

## Features

### Regulated Converters

- UL-60950-1 / CSA C22.2 certified
- 5W DIP Package
- 4kVDC & 6kVDC Isolation
- Regulated Output
- Continuous Short Circuit Protection Auto-Restarting
- Wide Input 2:1 & 4:1
- UL94V-0 Package Material
- Cost Effective
- 100% Burned In
- Efficiency to 86%

### Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
REC5-xx3.3SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	3.3	1200	75-77
REC5-xx05SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	5	1000	79-81
REC5-xx09SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	9	556	82-83
REC5-xx12SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	12	420	84-85
REC5-xx15SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	15	340	85-86
REC5-xx05DRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	±5	±500	79-81
REC5-xx12DRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	±12	±210	84-85
REC5-xx15DRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	±15	±170	85-86
REC5-xx3.3SRWZ (H4/H6)	9 - 36**, 18 - 72	3.3	1200	75-76
REC5-xx05SRWZ (H4/H6)	9 - 36**, 18 - 72	5	1000	81-82
REC5-xx09SRWZ (H4/H6)	9 - 36**, 18 - 72	9	556	82-83
REC5-xx12SRWZ (H4/H6)	9 - 36**, 18 - 72	12	420	83-84
REC5-xx15SRWZ (H4/H6)	9 - 36**, 18 - 72	15	340	84-85
REC5-xx05DRWZ (H4/H6)	9 - 36**, 18 - 72	±5	±500	81-82
REC5-xx12DRWZ (H4/H6)	9 - 36**, 18 - 72	±12	±210	82-83
REC5-xx15DRWZ (H4/H6)	9 - 36**, 18 - 72	±15	±170	84-85

**2:1 Input (REC5-S/DRWH4/H6)**      **4:1 Input (REC5-S/DRWZ(H4/H6))**  
 xx = 9-18Vin = 12                      xx = 9-36Vin = 24  
 xx = 18-36Vin = 24                    xx = 18-72Vin = 48  
 xx = 36-72Vin = 48

\* add suffix "/H4" for 4kVDC isolation and "/H6" for 6kVDC isolation

add suffix "/A" or "/C" for Pinning, see next page

add suffix "/M" for metal case

e.g. REC5-xxxxSRW(Z)H4/A/M = 4kVDC isol. / Pinout "A" / metal case

\*\* 24V 4:1 Wide Range Input Types (REC5-24xxS/DRWZ(H4/H6)) should be derated while 9 Vin : 3.3Vout / 1100mA, 5Vout / 900mA.

### Notes :

1. If the options "/M" for metal case and "/SMD" for SMD pinout are combined the maximum allowed isolation voltage is 2kVDC because of the shorter distances between pins and metal-case so only available SMD-option in metal-case is "/H2". DIP-24 through-hole case and SMD-plastic case are not affected and offer the desired isolation barriers of 4kVDC for "/H4" option and 6kVDC for "/H6".

### Description

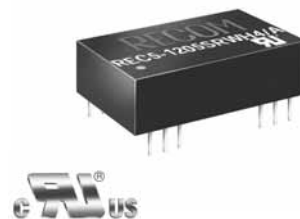
This series offers high isolation of 4kVDC (= option "H4") or 6kVDC (= option "H6") making it ideal for medical applications and other sophisticated industrial applications. UL-1950 approval of this series is applied for. Packaging can be either DIP-24 non-conductive plastic or 5-side-shielded DIP24 metal case (= option "M") as well as DIP24-SMD case (= option "SMD"). For all the above variants, 2 industry-standard-pinouts (= option "A" or "C") are available.

## ECONOLINE

DC/DC-Converter

# REC5-S\_DRW/H4, H6 Series

**5 Watt  
DIP24 / SMD  
Single &  
Dual Output**

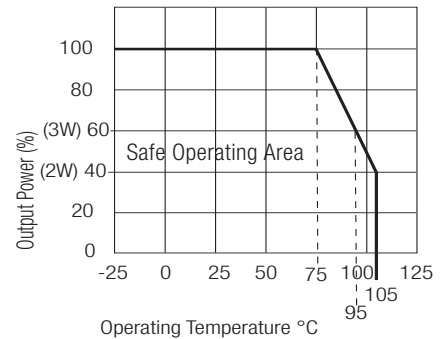


# RECOM

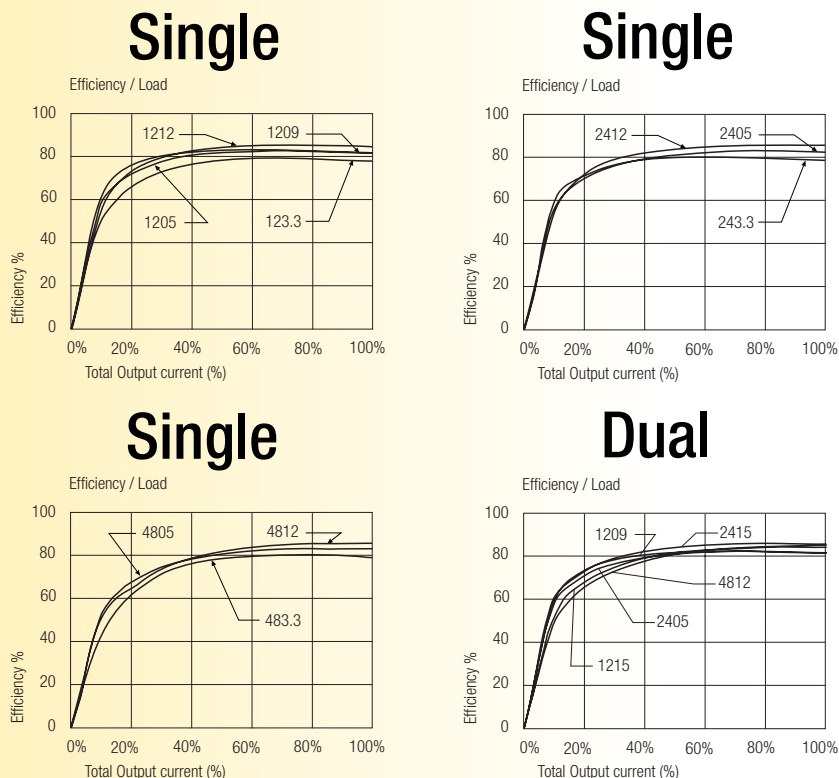
## Specifications (Core Operating Area)

Input Voltage Range	2:1 & 4:1		
Output Voltage Accuracy	±2% max.		
Line Regulation (HL-LL)	±0.3% max.		
Load Regulation (for output load current change from 20% to 100%)	±0.6% max.		
Output Ripple and Noise (0,1 µF capacitor on output, 20MHz BW)	50mVp-p max.		
Operating Frequency at Full Load (at nominal input voltage)	2:1 input	120kHz typ.	
	4:1 input	200kHz typ.	
Input Filter	Pi Network		
Efficiency at Full Load	see above		
Isolation Voltage SMD Pinout and metal case (see note1) (tested for 1 second)	2.000VDC min.		
Rated Working Voltage (long term isolation)	see Application Notes		
Isolation Voltage H4 types (tested for 1 second)	4.000VDC min.		
	Rated Working Voltage (long term isolation)	see Application Notes	
Isolation Voltage H6 types (tested for 1 second)	6.000VDC min.		
	Rated Working Voltage (long term isolation)	see Application Notes	
Isolation Capacitance	60pF typ.		
Isolation Resistance	1 GΩ min.		
Short Circuit Protection	Continuous, Auto Restart		
Operating Temperature (free air convection)	-25°C to +75°C (see Graph)		
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	MSL Level 1	95% RH	
Case Material	Non-Conductive Plastic		
Thermal Impedance	Natural convection	20°C/W for metal case	
Package Weight	13 g		
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	850 x 10 <sup>3</sup> hours
		using MIL-HDBK 217F	206 x 10 <sup>3</sup> hours

## Derating-Graph (Ambient Temperature)

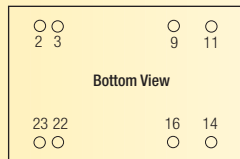
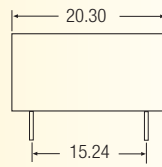
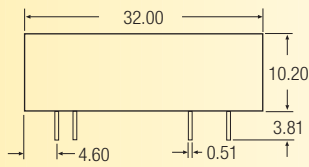


## Typical Characteristics

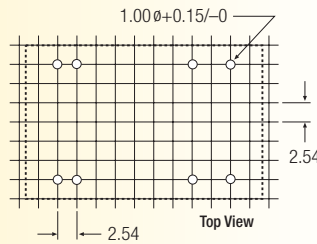


**Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1**

**Package A**



**Recommended Footprint Details**

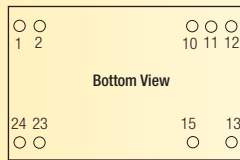
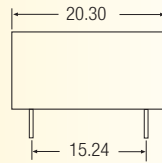
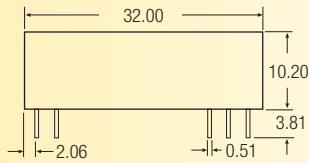


**Pin Connections**

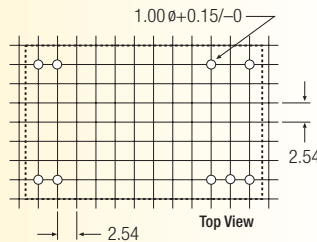
Pin #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

NC = No Connection  
XX.X ± 0.5 mm  
XX.XX ± 0.25 mm

**Package C**



**Recommended Footprint Details**

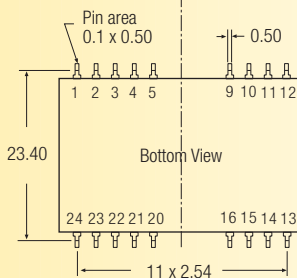
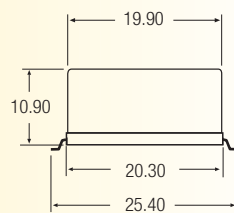
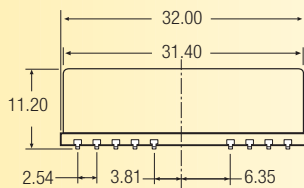


**Pin Connections**

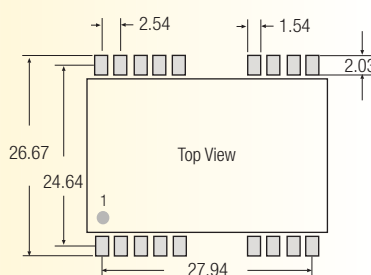
Pin #	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	NC	Com
11	NC	Com
12	-Vout	NC
13	+Vout	-Vout
15	NC	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

NC = No Connection  
XX.X ± 0.5 mm  
XX.XX ± 0.25 mm

**Mechanical drawings of DIP24 SMD case**



**Recommended Footprint Details**



Tol.: ± 0.35 mm

for all packages incl.SMD case the length of plastic case is 31,8mm, length of metal case 32.0mm