

## Features

### Regulated Converters

- 5W DIP Package
- 1kVDC, 2kVDC & 3kVDC Isolation Options
- 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)	Max. Cap. Load (μF)	Output Current (mA)	Efficiency (%)
DIP24 (SMD)	(VDC)	(VDC)	(μF)	(mA)	(%)
REC5-xx3.3SRW/H*	9 - 18, 18 - 36, 36 - 72	3.3	2200	1200	75-77
REC5-xx05SRW/H* (See Notes)	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	5	1000	1000	79-81 72
REC5-xx09SRW/H* (See Notes)	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	9	470	556	82-83 73
REC5-xx12SRW/H* (See Notes)	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	12	220	420	84-85 74
REC5-xx15SRW/H* (See Notes)	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	15	120	340	85-86 75
REC5-xx05DRW/H* (See Notes)	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	±5	±470	±500	79-81 72
REC5-xx12DRW/H* (See Notes)	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	±12	±100	±210	84-85 74
REC5-xx15DRW/H* (See Notes)	9 - 18, 18 - 36, 36 - 72 4.5 - 9V	±15	±68	±170	85-86 75
REC5-xx3.3SRWZ/H*	9 - 36**, 18 - 72	3.3	2200	1200	75-76
REC5-xx05SRWZ/H*	9 - 36**, 18 - 72	5	1000	1000	81-82
REC5-xx09SRWZ/H*	9 - 36, 18 - 72	9	470	556	82-83
REC5-xx12SRWZ/H*	9 - 36, 18 - 72	12	220	420	83-84
REC5-xx15SRWZ/H*	9 - 36, 18 - 72	15	120	340	84-85
REC5-xx05DRWZ/H*	9 - 36, 18 - 72	±5	±470	±500	81-82
REC5-xx12DRWZ/H*	9 - 36, 18 - 72	±12	±100	±210	82-83
REC5-xx15DRWZ/H*	9 - 36, 18 - 72	±15	±68	±170	84-85

#### 2:1 Input

(REC5-S/DRW/H1)  
 xx = 4.5-9Vin = 05  
 xx = 9-18Vin = 12  
 xx = 18-36Vin = 24  
 xx = 36-72Vin = 48

#### 4:1 Input

(REC5-S/DRWZ/H1)  
 xx = 9-36Vin = 24  
 xx = 18-72Vin = 48

### Notes:

- For all REC5-05xxS\_DRW series, Load = 90% max. when Vin=4.5VDC
- \* add suffix /H1 for 1kVDC Isolation, /H2 for 2kVDC Isolation or /H3 for 3kVDC Isolation.
  - \* /H2 and /H3 versions are not available in B Pinning.
  - \* /H3 version is not available in /M/SMD combination.
  - \* add suffix "/A", "/B" or "/C" for Pinning, see next page
  - \* add suffix "/M" for metal case
  - \* add suffix "/SMD" for SMD package  
 e.g. REC5-xxxxSRWZH1/AM = 1kVDC isol. / Pinout "A" / metal case
  - \*\* 24V 4:1 Wide Range Input Types (REC5-24xxS\_DRWZ/H1) should be derated  
 Vin = 9 Vin : 3.3Vout / 1100mA max., 5Vout / 900mA max.

## ECONOLINE

DC/DC-Converter

# REC5-S\_DRW/H\* Series

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

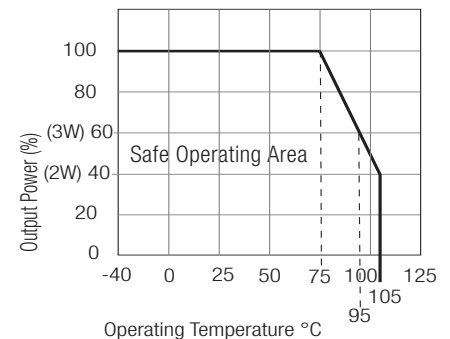


**EN-60950-1 Certified  
EN-60601-1 Certified  
(Suffix H3)  
UL-60950-1 Pending**

## Specifications (Core Operating Area)

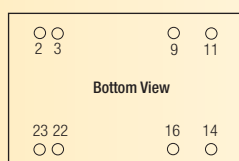
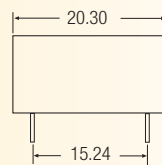
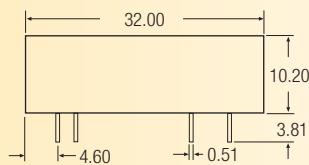
Input Voltage Range	2:1 & 4:1		
Output Voltage Accuracy	±2% max.		
Line Regulation (HL-LL)	±0.3% max.		
Load Regulation (for output load current change from 20% to 100%)	±0.6% max.		
Output Ripple and Noise (0,1µF capacitor on output, 20MHz BW)	50mVp-p max.		
Operating Frequency at Full Load	2:1 input	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 H1/SMD Pinout and metal case	(tested for 1 second)	1000VDC min.	
Isolation Voltage H2/SMD Pinout and metal case	(tested for 1 second)	2000VDC min.	
Rated Working Voltage	(long term isolation)	see Application Notes	
Isolation Voltage	H1 types	(tested for 1 second)	1000VDC min.
Isolation Voltage	H2 types	(tested for 1 second)	2000VDC min.
Isolation Voltage	H3 types	(tested for 1 second)	3000VDC 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)	-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 <sup>3</sup> hours
(+75°C)		using MIL-HDBK 217F	206 x 10 <sup>3</sup> hours

## Derating-Graph (Ambient Temperature)

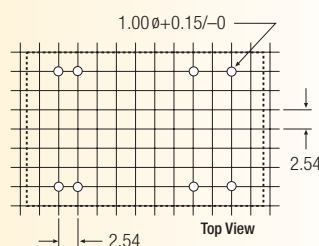


## Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1

### Package A



### Recommended Footprint Details



### Pin Connections

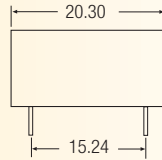
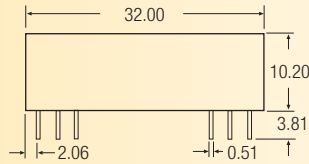
Pin #	Single	Dual
2	-Vin	-Vin
3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

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

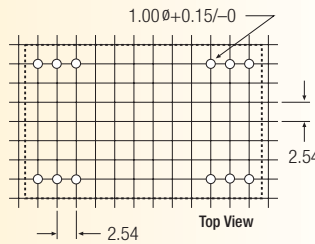
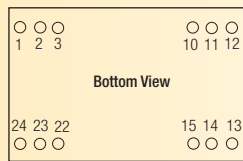
**Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1**

**Package B**

/H1 Only



**Recommended Footprint Details**

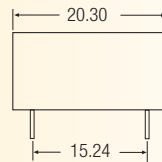
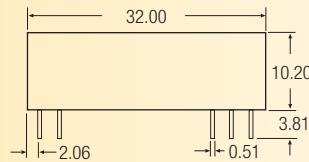


**Pin Connections**

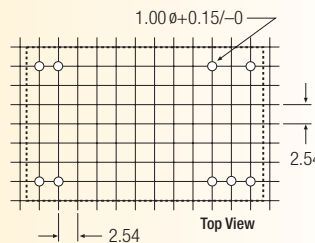
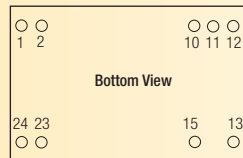
Pin #	Single	Dual
1	+Vin	+Vin
2	No Pin	-Vout
3	No Pin	Com
10	-Vout	Com
11	+Vout	+Vout
12	-Vin	-Vin
13	-Vin	-Vin
14	+Vout	+Vout
15	-Vout	Com
22	No Pin	Com
23	No Pin	-Vout
24	+Vin	+Vin

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

**Package C**



**Recommended Footprint Details**

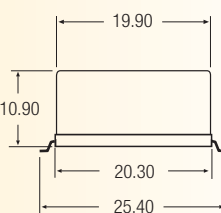
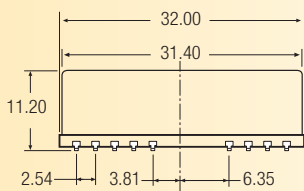


**Pin Connections**

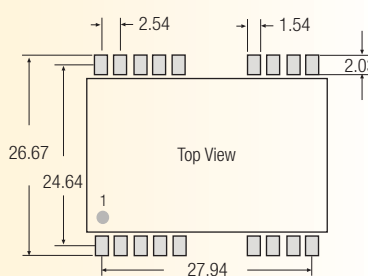
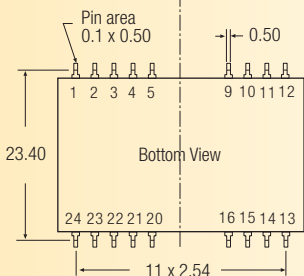
Pin #	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	NC	Com
11	NC	Com
12	-Vout	NC
13	+Vout	-Vout
15	NC	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

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. See Notes for restrictions on /H3 SMD versions.**

Tol.: ± 0.35 mm

length of plastic case is 31,8mm, length of metal case 32.0mm