



Specifications (measured @ $T_a = 25^\circ\text{C}$, nom. V_{in} , full load and after warm-up unless otherwise stated)

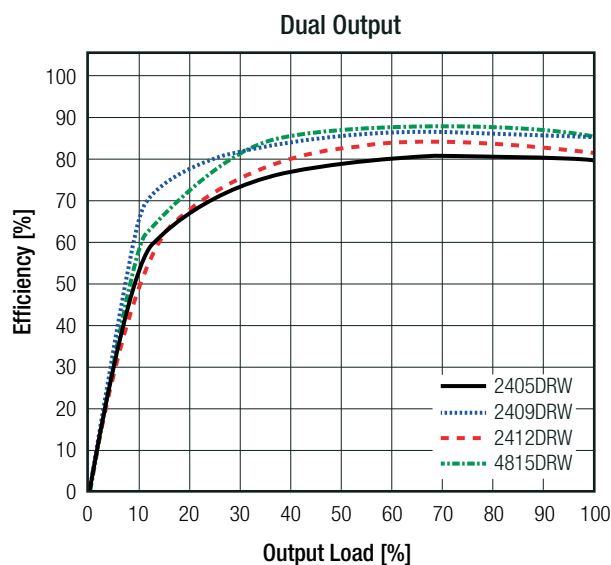
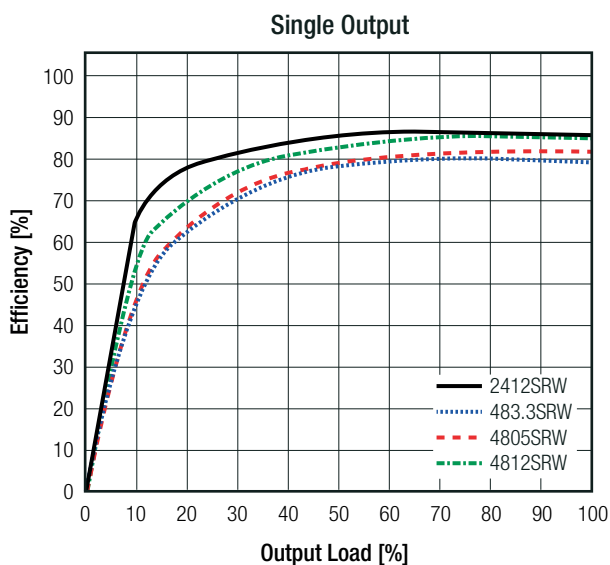
BASIC CHARACTERISTICS

Parameter	Condition		Min.	Typ.	Max.
Internal Input Filter			PI Network		
Input Voltage Range	12VDC	nom. $V_{in} =$	9VDC		18VDC
	24VDC		18VDC		36VDC
	48VDC		36VDC		72VDC
Minimum Load ⁽⁷⁾			10%		
No Load Power Consumption					300mW
ON/OFF CTRL	DC-DC ON DC-DC OFF		Open or $0\text{VDC} < V_{CTRL} < 1.2\text{VDC}$ $2.2\text{VDC} < V_{CTRL} < 12\text{VDC}$		
Internal Operating Frequency			150kHz		240kHz
Output Ripple and Noise	20MHz BW	3.3VDC others			100mVp-p 50mVp-p

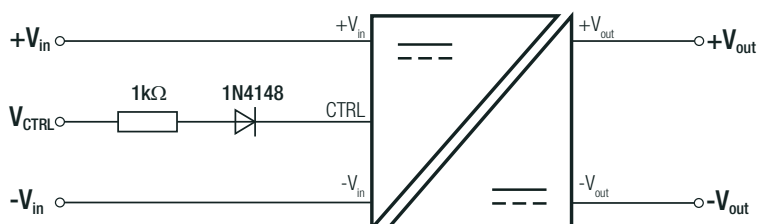
Notes:

Note7: Operation below 10% load will not harm the converter, but specifications may not be met

Efficiency vs. Load



ON/OFF CTRL



DC-DC ON: Open or $0\text{VDC} < V_{CTRL} < 1.2\text{VDC}$
DC-DC OFF: $2.2\text{VDC} < V_{CTRL} < 12\text{VDC}$

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

REGULATIONS

Parameter	Condition	Value
Output Accuracy		±2.0% max.
Line Regulation	low line to high line, full load	0.4% max.
Load Regulation ⁽⁷⁾	25% to 100% load	0.8% max.

PROTECTIONS

Parameter	Type		Value
Short Circuit Protection (SCP) ⁽⁸⁾	below 100mΩ		continuous, auto recovery
Isolation Voltage ⁽⁹⁾	“/H1” version	tested for 1 second rated for 1 minute	1kVDC 500VAC/ 60Hz
	“/H2” version	tested for 1 second rated for 1 minute	2kVDC 1kVAC/ 60Hz
	“/H3” version	tested for 1 second rated for 1 minute	3kVDC 1.5kVAC/ 60Hz
Isolation Resistance			1GΩ min.
Isolation Capacitance			50pF typ.

Notes:

Note8: Max. Temperature = +50°C during the short circuit conditions

Note9: For repeat Hi-Pot testing, reduce the time and/or the test voltage

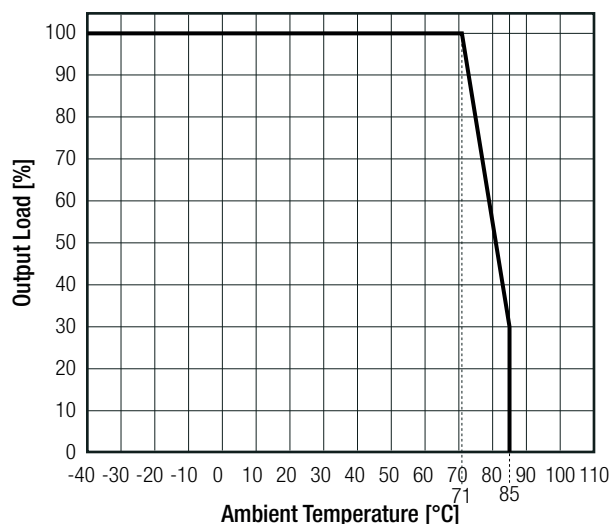
Note10: Refer to local safety regulations if input over-current protection is also required. Recommended fuse: slow blow type

ENVIRONMENTAL

Parameter	Condition		Value
Operating Temperature Range	with derating @ free air convection (see graph)		-40°C to +85°C
Thermal Impedance	0.1m/s natural convection		12K/W
Operating Altitude	according to 6060-1		3000m
Operating Humidity	non-condensing		95% RH max.
Pollution Degree			PD2
MTBF	according to MIL-HDBK-217F, G.B.	+25°C +71°C	800 x 10 ³ hours >200 x 10 ³ hours

Derating Graph

(@ Chamber and free air convection)



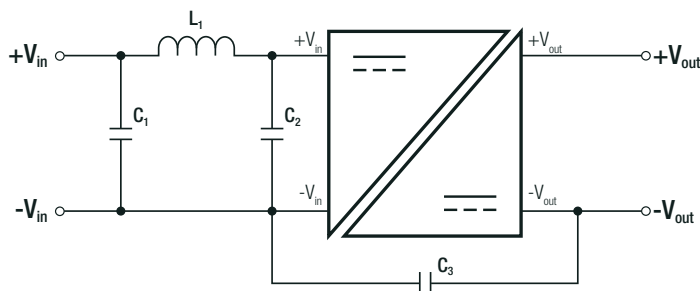
Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	E358085	UL60950-1, 2nd Edition, 2011 CAN/CSA-C22.2 No. 60950-1-03, 2nd Edition, 2011
Information Technology Equipment, General Requirements for Safety	LVD1605077-01	IEC60950-1:2005, 2nd Edition + A2:2013 EN60950-1:2006, A2:2013
Medical Electrical Equipment Part 1: General Requirements for Basic Safety and Essential Performance	SPC1006048	IEC60601-1:1988 + A2:1995 EN60601-1:1990 + A13 :1996
EAC	RU-AT.49.09571	TP TC 004/2011
RoHS		RoHS-2011/65/EU + AM-2015/863

EMC Compliance	Condition	Standard / Criterion
Electromagnetic compatibility of multimedia equipment - Emission requirements	with external filter (see filter suggestion below)	EN55032, Class A and Class B

EMC Filtering Suggestions according to EN55032



Component List Class A

MODEL	C1	C2	C3	L1
all	10µF/50V MLCC	10µF/50V MLCC	1000pF/4kVDC	N/A

Component List Class B

MODEL	C1	C2	C3	L1
all	10µF/50V MLCC	10µF/50V MLCC	1000pF/4kVDC	820µH Choke

DIMENSION AND PHYSICAL CHARACTERISTICS

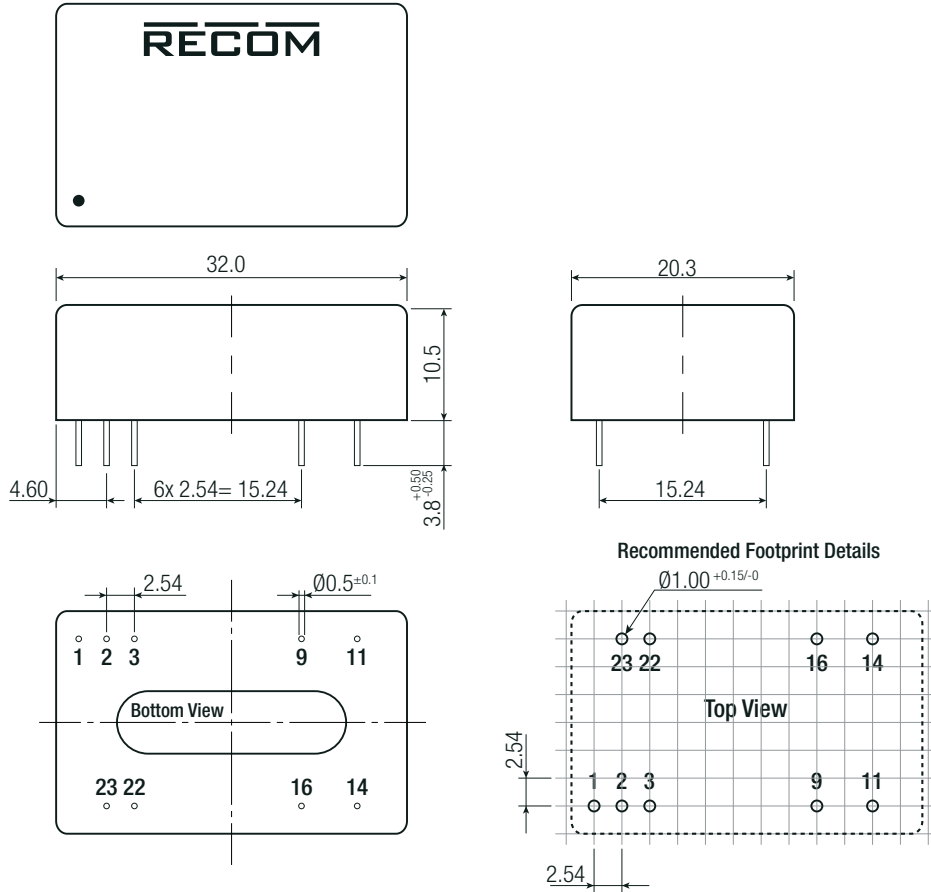
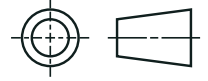
Parameter	Type	Value
Material	case	nickel plated copper
	base	non-conductive black plastic
	potting	epoxy, (UL94 V-0)
	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)	DIP24	32.0 x 20.3 x 10.5mm
	SMD	32.0 x 20.3 x 11.2mm
Weight		16g typ.

continued on next page

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

Dimension Drawing (mm)

DIP24 package



DIP24 Pinning (/H1, /H2, /H3)

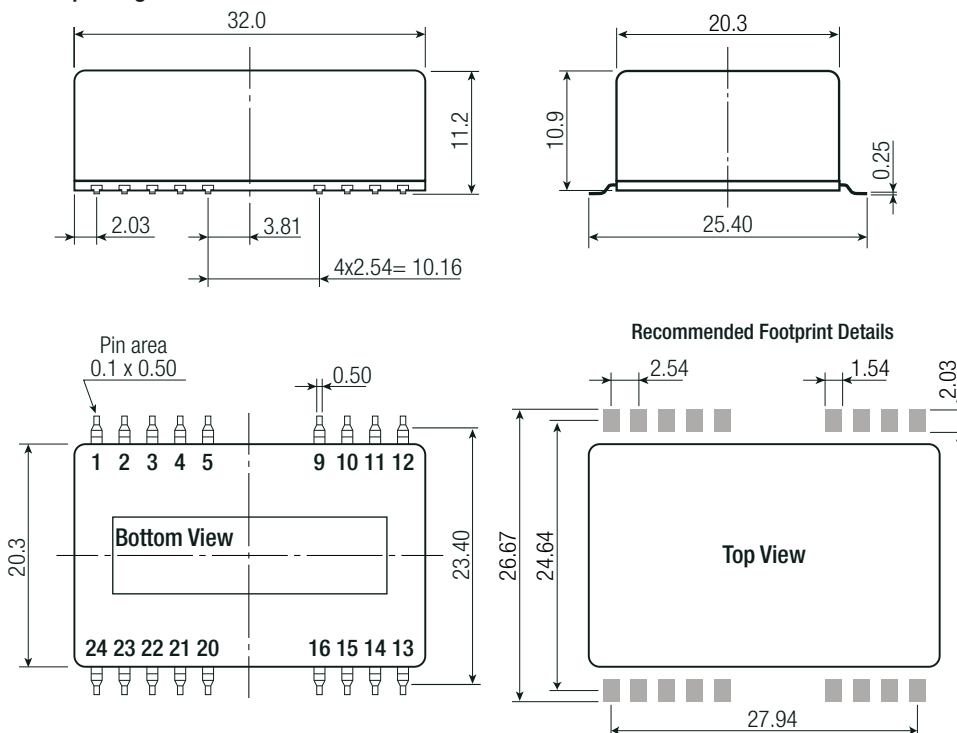
Pin #	Single	Dual
1 (option)	CTRL	CTRL
2, 3	-Vin	-Vin
9	NC	Com
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
22, 23	+Vin	+Vin

NC= No Connection

Tolerance: xx.x= ±0.5mm

xx.xx= ±0.25mm

SMD package



SMD Pinning (/H1, /H2)

Pin #	Single	Dual
1 (option)	CTRL	CTRL
2, 3	-Vin	-Vin
4, 5	NC	NC
9	NC	Com
10,12,13,15	NC	NC
11	NC	-Vout
14	+Vout	+Vout
16	-Vout	Com
20, 21, 24	NC	NC
22, 23	+Vin	+Vin

NC= No Connection

Tolerance: xx.x= ±0.5mm

xx.xx= ±0.25mm

Specifications (measured @ Ta= 25°C, nom. Vin, full load and after warm-up unless otherwise stated)

PACKAGING INFORMATION			
Parameter	Type		Value
Packaging Dimension (LxWxH)	DIP24	tube	530.0 x 23.0 x 19.0mm
	SMD	tube	530.0 x 32.0 x 19.0mm
		tape and reel (carton)	355.0 x 342.0 x 70.0mm
Packaging Quantity	tube		15pcs
	tape and reel		100pcs
Tape Width			44mm
Storage Temperature Range			-55°C to +125°C
Storage Humidity	non-condensing		95% RH max.

The product information and specifications may be subject to changes even without prior written notice. The product has been designed for various applications; its suitability lies in the responsibility of each customer. The products are not authorized for use in safety-critical applications without RECOM's explicit written consent. A safety-critical application is an application where a failure may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The applicant shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.

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