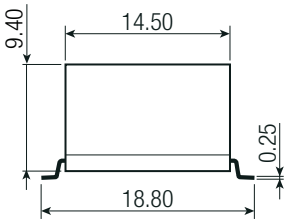
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

SMD Version (/SMD)





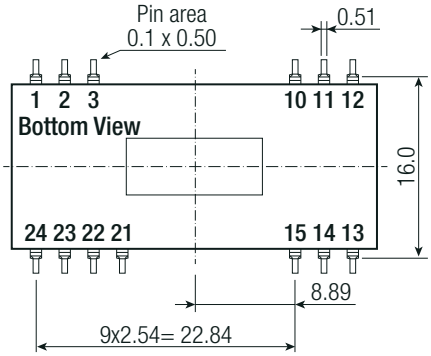




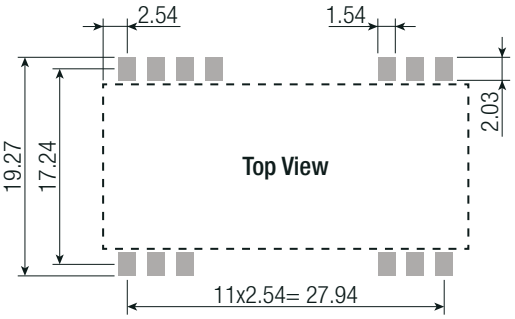
Pinning information

Pin #	Single
1,24	+Vin
10,15	-Vout
11,14	+Vout
12,13	-Vin

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



Recommended Footprint Details



PACKAGING INFORMATION		
Parameter	**Type**	**Value**
Packaging Dimension (LxWxH)	tube	530.0 x 21.0 x 18.0mm
Packaging Quantity		15pcs
Storage Temperature Range		-55°C to +125°C
Storage Humidity	non-condensing	95% RH max.

The product information and specifications may be subject to changes even without prior written notice.The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.