

Features

- 2:1 input voltage range
- Efficiency up to 81%
- EMI Class A without external components
- Continuous short circuit protection
- No minimum load required

Regulated Converters

REC3A

**3 Watt
DIP24
Package**



Description

The REC3A series is cost efficient, general purpose isolated DC/DC converter containing a built in Class A EMC filter. The converter is designed to run from industry standard 24V or 5V unregulated supplies and is typically used to provide an isolated, regulated, short circuit protected output. Under Voltage Lockout is available as an option. These converters are designed for industrial applications, can drive high capacitive loads and operate over the full -40°C to +85°C temperature range without derating.

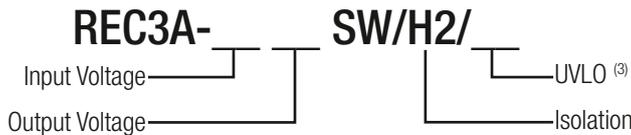
Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA]	Efficiency typ. ⁽¹⁾ [%]	max. Capacitive Load ⁽²⁾ [μF]
REC3A-0505SW/H2 ⁽³⁾	4.5-9	5	600	76	6800
REC3A-2405SW/H2 ⁽³⁾	18-36	5	600	81	6800

Notes:

- Note1: Efficiency is test by nominal input and full load at +25°C ambient
 Note2: Max Cap Load is test by nominal input and full resistive load

Model Numbering



Ordering Examples:

- REC3A-0505SW/H2: Single Output, 4.5-9Vin (2:1) and 5Vout, 2kVDC Isolation
 REC3A-2405SW/H2/X1: Single Output, 18-36Vin (2:1) and 5Vout, 2kVDC Isolation, UVLO Option

Notes:

- Note3: without suffix is without Under Voltage Lockout Option
 add suffix "/X1" for optional Under Voltage Lockout



UL60950 certified
 UL62368 certified
 IEC/EN62368-1 certified

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

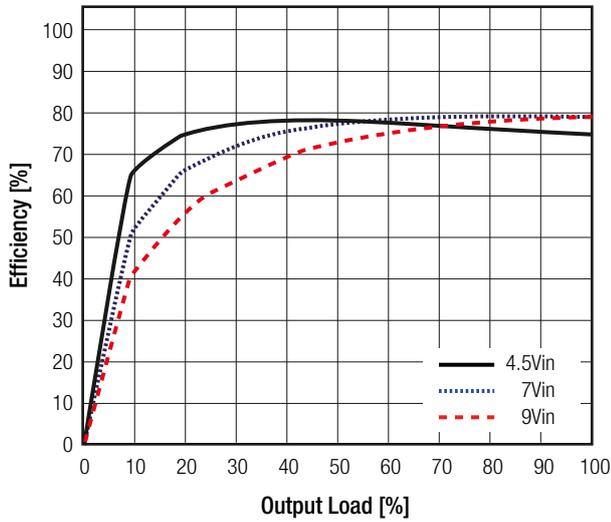
BASIC CHARACTERISTICS					
Parameter	Condition		Min.	Typ.	Max.
Internal Input Filter					Pi Type
Input Voltage Range	nom. Vin = 5V nom. Vin = 24V		4.5VDC 18VDC		9VDC 36VDC
Input Surge Voltage	Vin = 5V Vin = 24V				10VDC 50VDC
Quiescent Current	Vin = 5V Vin = 24V			35mA 12mA	
Start-up Time				10ms	
Internal Operating Frequency				120kHz	
Minimum Load			0%		
Output Ripple and Noise	measured with 20MHz bandwidth and a 0.47μF ceramic capacitor				50mVp-p
Under Voltage Lockout ⁽³⁾	Vin = 5V	DC-DC ON DC-DC OFF		3.0VDC	3.2VDC
	Vin = 24V	DC-DC ON DC-DC OFF		15.6VDC	16.5VDC

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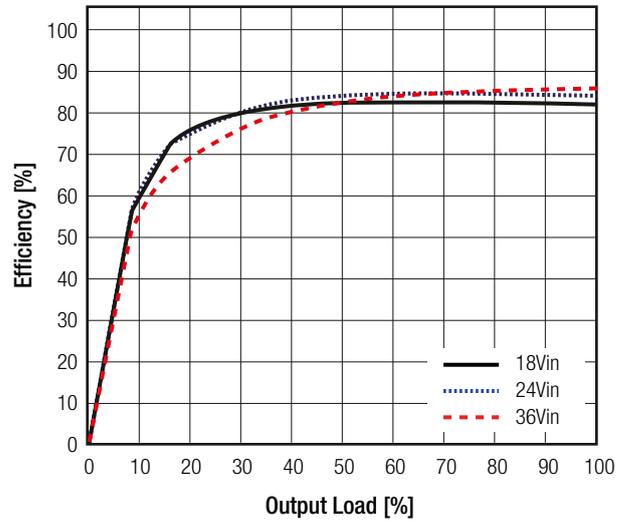
Specifications (measured @ Ta= 25°C, nom. Vin and full load unless otherwise stated)

Efficiency vs. Load

REC3A-0505SW/H2



REC3A-2405SW/H2

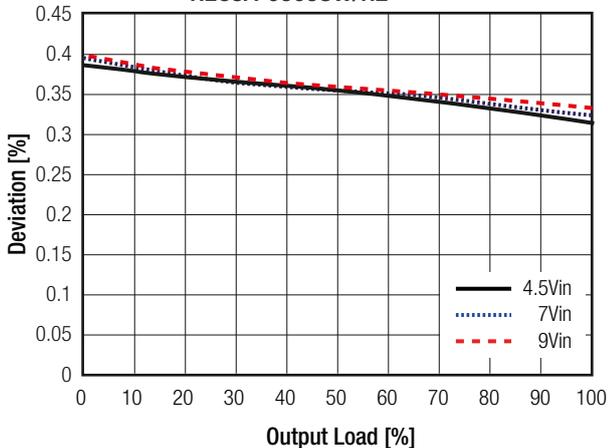


REGULATION

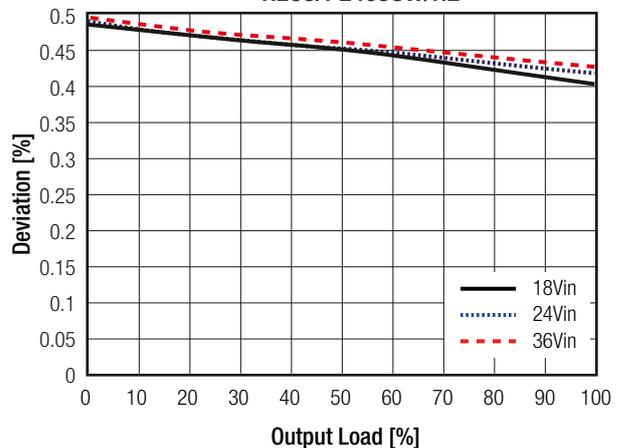
Parameter	Condition	Values
Output Accuracy		±2.0% typ.
Line Regulation	low line to high line	±0.3% max.
Load Regulation	10% to 100% load	0.6% max.

Deviation vs. Load

REC3A-0505SW/H2



REC3A-2405SW/H2



PROTECTION

Parameter	Condition	Value
Short Circuit Protection (SCP)		continuous, automatic recovery
Over Load Protection (OLP)		140% min. to 155% typ.
Isolation Voltage ⁽⁴⁾	tested for 1second	2kVDC
Isolation Capacitance		2200pF max.
Isolation Resistance		1GΩ min.
Insulation Grade		functional

Notes:

Note4: For repeat Hi-Pot testing, reduce the time and/or the test voltage

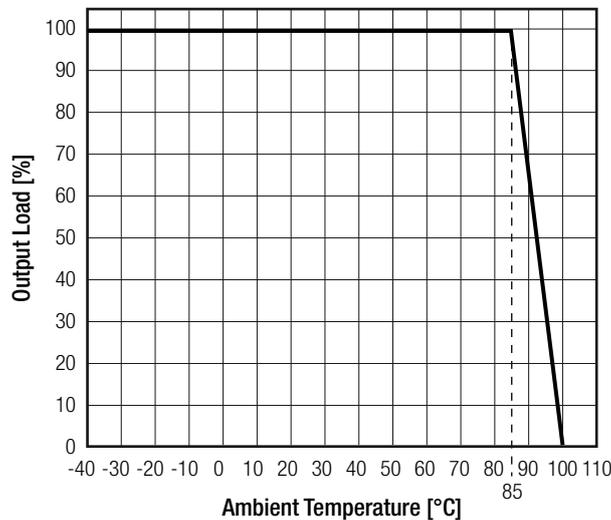
Specifications (measured @ Ta= 25°C, nom. Vin and full load unless otherwise stated)

ENVIRONMENTAL

Parameter	Condition	Value	
Operating Temperature Range	without derating	-40°C to +85°C	
	with derating	-40°C to +100°C	
Maximum Case Temperature		+105°C	
Temperatur Coefficient		±0.05%/K	
Thermal Impedance		20K/W	
Operating Altitude		5000m	
Operating Humidity	non-condensing	5% to 95% RH	
Pollution Degree		PD2	
MTBF	according to MIL-HDBK-217F, G.B.	+25°C	2429 x 10 ³ h
		+85°C	593 x 10 ³ h

Derating Graph

(@ Chamber and natural convection 0.1 m/s)



SAFETY AND CERTIFICATIONS

Certificate Type	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	E224736	UL60950-1, 2nd Edition, 2014 CSA C22.2 No. 60950-1, 2nd Edition, 2014
Audio/Video, information and communication technology equipment	E224736	UL62368-1, 2nd Edition, 2014 CSA C22.2 No. 62368-1, 2014
Audio/video, information and communication technology equipment (CB Scheme)	L0339m35-CB-1-B1	IEC62368, 2nd Edition, 2014 EN62368, 1st Edition, 2014
EAC	RU-AT.49.09571	TP TC 004/2011
RoHs 2		RoHS 10/10, 2011/65/EU + AM-2015/863

EMC Compliance	Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement ⁽⁵⁾	with external components	EN55032, Class B
ESD Electrostatic discharge immunity test	Air ±8kV and Contact ±4kV	EN61000-4-2, Criteria A
Radiated, radio-frequency, electromagnetic field immunity test	3 V/m	EN61000-4-3, Criteria A
Fast Transient and Burst Immunity	±0.5kV	EN61000-4-4, Criteria A
Surge Immunity	±0.5kV	EN61000-4-5, Criteria A
Immunity to conducted disturbances, induced by radio-frequency fields	3 Vr.m.s	EN61000-4-6, Criteria A
Power Magnetic Field Immunity	50Hz, 1A/m	EN61000-4-8, Criteria A

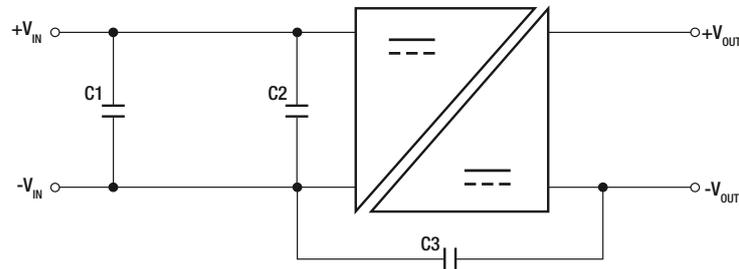
Notes:

Note5: Meets Class A without external components. For Class B, please see filter suggestion below:

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

EMC Filtering Suggestions according to EN55032



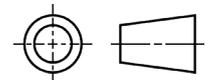
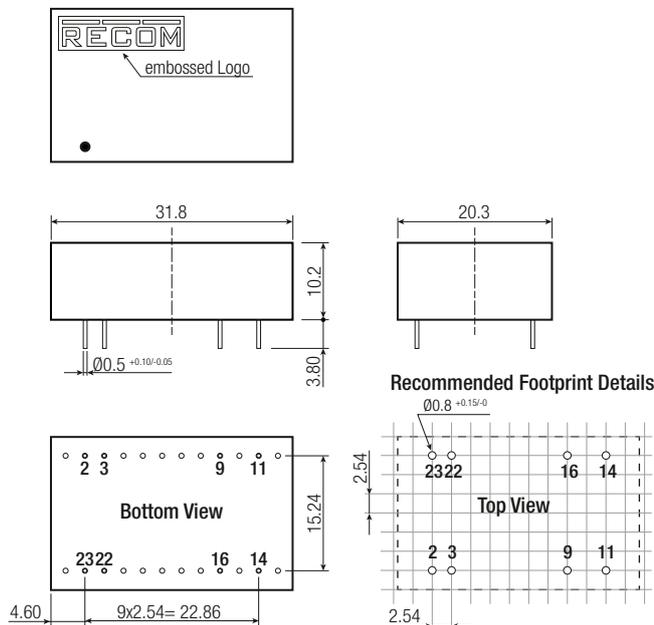
Component List Class B

MODEL	C1	C2	C3
REC3A-0505SW/H2	22µF/50V	22µF/50V	N/A
REC3A-2405SW/H2	22µF/100V	22µF/100V	1000pF/3kV

DIMENSION and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	case	non-conductive black plastic (UL94V-0)
	base	non-conductive black plastic (UL94V-0)
	potting	epoxy (UL94V-0)
Dimension (LxWxH)		31.8 x 20.3 x 10.2mm
Weight		13.0g

Dimension Drawing (mm)



Pin Connections

Pin #	Function
2, 3	-Vin
9	NC
11	NC
14	+Vout
16	-Vout
22, 23	+Vin

Tolerance: X.X ±0.5mm
X.XX ±0.25mm

PACKAGING INFORMATION

Packaging Dimension (LxWxH)	Tube	520 x 22.7 x 18.3mm
Packaging Quantity		15pcs
Storage Temperature Range		-55°C to +125°C

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.

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