Technical Data Sheet

REC5K-AW Series ◊ Regulated 1" x 1"

5W ◊ Isolated Single Output ◊ 4:1 Input

RECOM DC/DC Converter

FEATURES

- 4kVDC/1sec isolation
- Industry standard 5W 1”x1” package
- Feedback regulated output
- Derates to 110°C ambient temperature
- Wide 4:1 input
- ON/OFF control pin, UVLO, SCP
- 0% minimum load
- 3 years warranty



Dimensions (LxWxH): 25.4 x 25.4 x 10.0mm (1.00 x 1.00 x 0.39 inch)
12.0g (0.03 lbs)

APPLICATIONS



SAFETY & EMC

RoHS² compliant 10 from 10 | Reach compliant | IECEE CB SCHEME | c UL us E224736

DESCRIPTION

This series offers a 4kVDC/1sec isolation making it ideal for both industrial, medical, and other sophisticated high end applications. The compact 1”x1” non-conductive plastic package ensures high power density without compromising performance, operating with derating up to 110°C. Short circuit protection, undervoltage lockout, and remote on/off control is standard, and the converter is certified according to UL/IEC/EN62368-1.

SELECTION GUIDE

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current max. [mA]	Efficiency typ. (1) [%]	max. Capacitive Load (2) [µF]
REC5K-2405SAW/H4	9-36	5	1000	77	3000

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

MODEL NUMBERING

REC5K-24 05 S AW/H4

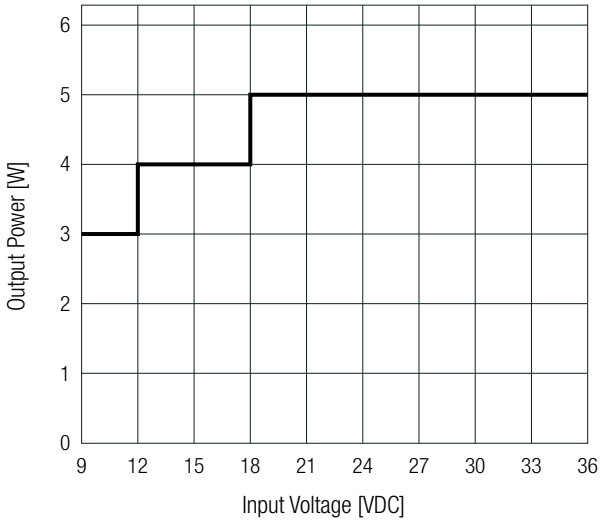
- 24 — nom. Input Voltage
- 05 — nom. Output Voltage
- S — Single
- AW — Wide Input Range
- H4 — 4kVDC Isolation

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BASIC CHARACTERISTICS (measured @ T_{AMB}= 25°C, nom. V_{IN}, full load and after warm-up unless otherwise stated)				
Parameter	**Condition**	**Min.**	**Typ.**	**Max.**
Input Voltage Range	nom. V_{IN}= 24VDC	9VDC		36VDC
Under Voltage Lockout	DC-DC ON	8.2VDC		8.8VDC
	DC-DC OFF	5.4VDC		6.0VDC
Input Current		240mA		270mA
Quiescent Current				20mA
Minimum Load		0%		
Startup time				50ms
ON/OFF CTRL	DC-DC ON	Open or V_{CTRL}>1.5VDC		
	DC-DC OFF	Short to -V_{IN} or <1.5VDC		
Input Current on CTRL Pin	DC-DC ON			1mA
Standby Current	DC-DC OFF		3mA	6mA
Internal Operating Frequency				400kHz
Output Ripple and Noise (3)	20MHz BW			240mVp-p

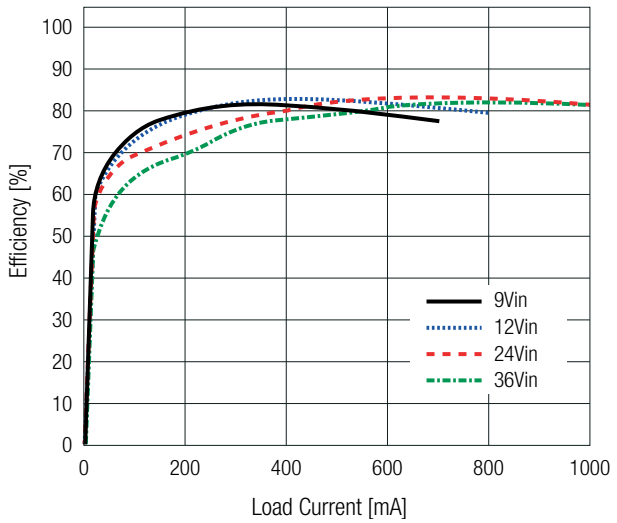
Note3: Measurements are made with a 0.1µF MLCC across output. (low ESR)

Line Derating

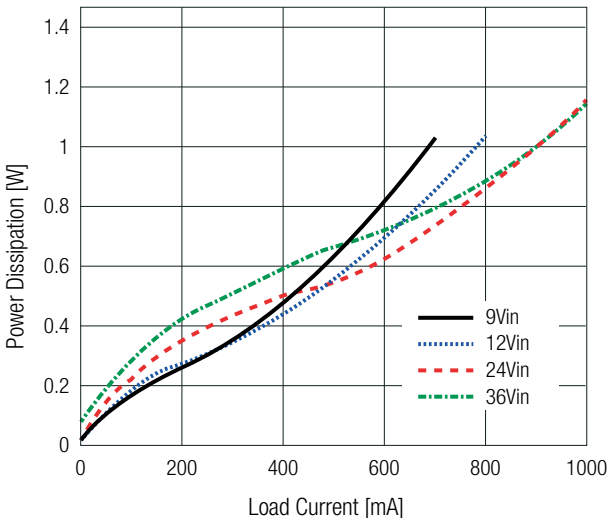


REC5K-2405SAW/H4

Efficiency vs. Output Load



Power Dissipation vs. Output Load

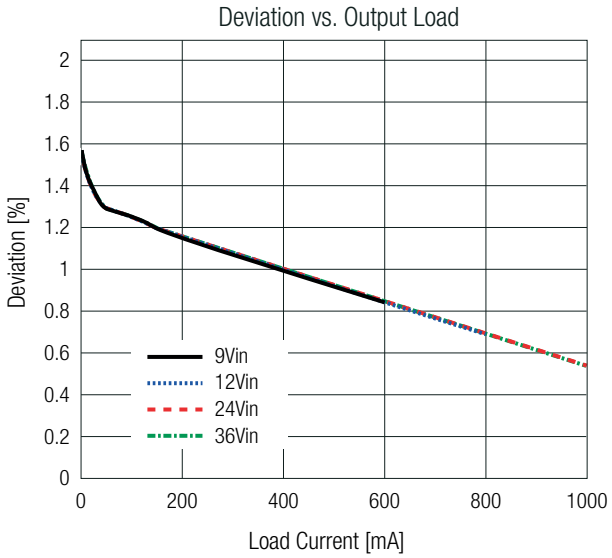


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REGULATIONS

Parameter	Condition	Value
Output Accuracy		±2.5% typ.
Line Regulation	low line to high line, full load	±2.0% max.
Load Regulation (4)	10% to 100% load	2.0% max.

Note4: Operation below 10% load will not harm the converter, but specifications may not be met



PROTECTIONS

Parameter	Condition		Value
Short Circuit Protection (SCP)			hiccup mode, auto recovery
Short Circuit Input Current	nom. V_{IN}= 24VDC		120mA max.
Isolation Voltage (5)	I/P to O/P	tested for 1 second	4kVDC
		rated for 1 minute	2kVAC/50Hz
Isolation Resistance	I/P to O/P, V_{ISO}= 500VDC		1GΩ min.
Isolation Capacitance	I/P to O/P, 100kHz/0.1V		50pF max.
Insulation Grade	according to 62368-1		functional

Note5: For repeat Hi-Pot testing, reduce the time and/or the test voltage
Note6: Refer to local safety regulations if input over-current protections is also required. Recommended fuse: slow blow type

ENVIRONMENTAL

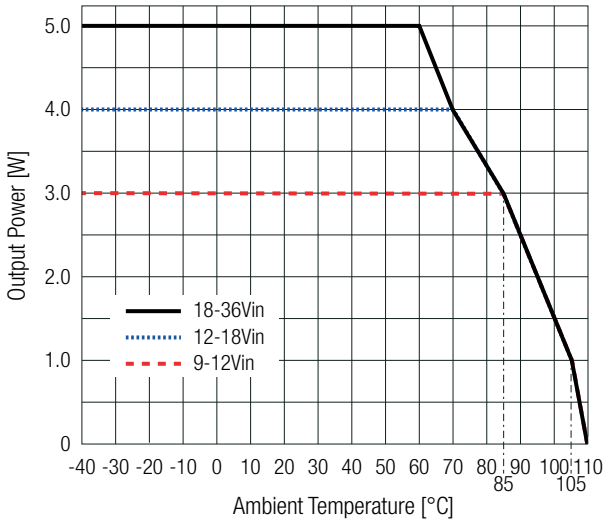
Parameter	Condition		Value
Operating Temperature Range	with derating, refer to **„Derating Graph“**		-40°C to +110°C
Maximum Case Temperature			+125°C
Operating Altitude			5000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	T_{AMB}= +25°C	1408 x 10^3 hours
		T_{AMB}= +60°C	684 x 10^3 hours

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ENVIRONMENTAL

Derating Graph

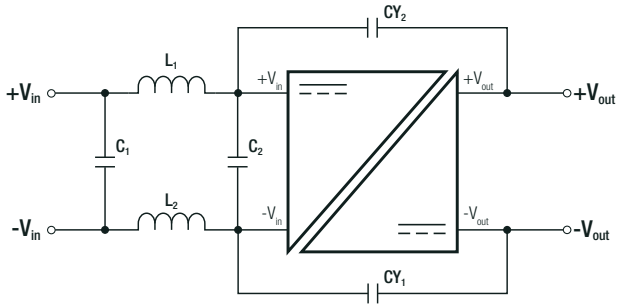
(@ Chamber and natural convection 0.1m/s)



SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report Number	Standard
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition	E491408-A6023-UL	UL62368-1:2019 3rd Edition
		CAN/CSA-C22.2 No. 62368-1-19 3rd Edition
Audio/Video, information and communication technology equipment - Part1: Safety requirements 3rd Edition (CB Scheme)	085-220181201-000	IEC62368-1:2018 3rd Edition
		EN IEC 62368-1:2020+A11:2020
RoHS2		RoHS 2011/65/EU + AM2015/863
EMC Compliance	**Condition**	**Standard /Criterion**
Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements	with external filter	EN55032, Class B

EMC Filtering Suggestions according to EN55032



Component List Class B

L_1/ L_2	C_1/ C_2	CY_1/CY_2
22µH; RLS-226	22µF	2nF

DIMENSION & PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	black plastic, (UL94 V-0)
	potting	PU, (UL94 V-0)
	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)		25.4 x 25.4 x 10.0mm 1.00 x 1.00 x 0.39 inch
Weight		12g typ. 0.03 lbs

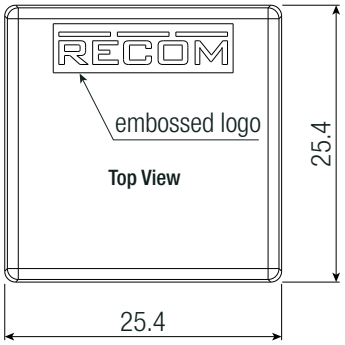
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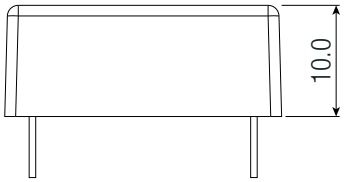
REC5K-AW Series ◊ Regulated 1" x 1"

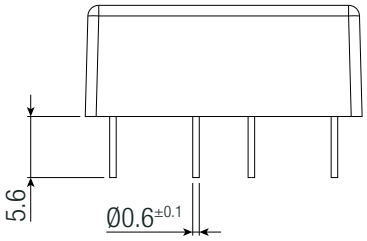
5W ◊ Isolated Single Output ◊ 4:1 Input

DIMENSION & PHYSICAL CHARACTERISTICS

Dimension Drawing (mm)





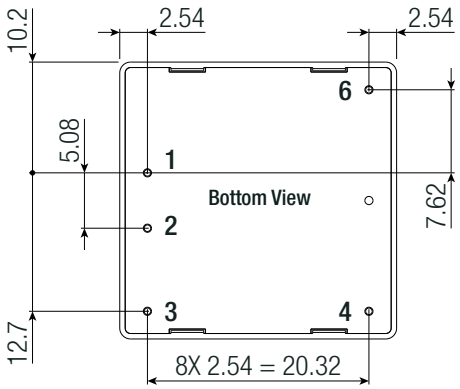


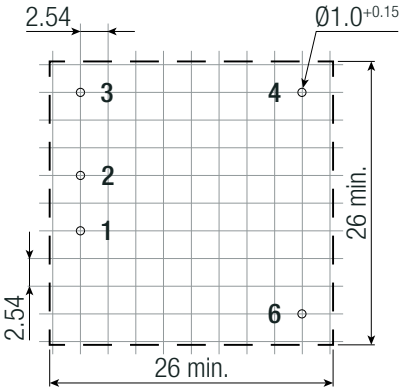
Pinning Information

Pin #	Function
1	+Vin
2	-Vin
3	CTRL
4	-Vout
6	+Vout

NC= No Connection

Recommended Footprint Details





Tolerances:
x.x= ±0.5mm
x.xx= ±0.25mm

PACKAGING INFORMATION

Parameter	Type	Value
Packaging Dimension (LxWxH)	tube	520.9 x 27.5 x 19.3mm
Packaging Quantity		18pcs
Storage Temperature Range		-50°C to +125°C
Storage Humidity	non-condensing	95% RH max.

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