Features

Regulated Converters

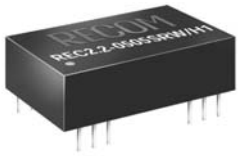
- 2.2W DIP Package
- 1kVDC, 2kVDC & 3kVDC Isolation Options
- Regulated Output
- Wide Input Range 2 : 1 and 4 : 1
- UL94V-0 Package Material
- Continuous Short Circuit Protection
- Cost Effective
- 100% Burned In
- Efficiency to 84%

ECONOLINE

DC/DC-Converter

REC2.2-S_DRW(Z)/H* Series

2.2 Watt DIP24 & SMD Single & Dual Output



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

RECOM

Selection Guide

Part Number DIP24 (SMD)	Input Voltage (VDC)	Output Voltage (VDC)	Max Cap. Load (µF)	Output Current (mA)
REC2.2-xx3.3SRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	3.3	1000	600
REC2.2-xx05SRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	5	470	440
REC2.2-xx09SRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	9	220	244
REC2.2-xx12SRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	12	120	183
REC2.2-xx15SRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	15	100	146
REC2.2-xx3.3DRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±3.3	±470	±300
REC2.2-xx05DRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±5	±220	±220
REC2.2-xx09DRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±9	±100	±122
REC2.2-xx12DRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±12	±68	±91
REC2.2-xx15DRW/H*	4.5 - 9, 9 - 18, 18 - 36, 36 - 72	±15	±47	±73
REC2.2-xx3.3SRWZ/H*	9 - 36, 18 - 72	3.3	1000	600
REC2.2-xx05SRWZ/H*	9 - 36, 18 - 72	5	470	440
REC2.2-xx09SRWZ/H*	9 - 36, 18 - 72	9	220	244
REC2.2-xx12SRWZ/H*	9 - 36, 18 - 72	12	120	183
REC2.2-xx15SRWZ/H*	9 - 36, 18 - 72	15	100	146
REC2.2-xx3.3DRWZ/H*	9 - 36, 18 - 72	±3.3	±470	±300
REC2.2-xx05DRWZ/H*	9 - 36, 18 - 72	±5	±220	±220
REC2.2-xx09DRWZ/H*	9 - 36, 18 - 72	±9	±100	±122
REC2.2-xx12DRWZ/H*	9 - 36, 18 - 72	±12	±68	±91
REC2.2-xx15DRWZ/H*	9 - 36, 18 - 72	±15	±47	±73

2:1 Input
(REC2.2-S/DRW/H*)
xx = 4.5-9Vin = 05
xx = 9-18Vin = 12
xx = 18-36Vin = 24
xx = 36-72Vin = 48

4:1 Input
(REC2.2-S/DRWZ/H*)
xx = 9-36Vin = 24
xx = 18-72Vin = 48

* use suffix /**H1** for 1kVDC Isolation, /**H2** for 2kVDC Isolation or /**H3** for 3kVDC Isolation.
* 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. REC2.2-2412SRW/H1/A/M = / Pinout "**A**" with metal case

Notes:

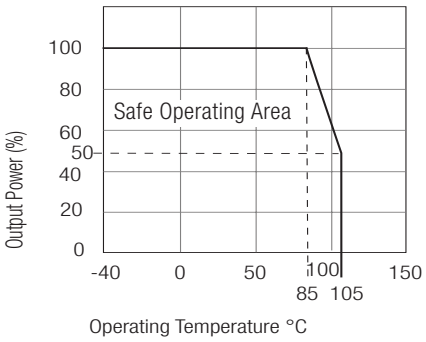
If the options "/**M**" for metal case and "/**SMD**" for SMD pinout are combined the maximum allowed isolation voltage is 2kVDC because of the shorter distances between the pins and the metal-case so the only available SMD-option in metal-case is "/**H2**". DIP-24 through-hole case and SMD-plastic case are not affected and offer the full isolation barriers of 2kVDC for "/**H2**" option and 3kVDC for "/**H3**".
The /**H2** and /**H3** Version is not available in B Pinning.

REC2.2-S_DRW(Z)/H* Series

Specifications (Core Operating Area)

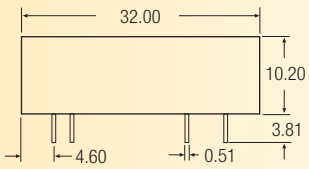
Input Voltage Range			2:1 & 4:1
Output Voltage Accuracy			±1% max.
Line Regulation (HL-LL)		2:1 Input types	±0.2% max.
		4:1 Input types	±0.2% max.
Load Regulation (for output load current change from 20% to 100%)			±0.5% max.
Output Ripple and Noise (0,1µF capacitor on output, 20MHz BW)			50mVp-p max.
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			84% max.
No Load Power Consumption			200mW typ.
Isolation Voltage Rated Working Voltage	H1 Types	(tested for 1 second) (long term isolation)	1000VDC min. see Application Notes
Isolation Voltage Rated Working Voltage	H2 Types	(tested for 1 second) (long term isolation)	2000VDC min. see Application Notes
Isolation Voltage Rated Working Voltage	H3 Types	(tested for 1 second) (long term isolation)	3000VDC min. see Application Notes
Isolation Capacitance		2:1 Input types 4:1 Input types	20pF min. / 60pF max. 40pF min. / 80pF max.
Isolation Resistance			1 GΩ min.
Short Circuit Protection			Continuous
Operating Temperature Range (free air convection)			-40°C to +85°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			12g
MTBF (+25°C) (+85°C)	*Detailed Information see Application Notes chapter "MTBF"*	using MIL-HDBK 217F using MIL-HDBK 217F	1102 x 10^3 hours 186 x 10^3 hours

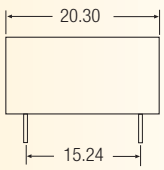
Derating-Graph
(Ambient Temperature)



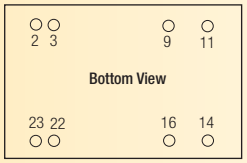
Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1

Package A

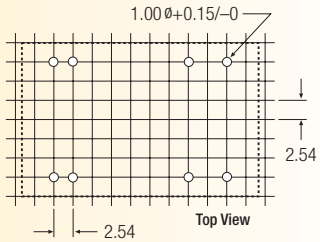




3rd angle projection



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

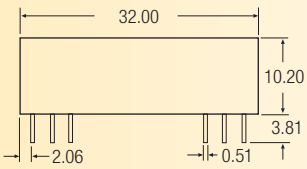
NC = No Connection
XX.X ± 0.5 mm
XX.XX ± 0.25 mm

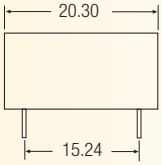
REC2.2-S_DRW(Z)/H* Series

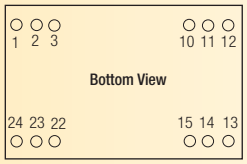
Package Style and Pinning (mm) DIP 24 , Wide Input 2:1 & 4:1

Package B

/H1 Only







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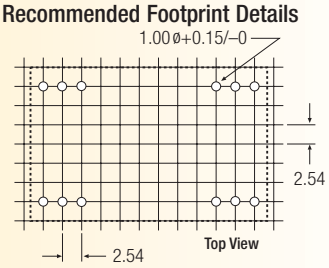
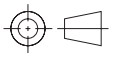


3rd angle projection

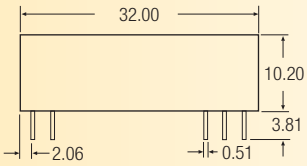


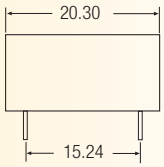
Pin Connections

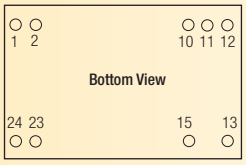
Pin #	Single	Dual
1	+Vin	+Vin
2	No Pin	–Vout
3	No Pin	Com
10	–Vout	Com
11	+Vout	+ Vout
12	–Vin	–Vin
13	–Vin	–Vin
14	+Vout	+Vout
15	–Vout	Com
22	No Pin	Com
23	No Pin	–Vout
24	+Vin	+Vin

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

Package C







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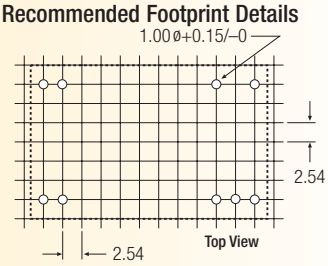
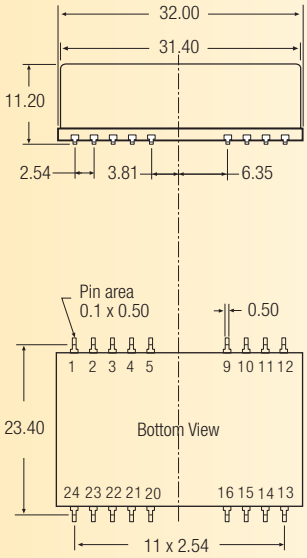


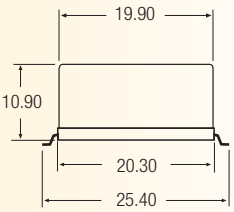
Pin Connections

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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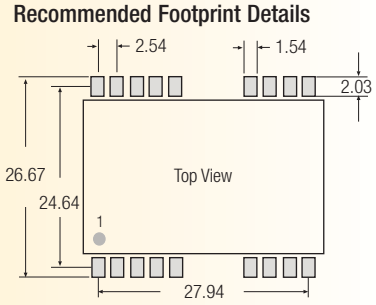

All unused pins are NC (No Connection). SMD pin connections follow standard package pinning. See Notes for restrictions on /H3 SMD versions.

Tol.: ± 0.35 mm

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