

# REC5K-AW Series ◇ Regulated 1" x 1"

5W ◇ Isolated Single Output ◇ 4:1 Input

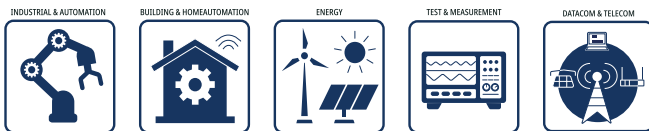
## FEATURES

- 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. <sup>(1)</sup> [%]	max. Capacitive Load <sup>(2)</sup> [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 $\diamond$ Regulated 1" x 1"

## 5W $\diamond$ Isolated Single Output $\diamond$ 4:1 Input

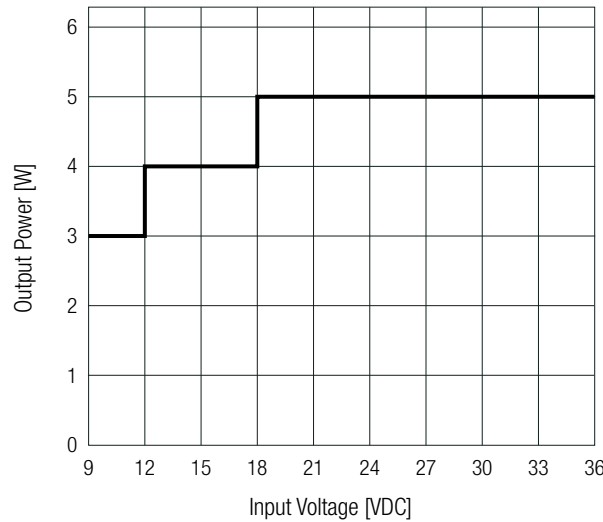


**BASIC CHARACTERISTICS** (measured @  $T_{AMB}= 25^{\circ}C$ , nom.  $V_{IN}$ , full load and after warm-up unless otherwise stated)

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 <sup>(3)</sup>	20MHz BW			240mVp-p

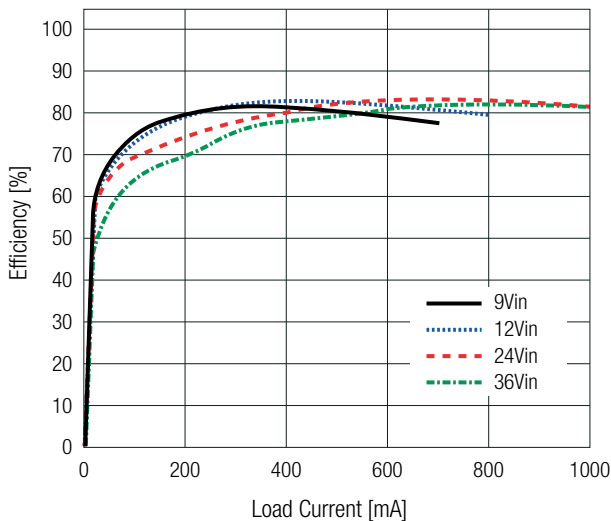
Note3: Measurements are made with a 0.1  $\mu F$  MLCC across output. (low ESR)

### Line Derating

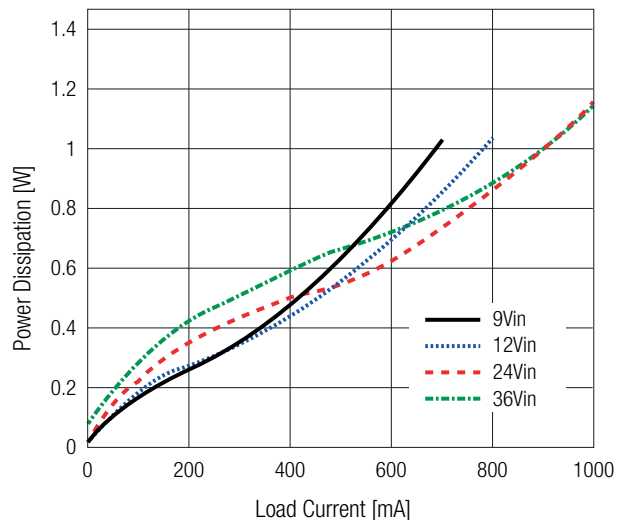


### REC5K-2405SAW/H4

Efficiency vs. Output Load



Power Dissipation vs. Output Load



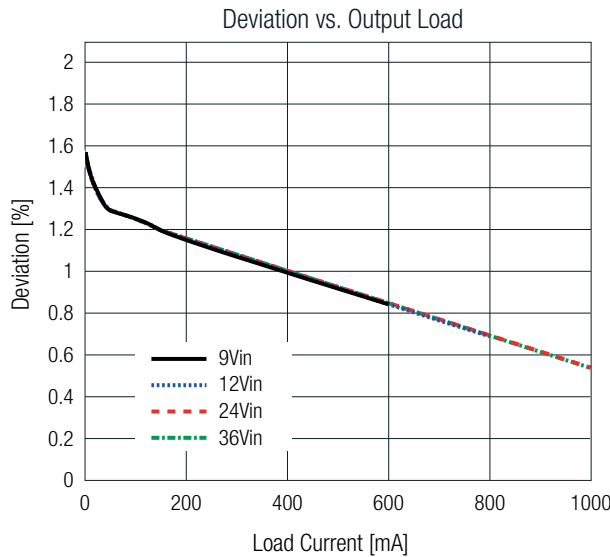
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## 5W $\diamond$ Isolated Single Output $\diamond$ 4:1 Input

### REGULATIONS

Parameter	Condition	Value
Output Accuracy		$\pm 2.5\%$ typ.
Line Regulation	low line to high line, full load	$\pm 2.0\%$ max.
Load Regulation <sup>(4)</sup>	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 <sup>(5)</sup>	I/P to O/P	tested for 1 second	4kVDC
		rated for 1 minute	2kVAC/50Hz
Isolation Resistance	I/P to O/P, $V_{ISO} = 500VDC$	1G $\Omega$ 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

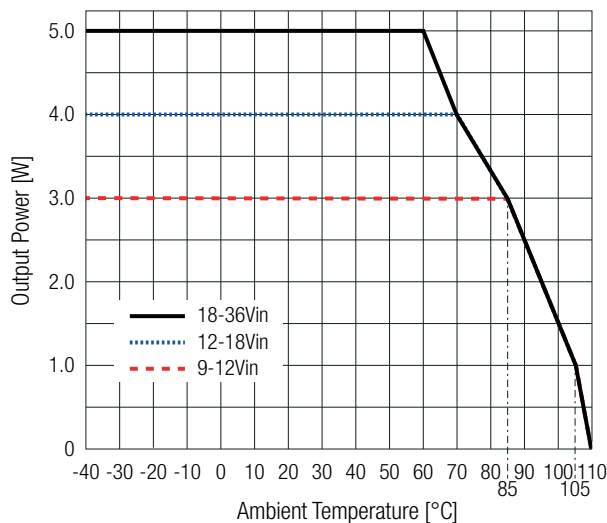
### ENVIRONMENTAL

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.	$T_{AMB} = +25^{\circ}C$	1408 x 10 <sup>3</sup> hours
		$T_{AMB} = +60^{\circ}C$	684 x 10 <sup>3</sup> hours

### ENVIRONMENTAL

#### Derating Graph

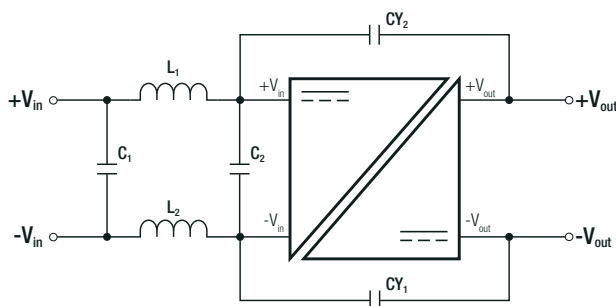
(@ Chamber and natural convection 0.1m/s)



### 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

$L_1 / L_2$	$C_1 / C_2$	$CY_1 / CY_2$
22 $\mu$ H; <a href="#">RLS-226</a>	22 $\mu$ F	2nF

### DIMENSION & PHYSICAL CHARACTERISTICS

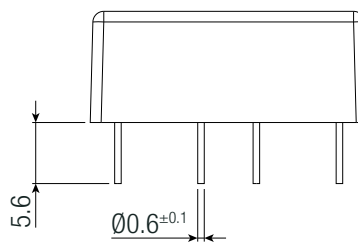
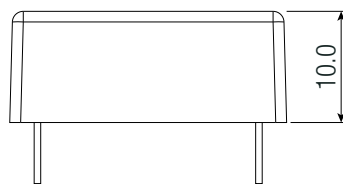
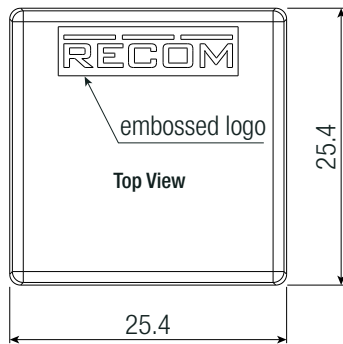
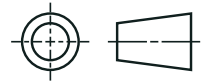
Parameter	Type	Value
Material	case	black plastic, (UL94 V-0)
	potting	PU, (UL94 V-0)
	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)		25.4 x 25.4 x 10.0mm 1.00 x 1.00 x 0.39 inch
Weight		12g typ. 0.03 lbs

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5W  $\diamond$  Isolated Single Output  $\diamond$  4:1 Input

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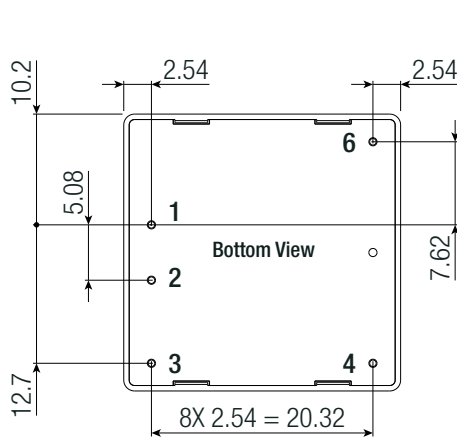
Dimension Drawing (mm)



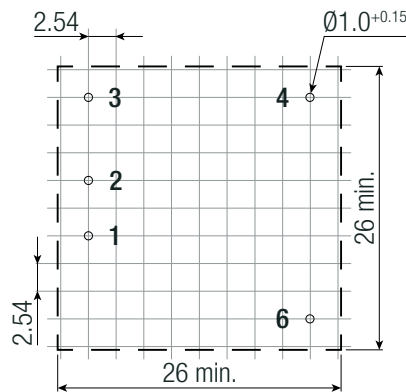
### Pinning Information

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

NC= No Connection



### Recommended Footprint Details



Tolerances:  
 x.x=  $\pm 0.5$ mm  
 x.xx=  $\pm 0.25$ mm

## 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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