Features

Regulated Converters

- UL-60950-1 / CSA C22.2 certified
- 3W DIP Package
- 4kVDC & 6kVDC Isolation
- 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%

ECONOLINE
DC/DC-Converter

REC3-S_DRW/H4, H6 Series

3 Watt DIP24 / SMD Single & Dual Output



Selection Guide

Part Number DIP24	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Efficiency (%)
REC3-xx3.3SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	3.3	900	66-76
REC3-xx05SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	5	600	71-79
REC3-xx09SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	9	330	74-83
REC3-xx12SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	12	250	75-85
REC3-xx15SRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	15	200	75-86
REC3-xx05DRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±5	±300	74-83
REC3-xx12DRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±12	±125	75-85
REC3-xx15DRW (H4/H6)	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±15	±100	75-86
REC3-xx3.3SRWZ (H4/H6)	9 - 36, 18 - 72	3.3	850	77-79
REC3-xx05SRWZ (H4/H6)	9 - 36, 18 - 72	5	600	78-80
REC3-xx09SRWZ (H4/H6)	9 - 36, 18 - 72	9	330	80-83
REC3-xx12SRWZ (H4/H6)	9 - 36, 18 - 72	12	250	83-85
REC3-xx15SRWZ (H4/H6)	9 - 36, 18 - 72	15	200	83-85
REC3-xx05DRWZ (H4/H6)	9 - 36, 18 - 72	±5	±300	77-80
REC3-xx12DRWZ (H4/H6)	9 - 36, 18 - 72	±12	±125	83-85
REC3-xx15DRWZ (H4/H6)	9 - 36, 18 - 72	±15	±100	83-85

2:1 Input (REC3-S/DRWH4/H6)
xx = 4.5-9Vin = 05
xx = 9-18Vin = 12
xx = 18-36Vin = 24
xx = 36-72Vin = 48

4:1 Input (REC3-S/DRWZ(H4/H6))
xx = 9-36Vin = 24
xx = 18-72Vin = 48

* add suffix "/H4" for 4kVDC isolation and "/H6" for 6kVDC isolation
add suffix "/**A**" or "/**C**" for Pinning, see next page
"**B**" Pinning is NOT available for this series !
add suffix "/**M**" for metal case
e.g. REC3-2412SRW/H4/AM = 4kVDC isol. / Pinout "**A**" / metal case

Notes :

1. If the options "/**M**" for metal case and "/**SMD**" for SMD pinout are combined the maximum allowed isolation voltage is 2kVDC because of the shoter distances between pins and metal-case, so only available SMD-option in metal-case is "/**H2**".
DIP-24 through-hole case and SMD-plastic case are not affected and offer the desired 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. UL-1950 approval of this series is is applied for. 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.

Specifications (Core Operating Area)

Input Voltage Range		2:1 & 4:1
Output Voltage Accuracy		±2% max.
Line Regulation (HL-LL)	2:1 Input types	±0.4% max.
	4:1 Input types	±0.3% max.

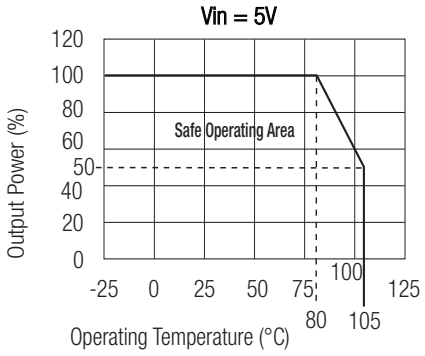
continued on next page

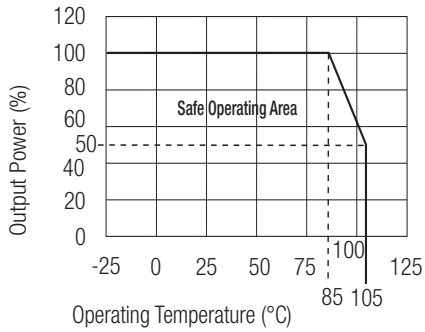
REC3-S_DRW/H4,H6 Series

Specifications (Core Operating Area)

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.
Switching Frequency at Full Load and nominal Input Voltage	2:1 Input types	90kHz min. / 150kHz max.
	4:1 Input types	120kHz min. / 180kHz max.
Input Filter		Pi Network
Efficiency at Full Load		see above
Isolation Voltage SMD Pinout and metal case (see note1) Rated Working Voltage	(tested for 1 second) (long term isolation)	2.000VDC min. see Application Notes
Isolation Voltage H4 types Rated Working Voltage	(tested for 1 second) (long term isolation)	4.000VDC min. see Application Notes
Isolation Voltage H6 types Rated Working Voltage	(tested for 1 second) (long term isolation)	6.000VDC min. see Application Notes
Isolation Capacitance	2:1 Input types	20pF min. / 60pF max.
	4:1 Input types	40pF min. / 80pF max.
Isolation Resistance		1 GΩ min.
Short Circuit Protection		Continuous, Auto Restart
Operating Temperature Range (free air convection)	5V input types	-25°C to +80°C (see Graph)
	others	-25°C to +85°C (see Graph)
Storage Temperature Range		-55°C to +125°C
Relative Humidity	MSL Level 1	95% RH
Case Material		Non-Conductive Plastic
Thermal Impedance	Natural convection	20°C/W for metal case
Package Weight		12 g
MTBF (+25°C) } *Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F	1043 x 10^3 hours
MTBF (+85°C) } *Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F	186 x 10^3 hours

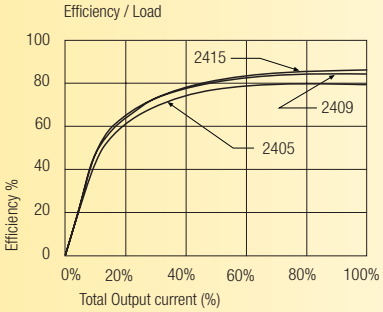
Derating-Graph (Ambient Temperature)



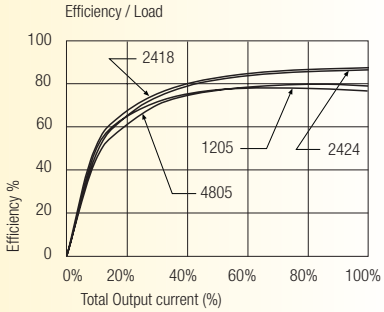


Typical Characteristics

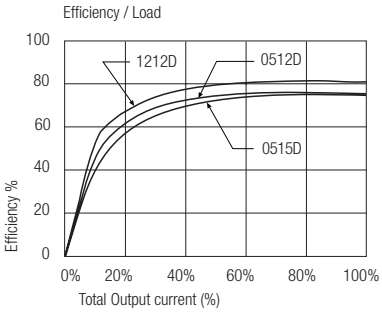
Single 2:1 Input



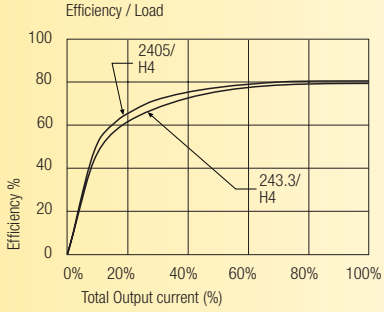
Single 2:1 Input



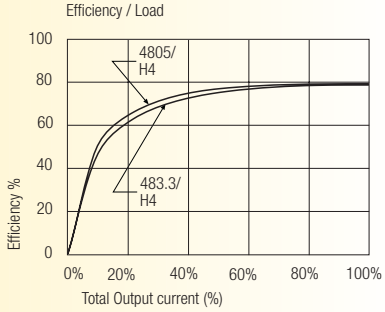
Dual 2:1 Input



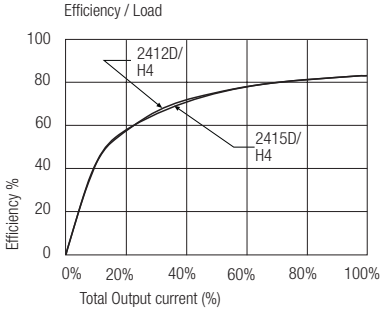
Single 4:1 Input



Single 4:1 Input



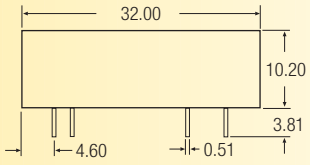
Dual 4:1 Input

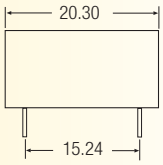


REC3-S_DRW/H4,H6 Series

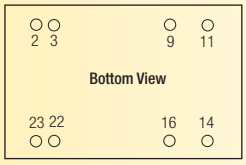
Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1

Package A

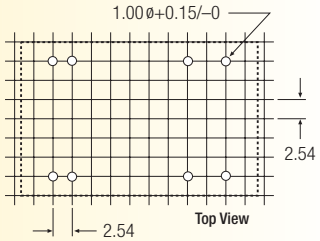




3rd angle projection



Recommended Footprint Details

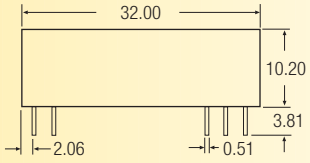


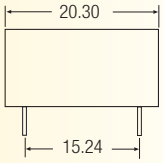
Pin Connections

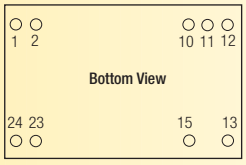
Pin #	Single	Dual
2	–Vin	–Vin
3	–Vin	–Vin
9	NC	Com
11	NC	–Vout
14	+Vout	+Vout
16	– Vout	Com
22	+Vin	+Vin
23	+Vin	+Vin

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

Package C







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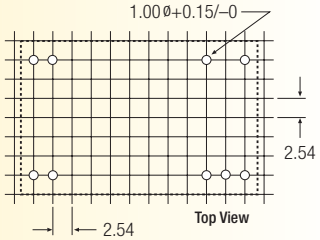
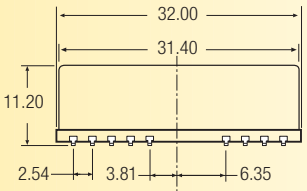


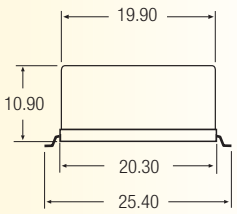
Pin Connections

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





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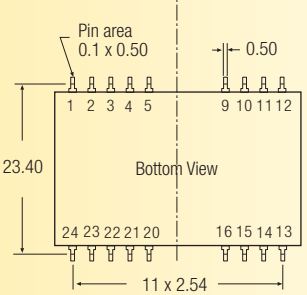

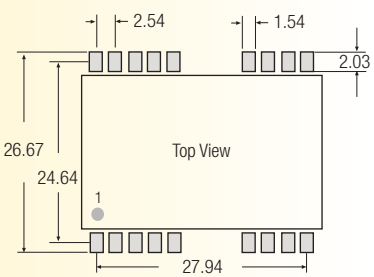

Tol.: ± 0.35 mm

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