

# Features

## Regulated Converters

- 10W DIP24 Package
- 2KVDC and 3kVDC Isolation Options
- 2:1 and 4:1 Versions
- Continuous Short Circuit Protection (power limiting)
- Synchronous Rectification on 3.3, 5V outputs
- Full SMD internal design
- Through Hole or SMD Pinning Options
- Remote Control Pin
- Efficiency to 87%

### Description

The REC10-xxxxSRW/DRW-series offer single and dual regulated outputs in a DIP24 package with 2kV or 3kV isolation options and are suitable for higher power industrial or medical applications. Remote on/off control is standard and SMD pinning is offered with the /SMD option. The converters can deliver 150% rated power for short periods of time to cope with applications with large capacitive loads or high start up currents.

### Selection Guide

Part Number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)	Max. Cap. Load
REC10-xx3.3SRW/H*/A/M	9-18, 18-36, 36-75	3.3	2000	84-85	2200µF
REC10-xx05SRW/H*/A/M	9-18, 18-36, 36-75	5	2000	86-87	2200µF
REC10-xx12SRW/H*/A/M	9-18, 18-36, 36-75	12	833	85-86	470µF
REC10-xx15SRW/H*/A/M	9-18, 18-36, 36-75	15	667	85-86	220µF
REC10-xx05DRW/H*/A/M	9-18, 18-36, 36-75	±5	±1000	84	±1000µF
REC10-xx12DRW/H*/A/M	9-18, 18-36, 36-75	±12	±416	86	±220µF
REC10-xx15DRW/H*/A/M	9-18, 18-36, 36-75	±15	±333	86	±100µF
REC10-xx3.3SRWZ/H*/A/M	9-36, 18-75	3.3	2000	84	2200µF
REC10-xx05SRWZ/H*/A/M	9-36, 18-75	5	2000	86	2200µF
REC10-xx12SRWZ/H*/A/M	9-36, 18-75	12	833	85	470µF
REC10-xx15SRWZ/H*/A/M	9-36, 18-75	15	667	85	220µF
REC10-xx05DRWZ/H*/A/M	9-36, 18-75	±5	±1000	83	±1000µF
REC10-xx12DRWZ/H*/A/M	9-36, 18-75	±12	±416	85	±220µF
REC10-xx15DRWZ/H*/A/M	9-36, 18-75	±15	±333	85	±100µF

\* Standard is /H2 for 2kVDC isolation,

use /H3 for 3kVDC Isolation (not SMD)

\* add suffix "/X2" for pinning options, see next page.

\* add suffix "/SMD" for SMD package, e.g.

REC10-2405SRW/H2/A/M/SMD

**2:1**

xx = 9-18Vin = 12,

xx = 18-36Vin = 24,

xx = 36-75Vin = 48

**4:1**

xx = 9-36Vin = 24,

xx = 18-75Vin = 48

### 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
Input Filter	PI Network
Output Voltage Accuracy	±1.5% max.
Line Voltage Regulation ( $V_L$ to $V_H$ at full load)	±0.5% max.
Load Voltage Regulation (25% to 100% full load)	±0.5% max.
	Single
	Dual
Cross Regulation (100%: 25% to 100% full load)	±1.2% max.
Output Ripple and Noise (with 100n output capacitor and 20MHz BW)	±5% max.
Start-up time	100mVp-p max.
Operating Frequency (Full Load)	300ms typ.
Efficiency at Full Load	400kHz typ.
Minimum Load	see Selection Guide
	0%

continued on next page

# ECONOLINE

## DC/DC-Converter

with 3 year Warranty

# RECOM

## 10 Watt DIP24 & SMD Single & Dual Output



**E224736**

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

# REC10

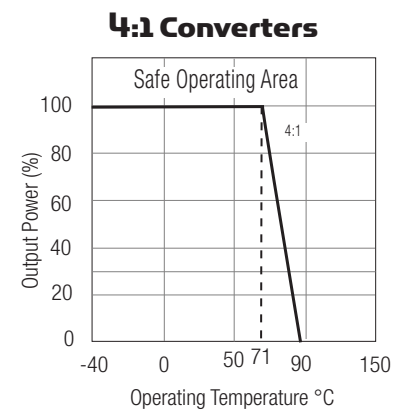
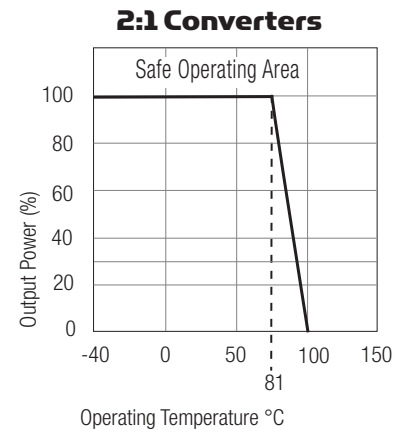
\*\*Any data referred to in this datasheet are of indicative nature and based on our practical experience only. For further details, please refer to our Application Notes.

Refer to Application Notes

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

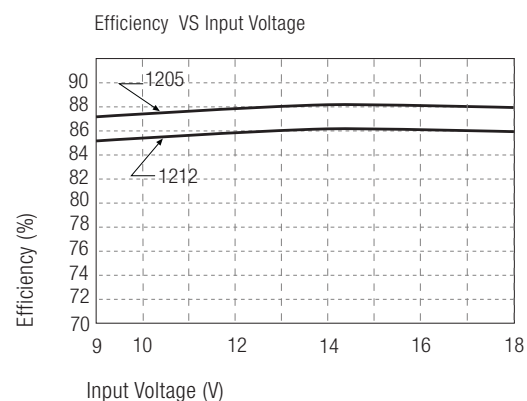
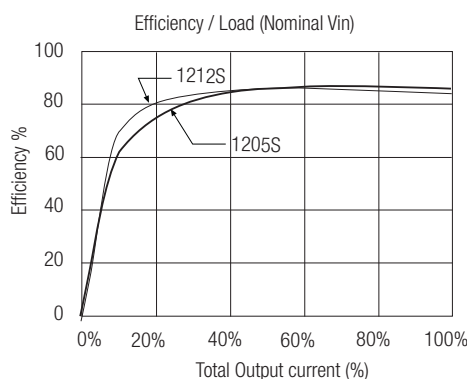
Input Surge Voltage (100ms max.)	12V Input	36VDC	
	24V Input	50VDC	
	48V Input	100VDC	
Isolation Voltage	H2-Suffix and SMD	(tested for 1 second) (rated for 1 minute**)	2000VDC 1000VAC / 60Hz
	H3-Suffix	(tested for 1 second) (rated for 1 minute**)	3000VDC 1500VAC / 60Hz
Isolation Capacitance			1200pF typ.
Isolation Resistance			1 GΩ min.
Overload Protection			150% typ.
Short Circuit Protection	Continuous, Auto Restart		
Operating Temperature Range (free air convection)	4:1	-40°C to +71°C (see Graph)	
	2:1	-40°C to +81°C (see Graph)	
Remote On/Off	DC/DC ON	Open or $3.5\text{V} < V_r < 1.2\text{V}$	
	DC/DC OFF	Short or $0\text{V} < V_r < 1.2\text{V}$	
Storage Temperature Range	-55°C to +105°C		
Temperature Coefficient	±0.05% max.		
Relative Humidity	95% RH		
Case Material	Nickel Plated Metal with Non-Conductive Base		
Thermal Impedance	Natural convection	15°C/W	
Maximum Case Temperature	100°C		
Vibration	10-55Hz, 2G, 30mins along X,Y & Z		
Package Weight	18g		
Packing Quantity	15 pcs per Tube		
MTBF (+25°C)	} Detailed Information see Application Notes chapter "MTBF"	using MIL-HDBK 217F	1000 x 10 <sup>3</sup> hours
(+71°C)		using MIL-HDBK 217F	>250 x 10 <sup>3</sup> hours
<b>Certifications</b>			
EN General Safety	Report: SPCLVD1211033-2	EN60950-1:2006 + A12:2011	
UL General Safety	Report: E224736	UL 60950-1 1st Ed. C22.2 No. 60950-1-03	
EN Medical Safety	Report: MDD12060585 + RM1206085	IEC/EN 60601-1 3rd Edition Medical Report + ISO14971 Risk Assessment	

## Derating-Graph (Ambient Temperature)



## Typical Characteristics

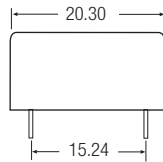
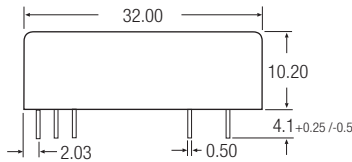
### REC10-1205SRW/H2/A/M (/SMD) REC10-1212SRW/H2/A/M (/SMD)



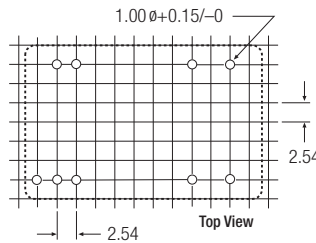
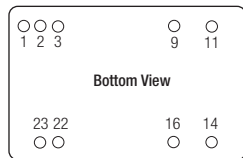
Note: Refer to Application Notes for EMC Class B Filter suggestion

**Package Style and Pinning (mm)**

**24 PIN DIP Package - Available with /H2 and /H3 Options**



**Recommended Footprint Details**



**Pin Connections DIP24**

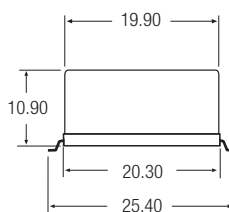
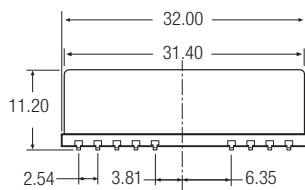
Pin #	Single	Single/X2	Dual
1	CTRL	No Pin	CTRL
2	-Vin	-Vin	-Vin
3	-Vin	-Vin	-Vin
9	NC	No Pin	Com
11	NC	NC	-Vout
14	+Vout	+Vout	+Vout
16	-Vout	-Vout	Com
22	+Vin	+Vin	+Vin
23	+Vin	+Vin	+Vin

NC = No Connection

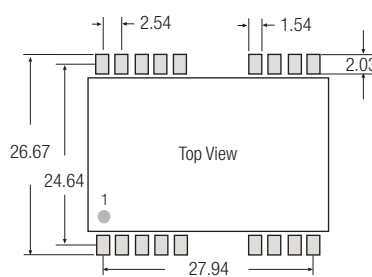
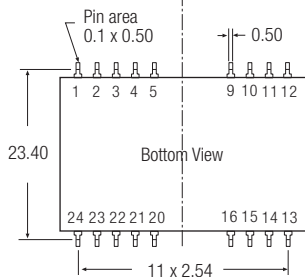
XX.X ± 0.5 mm

XX.XX ± 0.25 mm

**24 PIN SMD Package- Only available with /H2 Option**



**Recommended Footprint Details**



**Pin Connections DIP24 SMD**

Pin #	Single	Dual
1	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
4,5,10,12		NC
13,15,20,21,24		NC

NC = No Connection

XX.X ± 0.5 mm

XX.XX ± 0.25 mm

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