

REC5K-AW Series ◇ Regulated 1" x 1"

5W ◇ Isolated Single Output ◇ 4:1 Input

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



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

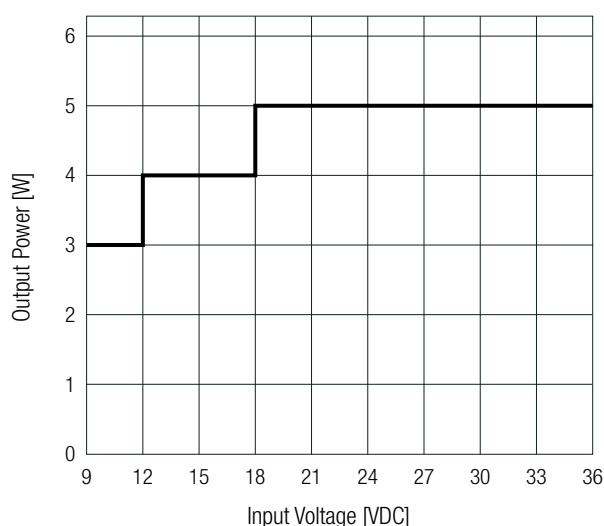


REC5K-AW Series ◇ Regulated 1" x 1"

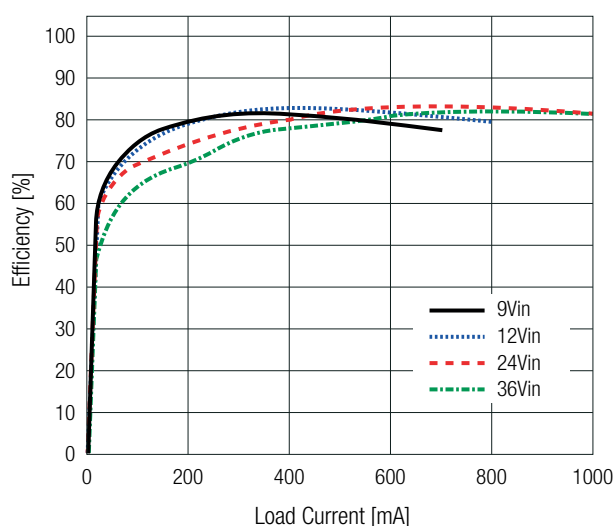
5W ◇ Isolated Single Output ◇ 4:1 Input

BASIC CHARACTERISTICS (measured @ $T_{AMB} = 25^{\circ}\text{C}$, nom. V_{IN} , full load and after warm-up unless otherwise stated)

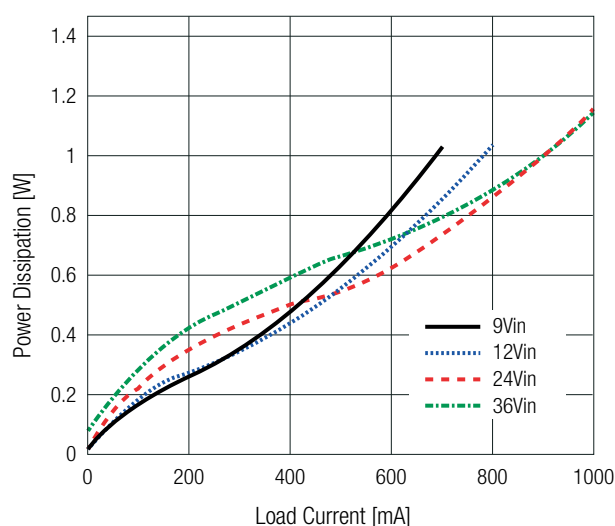
Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range	nom. $V_{IN} = 24\text{VDC}$	9VDC		36VDC
Under Voltage Lockout	DC-DC ON	8.2VDC		8.8VDC
	DC-DC OFF	5.4VDC		6.0VDC
Input Current		240mA		270mA
Quiescent Current				20mA
Minimum Load		0%		
Startup time				50ms
ON/OFF CTRL	DC-DC ON	Open or $V_{CTRL} > 1.5\text{VDC}$		
	DC-DC OFF	Short to $-V_{IN}$ or $< 1.5\text{VDC}$		
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 0.1 μF MLCC across output. (low ESR)**Line Derating****REC5K-2405SAW/H4**

Efficiency vs. Output Load



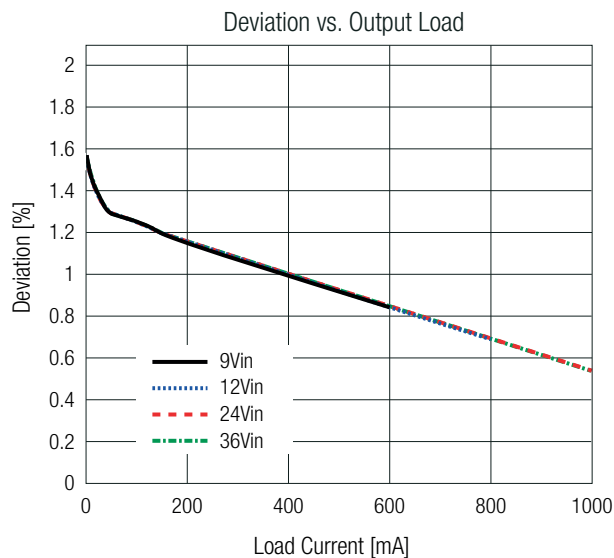
Power Dissipation vs. Output Load



REC5K-AW Series ◇ Regulated 1" x 1"**5W ◇ Isolated Single Output ◇ 4:1 Input****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} = +65°C 684 x 10 ³ hours

Technical Data Sheet

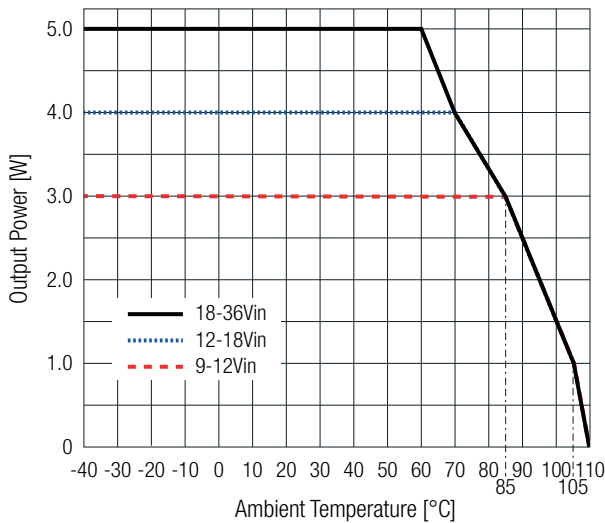
REC5K-AW Series ♦ Regulated 1" x 1"

5W ♦ Isolated Single Output ♦ 4:1 Input



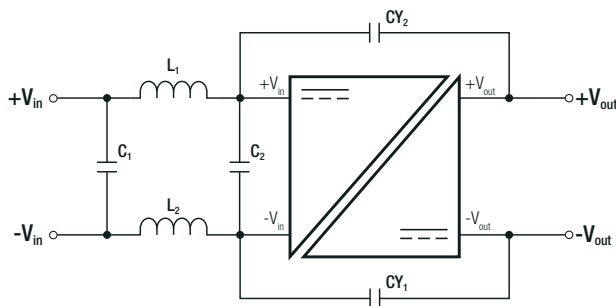
ENVIRONMENTAL

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

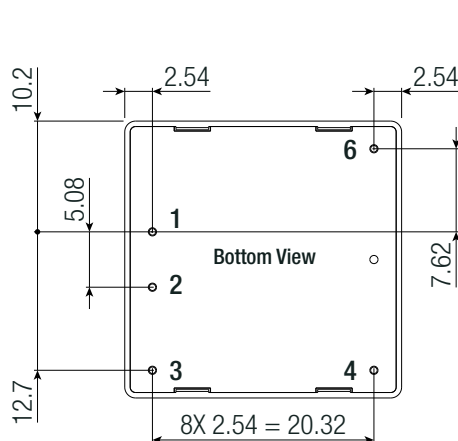
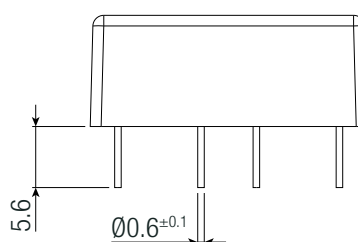
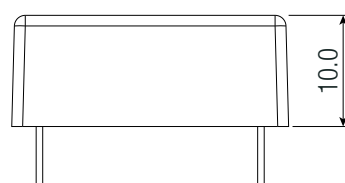
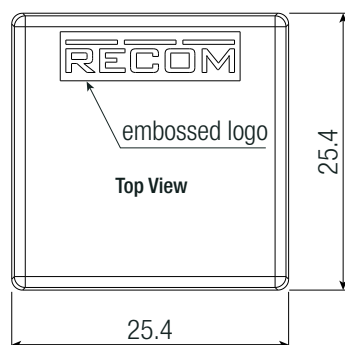
DIMENSION & PHYSICAL CHARACTERISTICS		
Parameter	Type	Value
Material	case	black plastic, (UL94 V-0)
	potting	PU, (UL94 V-0)
	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)		25.4 x 25.4 x 10.0mm
		1.00 x 1.00 x 0.39 inch
Weight		12g typ.
		0.03 lbs

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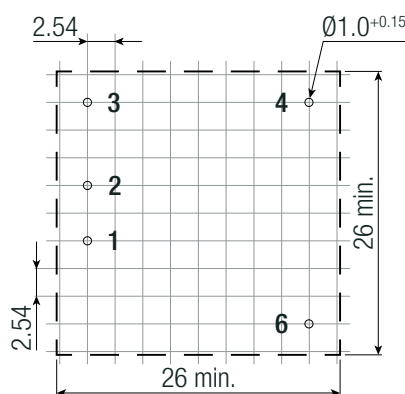
5W ◇ Isolated Single Output ◇ 4:1 Input

DIMENSION & PHYSICAL CHARACTERISTICS

Dimension Drawing (mm)



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.

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.