

Features

Regulated Converters

Rev.0.1

- High 4kVDC & 6kVDC Isolation
- 5W DIP24 Industry Standard Package
- Feedback Regulated Output
- Continuous Short Circuit Protection
- Wide Inputs 2:1 & 4:1
- Approved for Medical Applications
- UL and EN Safety Approvals
- 2 Pinout Options, 3 Case Styles
- Efficiency to 86 %

Description

This series offers standard isolation of 2kVDC with 4kVDC or 6kVDC options making it ideal for both industrial, medical and other sophisticated high end applications. 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. "B" pinning is also available with "/H" isolation of 1.6kVDC. Remote on/off control is possible with the /CTRL option ("A" pinning only)

Selection Guide

Part Number DIP24 (SMD)	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max. Cap. Load
REC5-xx3.3SRW/H*	9 - 18, 18 - 36, 36 - 72	3.3	1000	75-77	2200µF
REC5-xx05SRW/H*	9 - 18, 18 - 36, 36 - 72	5	1000	79-81	1000µF
	4.5 - 9V			72	
REC5-xx09SRW/H*	9 - 18, 18 - 36, 36 - 72	9	556	82-83	470µF
	4.5 - 9V			73	
REC5-xx12SRW/H*	9 - 18, 18 - 36, 36 - 72	12	420	84-85	220µF
	4.5 - 9V			74	
REC5-xx15SRW/H*	9 - 18, 18 - 36, 36 - 72	15	340	85-86	120µF
	4.5 - 9V			75	
REC5-xx05DRW/H*	9 - 18, 18 - 36, 36 - 72	±5	±500	79-81	±470µF
	4.5 - 9V			72	
REC5-xx09DRW/H*	9 - 18, 18 - 36, 36 - 72	±9	±278	82-84	±220µF
	4.5 - 9V			74	
REC5-xx12DRW/H*	9 - 18, 18 - 36, 36 - 72	±12	±210	84-85	±100µF
	4.5 - 9V			75	
REC5-xx15DRW/H*	9 - 18, 18 - 36, 36 - 72	±15	±170	85-86	±68µF
REC5-xx3.3SRWZ/H*	9 - 36**, 18 - 72	3.3	1000	75-76	2200µF
REC5-xx05SRWZ /H*	9 - 36**, 18 - 72	5	1000	81-82	1000µF
REC5-xx09SRWZ/H*	9 - 36, 18 - 72	9	556	82-83	470µF
REC5-xx12SRWZ /H*	9 - 36, 18 - 72	12	420	83-84	220µF
REC5-xx15SRWZ/H*	9 - 36, 18 - 72	15	340	84-85	120µF
REC5-xx05DRWZ/H*	9 - 36**, 18 - 72	±5	±500	81-82	±470µF
REC5-xx09DRWZ/H*	9 - 36, 18 - 72	±9	±278	82-84	±220µF
REC5-xx12DRWZ /H*	9 - 36, 18 - 72	±12	±210	82-83	±100µF
REC5-xx15DRWZ /H*	9 - 36, 18 - 72	±15	±170	84-85	±68µF

H* = H2, H4 or H6 for A or C pinning options with 2kVDC, 4kVDC or 6kVDC isolation.

H* = H for B pinning option with 1.6kVDC isolation only.

2:1 Input

(REC5-S/DRW)

xx = 4.5-9Vin = 05

xx = 9-18Vin = 12

xx = 18-36Vin = 24

xx = 36-72Vin = 48

4:1 Input

(REC3-S/DRWZ)

xx = 9-36Vin = 24

xx = 18-72Vin = 48

* add suffix "/A", "/B" or "/C" for pinning options, see next page and Isolation Restrictions.

* add suffix "/M" for metal case.

* add suffix "/SMD" for SMD package.

* add suffix "/CTRL" for control pin option

(A Pinning only)

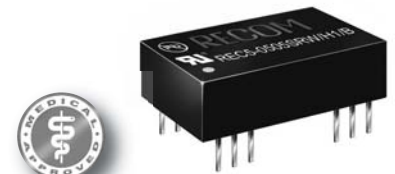
** Derate to 900mA (±450mA) max. at Vin=9V.

ECONOLINE

DC/DC-Converter

REC5-S_DRW(Z) /H* Series

5 Watt DIP24 & SMD Single & Dual Output



RECOM

EN-60950-1 Certified
UL-60950-1 Certified
EN-60601-1 Certified

RECOM

Isolation Restrictions

"B" Pinning is restricted to 1.6kV isolation due to the closeness of the input and output pins.

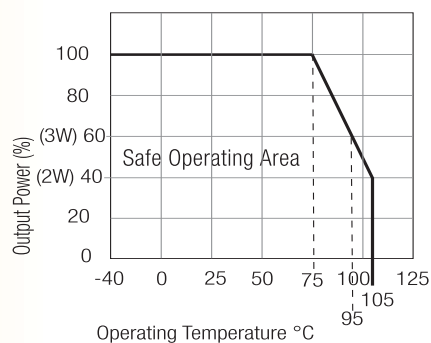
If the options "/M" for metal case and "/SMD" for SMD pinout are combined, the maximum allowed isolation voltage is 2kVDC because of the shorter isolation distances between pins and the metal case.

DIP-24 through-hole case and SMD-plastic case are not affected and offer the full isolation barriers of 2kV through to 6kVDC.

Specifications (measured at $T_A = 25^\circ\text{C}$, nominal input voltage, full load and after warm-up)

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 (0,1µF capacitor on output, 20MHz BW)	50mVp-p max.		
Operating Frequency at Full Load	2:1 input	120kHz typ.	
(at nominal input voltage)	4:1 input	200kHz typ.	
Input Filter	Pi Network		
Efficiency at Full Load	see above		
No Load Power Consumption	300mW max.		
Isolation Voltage	H2 types	(tested for 1 second)	2000VDC min.
Rated Working Voltage	(see note)	(long term isolation)	see Application Notes
Isolation Voltage	H4 types	(tested for 1 second)	4000VDC min.
Rated Working Voltage	(see note)	(long term isolation)	see Application Notes
Isolation Voltage	H6 types	(tested for 1 second)	6000VDC min.
Rated Working Voltage	(see note)	(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)	-40°C to +75°C (see Graph)		
Storage Temperature Range	-55°C to +125°C		
Relative Humidity	95% RH		
Case Material	Non-Conductive Plastic		
Thermal Impedance	Natural convection	20°C/W for metal case	
Package Weight	13g		
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	850 x 10 ³ hours
(+75°C)		using MIL-HDBK 217F	206 x 10 ³ hours

Derating-Graph (Ambient Temperature)



Ordering Examples:

REC5-0512DRW/H2/A/CTRL= 2:1 input, 5V Vin, ±12V Vout, 2kVDC, pinout "A", plastic case, control pin

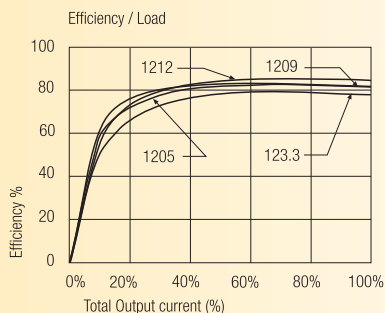
REC5-4812SRWZ/H4/A/M = 4:1 input, 48V Vin, 12V Vout, 4kVDC, pinout "A", metal case, no control pin

REC5-1212DRWZ/H/B = 4:1 input, 12V Vin, ±12V Vout, 1.6kVDC, pinout "B", plastic case, no control pin

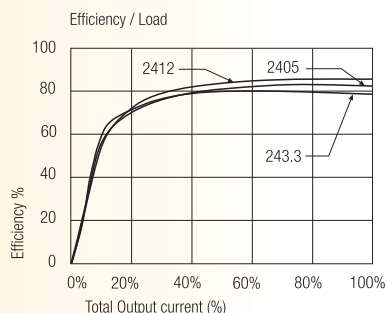
REC5-0505SRW/H6/C/SMD = 2:1 input, 5V Vin, 5V Vout, 6kVDC, SMD pinout "C", plastic case, no control pin

Typical Characteristics

12V Single 2:1

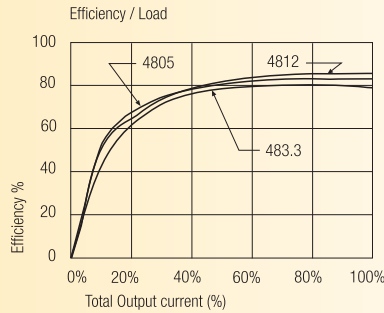


24V Single 2:1

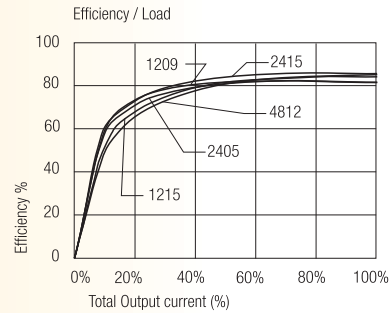


Typical Characteristics

48V Single 2:1

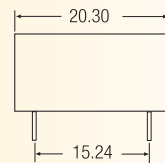
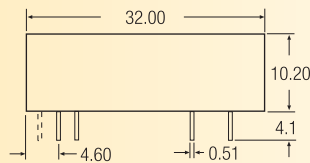


Dual 4:1

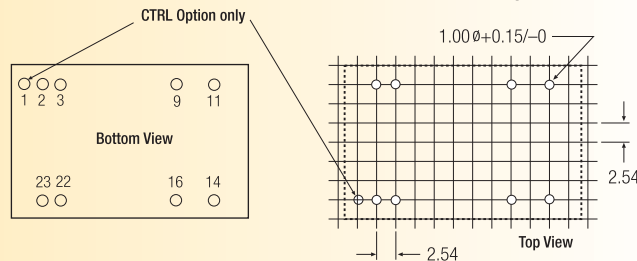


Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1

"A" Pinning
/H2, /H4 & /H6



Recommended Footprint Details



Pin Connections

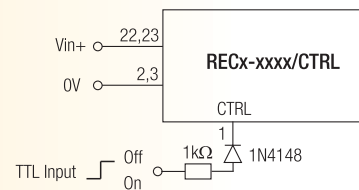
Pin #	Single	Dual
1 (option)	CTRL	CTRL
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

NC = No Connection

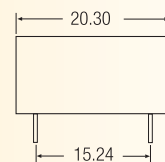
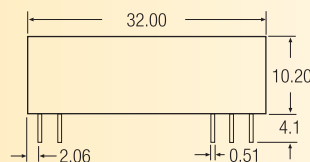
XX.X ± 0.5 mm
XX.XX ± 0.25 mm

CTRL Option

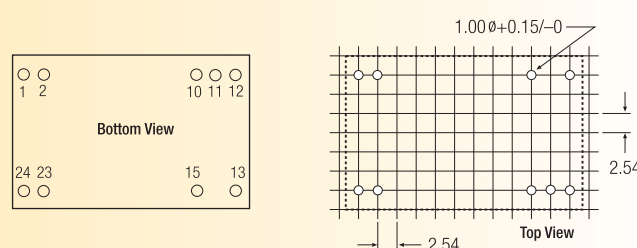
ON = Open or $0V < V_{ctrl} < 1.2V$
OFF = $2.2V < V_{ctrl} < 12V$



"C" Pinning
/H2, /H4 & /H6



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