

## Features

### Regulated Converters

- UL-60950-1 / CSA C22.2 certified
- 3W 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 (%)
REC3-xx3.3SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	3.3	900	66-76
REC3-xx05SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	5	600	71-79
REC3-xx09SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	9	330	74-83
REC3-xx12SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	12	250	75-85
REC3-xx15SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	15	200	75-86
REC3-xx05DRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±5	±300	74-83
REC3-xx12DRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±12	±125	75-85
REC3-xx15DRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±15	±100	75-86
REC3-xx3.3SRWZ (H4/H6)	9 - 36, 18 - 72	3.3	850	77-79
REC3-xx05SRWZ (H4/H6)	9 - 36, 18 - 72	5	600	78-80
REC3-xx09SRWZ (H4/H6)	9 - 36, 18 - 72	9	330	80-83
REC3-xx12SRWZ (H4/H6)	9 - 36, 18 - 72	12	250	83-85
REC3-xx15SRWZ (H4/H6)	9 - 36, 18 - 72	15	200	83-85
REC3-xx05DRWZ (H4/H6)	9 - 36, 18 - 72	±5	±300	77-80
REC3-xx12DRWZ (H4/H6)	9 - 36, 18 - 72	±12	±125	83-85
REC3-xx15DRWZ (H4/H6)	9 - 36, 18 - 72	±15	±100	83-85

**2:1 Input**  
(REC3-S/DRWH4/H6)  
xx = 4.5-9Vin = 05  
xx = 9-18Vin = 12  
xx = 18-36Vin = 24  
xx = 36-72Vin = 48

**4:1 Input**  
(REC3-S/DRWZ(H4/H6))  
xx = 9-36Vin = 24  
xx = 18-72Vin = 48

\* add suffix "/H4" for 4kVDC isolation and "/H6" for 6kVDC isolation  
add suffix "/A" or "/C" for Pinning, see next page  
"B" Pinning is NOT available for this series !  
add suffix "/M" for metal case  
e.g. REC3-2412SRW/H4/AM =  
4kVDC isol. / Pinout "A" / metal case

### 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.

### Specifications (Core Operating Area)

Input Voltage Range	2:1 & 4:1	
Output Voltage Accuracy	±2% max.	
Line Regulation (HL-LL)	2:1 Input types	±0.4% max.
	4:1 Input types	±0.3% max.

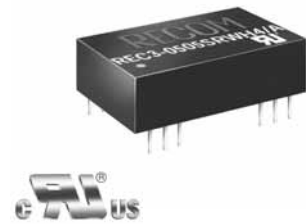
continued on next page

## ECONOLINE

DC/DC-Converter

# REC3-S\_DRW/H4, H6 Series

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



**RECOM**

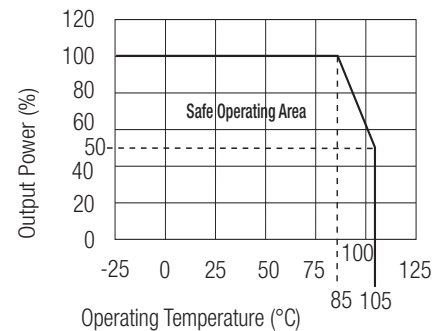
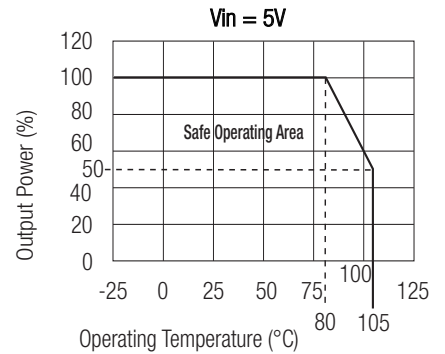
### Notes :

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".

**Specifications (Core Operating Area)**

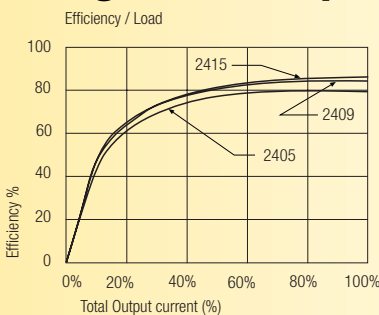
Load Regulation (for output load current change from 20% to 100%)	±0.6% max.		
Output Ripple and Noise (0,1µF capacitor on output, 20MHz BW)	50mVp-p max.		
Switching Frequency at Full Load and nominal Input Voltage	2:1 Input types	90kHz min. / 150kHz max.	
	4:1 Input types	120kHz min. / 180kHz max.	
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.	
	(long term isolation)	see Application Notes	
Isolation Voltage H6 types	(tested for 1 second)	6.000VDC min.	
	(long term isolation)	see Application Notes	
Rated Working Voltage	(long term isolation)	see Application Notes	
Isolation Capacitance	2:1 Input types	20pF min. / 60pF max.	
	4:1 Input types	40pF min. / 80pF max.	
Isolation Resistance	1 GΩ min.		
Short Circuit Protection	Continuous, Auto Restart		
Operating Temperature Range (free air convection)	5V input types	-25°C to +80°C (see Graph)	
	others	-25°C to +85°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	12 g		
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	1043 x 10 <sup>3</sup> hours
		using MIL-HDBK 217F	186 x 10 <sup>3</sup> hours

## Derating-Graph (Ambient Temperature)

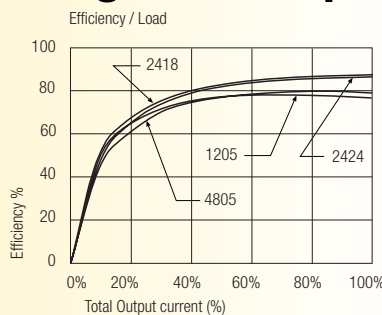


**Typical Characteristics**

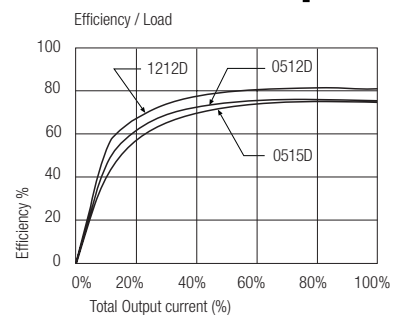
### Single 2:1 Input



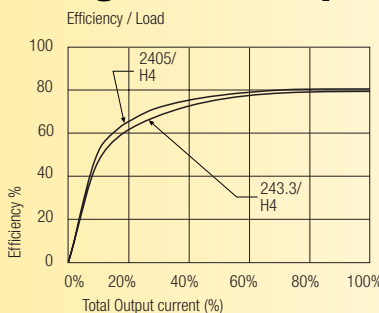
### Single 2:1 Input



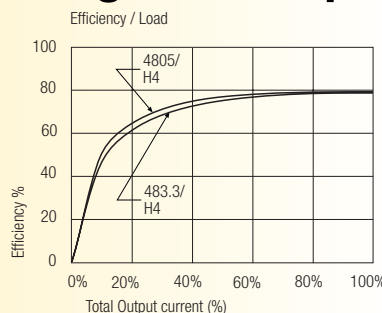
### Dual 2:1 Input



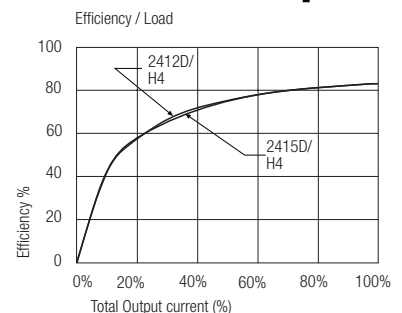
### Single 4:1 Input



### Single 4:1 Input

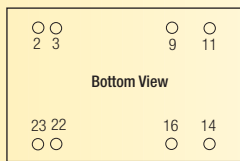
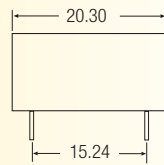
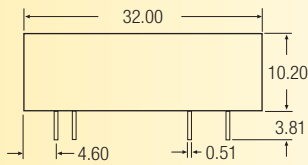


### Dual 4:1 Input

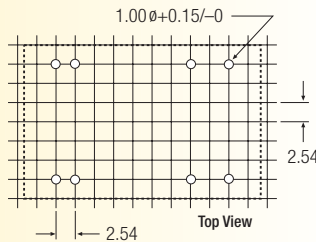


**Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1**

**Package A**



**Recommended Footprint Details**

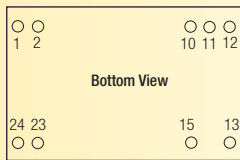
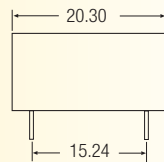
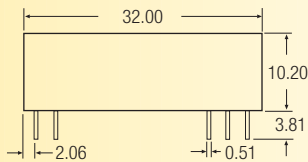


**Pin Connections**

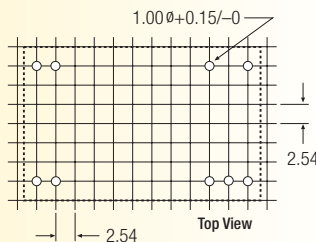
Pin #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

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

**Package C**



**Recommended Footprint Details**

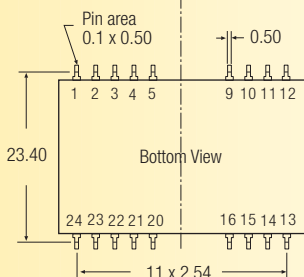
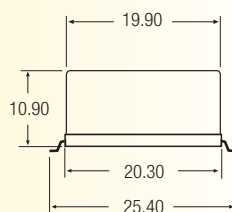
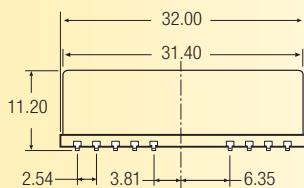


**Pin Connections**

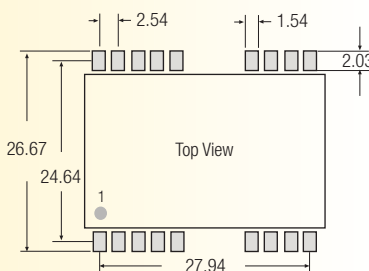
Pin #	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	NC	Com
11	NC	Com
12	-Vout	NC
13	+Vout	-Vout
15	NC	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

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