Features

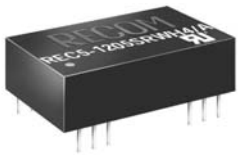
Regulated Converters

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

ECONOLINE
DC/DC-Converter

REC5-S_DRW/H4, H6 Series

5 Watt DIP24 & SMD Single & Dual Output



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

Selection Guide

Part Number DIP24 (SMD)	Input Voltage (VDC)	Output Voltage (VDC)	Max. Cap. Load (µF)	Output Current (mA)	Efficiency (%)
REC5-xx3.3SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	3.3	2200	1200	75-77
REC5-xx05SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	5	1000	1000	79-81
(See Notes)	4.5 - 9				72
REC5-xx09SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	9	470	556	82-83
(See Notes)	4.5 - 9				73
REC5-xx12SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	12	220	420	84-85
(See Notes)	4.5 - 9				74
REC5-xx15SRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	15	120	340	85-86
(See Notes)	4.5 - 9				75
REC5-xx05DRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	±5	±470	±500	79-81
(See Notes)	4.5 - 9				72
REC5-xx12DRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	±12	±100	±210	84-85
(See Notes)	4.5 - 9				74
REC5-xx15DRW (H4/H6)	9 - 18, 18 - 36, 36 - 72	±15	±68	±170	85-86
(See Notes)	4.5 - 9				75
REC5-xx3.3SRWZ (H4/H6)	9 - 36**, 18 - 72	3.3	2200	1200	75-76
REC5-xx05SRWZ (H4/H6)	9 - 36**, 18 - 72	5	1000	1000	81-82
REC5-xx09SRWZ (H4/H6)	9 - 36, 18 - 72	9	470	556	82-83
REC5-xx12SRWZ (H4/H6)	9 - 36, 18 - 72	12	220	420	83-84
REC5-xx15SRWZ (H4/H6)	9 - 36, 18 - 72	15	120	340	84-85
REC5-xx05DRWZ (H4/H6)	9 - 36, 18 - 72	±5	±470	±500	81-82
REC5-xx12DRWZ (H4/H6)	9 - 36, 18 - 72	±12	±100	±210	82-83
REC5-xx15DRWZ (H4/H6)	9 - 36, 18 - 72	±15	±68	±170	84-85

2:1 Input (REC5-S/DRWH4/H6)
xx = 4.5-9Vin = 05
xx = 9-18Vin = 12
xx = 18-36Vin = 24
xx = 36-72Vin = 48

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

Notes :

For the REC5-05xxS_DRW/H4/H6 series, Load = 90%max. when Vin=4.5VDC.
* add suffix "/**H4**" for 4kVDC isolation or "/**H6**" for 6kVDC isolation
* add suffix "/**A**" or "/**C**" for Pinning, see next page
* add suffix "/**M**" for metal case
* add suffix "/**SMD**" for SMD package
e.g. REC5-xxxxSRWZ/H4/AM = 4kVDC isol. / Pinout "A" / metal case
** 24V 4:1 Wide Range Input Types (REC5-24xxS_DRWZ(/H4/H6)) should be derated Vin= 9 Vin : 3.3Vout / 1100mA max., 5Vout / 900mA max..

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 the pins and the metal-case so the only available SMD-option in metal-case is "/**H2**". DIP-24 through-hole case and SMD-plastic case are not affected and offer the full 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.

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**").

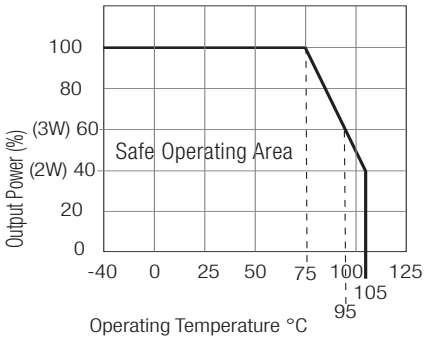
For all the above variants, 2 industry-standard pinouts (= option "**A**" or "**C**") are available.

REC5-S_DRW/H4,H6 Series

Specifications (Core Operating Area)

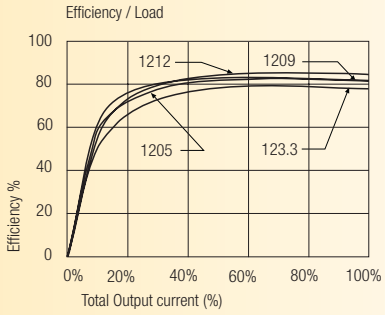
Input Voltage Range			2:1 & 4:1
Output Voltage Accuracy			±2% max.
Line Regulation (HL-LL)			±0.3% max.
Load Regulation (for output load current change from 20% to 100%)			±0.6% max.
Output Ripple and Noise (0,1µF capacitor on output, 20MHz BW)			50mVp-p max.
Operating Frequency at Full Load (at nominal 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	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) } *Detailed Information see Application Notes chapter "MTBF"*		using MIL-HDBK 217F	850 x 10^3hours
(+75°C) }		using MIL-HDBK 217F	206 x 10^3hours

Derating-Graph
(Ambient Temperature)

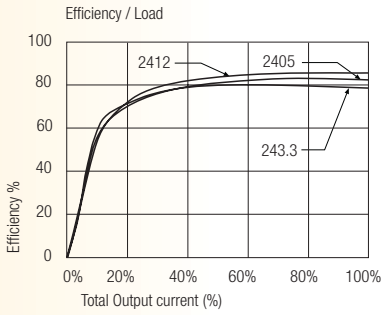


Typical Characteristics

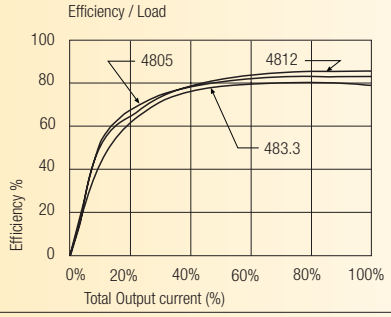
Single



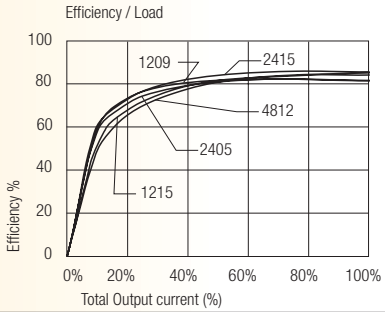
Single



Single



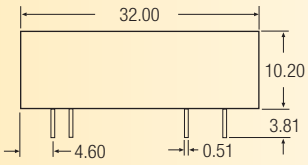
Dual

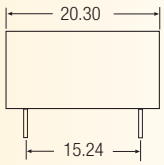


REC5-S_DRW/H4,H6 Series

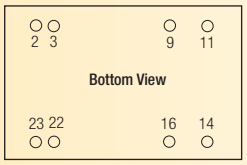
Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1

Package A

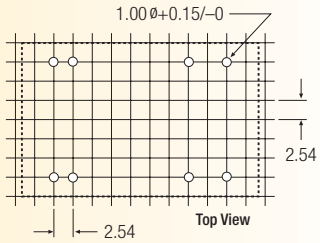




3rd angle projection



Recommended Footprint Details

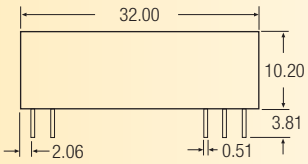


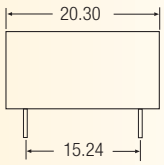
Pin Connections

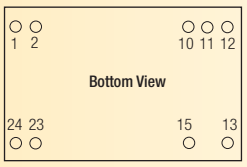
Pin #	Single	Dual
2	–Vin	–Vin
3	–Vin	–Vin
9	NC	Com
11	NC	–Vout
14	+Vout	+Vout
16	–Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

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

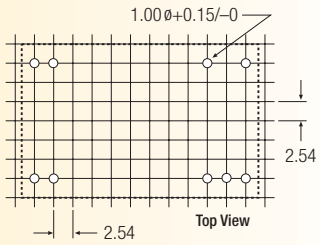
Package C







Recommended Footprint Details

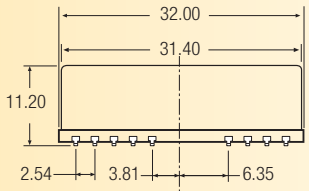


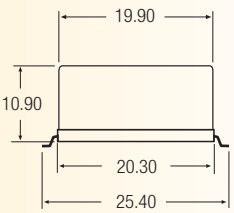
Pin Connections

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

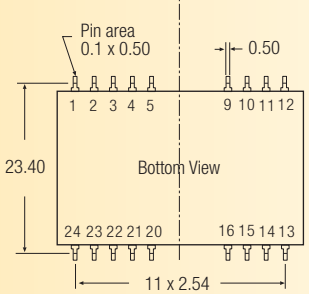
NC = No Connection
XX.X ± 0.5 mm
XX.XX ± 0.25 mm

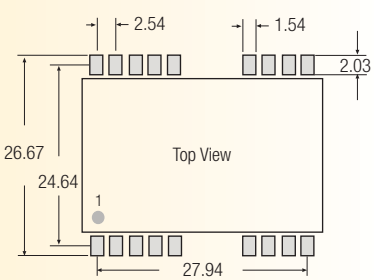
Mechanical drawings of DIP24 SMD case





Recommended Footprint Details





All unused pins are NC (No Connection). SMD pin connections follow standard package pinning.

Tol.: ± 0.35 mm

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