Features

Regulated Converters

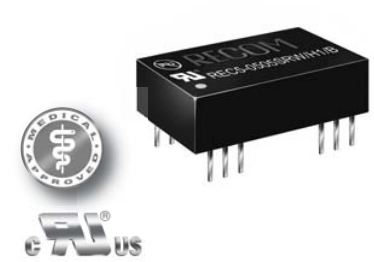
- High 4kVDC & 6kVDC Isolation
- 5W DIP24 Industry Standard Package
- Feedback Regulated Output
- Continuous Short Circuit Protection
- Wide Inputs 2:1 & 4:1
- Approved for Medicalk Applications
- UL and EN Safety Approvals
- 2 Pinout Options, 3 Case Styles
- Efficiency to 86%

Rev.0.1

ECONOLINE
DC/DC-Converter

REC5-S_DRW(Z)/H* Series

5 Watt DIP24 & SMD Single & Dual Output



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

Description

This series offers standard isolation of 2kDC 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 4.5 - 9V	5	1000	79-81 72	1000µF
REC5-xx09SRW/H*	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	9	556	82-83 73	470µF
REC5-xx12SRW/H*	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	12	420	84-85 74	220µF
REC5-xx15SRW/H*	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	15	340	85-86 75	120µF
REC5-xx05DRW/H*	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	±5	±500	79-81 72	±470µF
REC5-xx09DRW/H*	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	±9	±278	82-84 74	±220µF
REC5-xx12DRW/H*	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	±12	±210	84-85 75	±100µF
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.

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 distances between pins and the metal case.

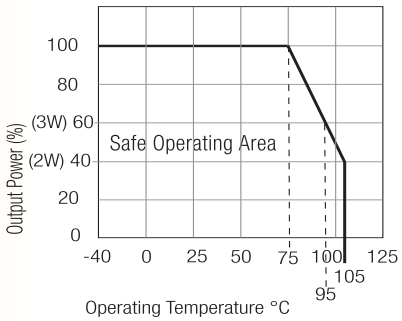
DIP-24 through-hole case and SMD-plastic case are not affected and offer the full isolation barriers of 2kV through to 6kVDC.

REC5-S_DRW(Z) /H* Series

Specifications (measured at T_A = 25°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 (at nominal input voltage)		2:1 input 4:1 input	120kHz typ. 200kHz typ.
Input Filter			Pi Network
Efficiency at Full Load			see above
No Load Power Consumption			300mW max.
Isolation Voltage Rated Working Voltage	H2 types (see note)	(tested for 1 second) (long term isolation)	2000VDC min. see Application Notes
Isolation Voltage Rated Working Voltage	H4 types (see note)	(tested for 1 second) (long term isolation)	4000VDC min. see Application Notes
Isolation Voltage Rated Working Voltage	H6 types (see note)	(tested for 1 second) (long term isolation)	6000VDC min. 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) (+75°C)	*Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F using MIL-HDBK 217F	850 x 10^3hours 206 x 10^3hours

Derating-Graph
(Ambient Temperature)

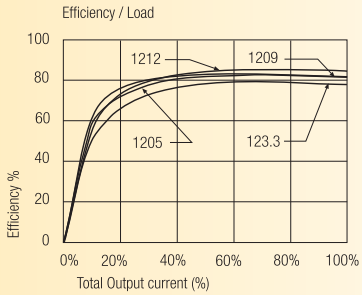


Ordering Examples:

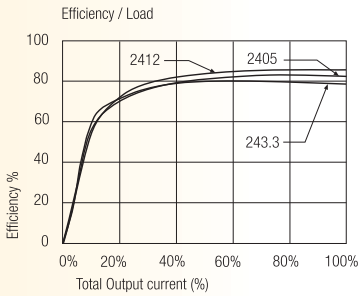
REC5-0512DRW/H2/A/CTRL= 2:1 input, 5V Vin, ±12V Vout, 2kVDC, pinout "A",plastic case, control pin
REC5-4812SRWZ/H4/A/M = 4:1 input, 48V Vin, 12V Vout, 4kVDC, pinout "A",metal case, no control pin
REC5-1212DRWZ/H/B = 4:1 input, 12V Vin, ±12V Vout, 1.6kVDC, pinout "B",plastic case, no control pin
REC5-0505SRW/H6/C/SMD = 2:1 input, 5V Vin, 5V Vout, 6kVDC, SMD pinout "C",plastic case, no control pin

Typical Characteristics

12V Single 2:1



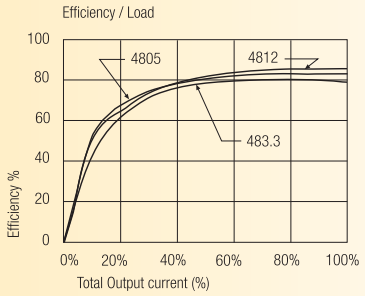
24V Single 2:1



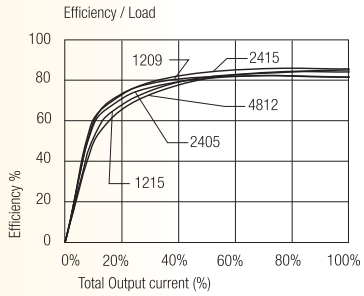
REC5-S_DRW(Z) /H* Series

Typical Characteristics

48V Single 2:1



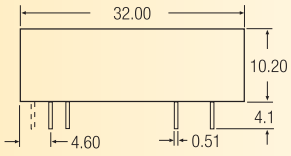
Dual 4:1

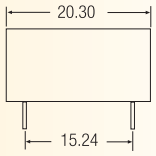


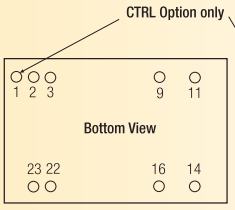
Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1

3rd angle projection

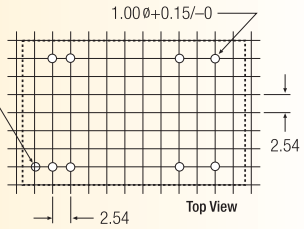
"A" Pinning /H2, /H4 & /H6







Recommended Footprint Details



Pin Connections

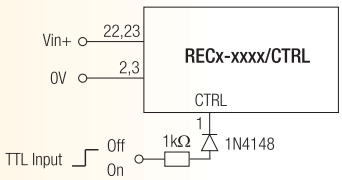
Pin #	Single	Dual
1 (option)	CTRL	CTRL
2	–Vin	–Vin
3	–Vin	–Vin
9	NC	Com
11	NC	–Vout
14	+Vout	+Vout
16	–Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

NC = No Connection

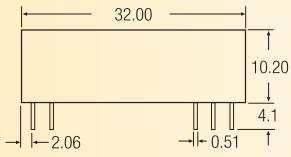
XX.X ± 0.5 mm
XX.XX ± 0.25 mm

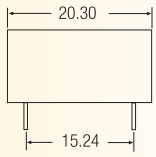
CTRL Option

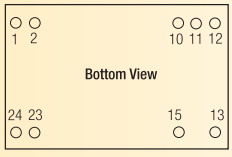
ON = Open or 0V< V_{ctrl} <1.2V
OFF = 2.2V< V_{ctrl} <12V



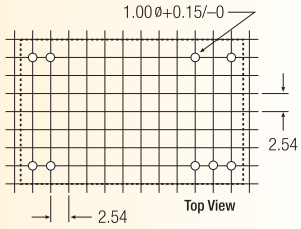
"C" Pinning /H2, /H4 & /H6







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