

Regulated Converters

- 4:1 Wide Input Voltage Range
- 1.6kVDC Isolation
- UL, IEC/EN & EN50155 Pending
- Efficiency up to 89%
- OVP, OCP & OTP
- +105°C max Case Temperature



RPA30-AW

30 Watt

1"x1"

Single & Dual Output



UL[®]
C **UL** US
E224736

UL60950-1 Pending
IEC/EN60950 Pending
EN50155 Pending

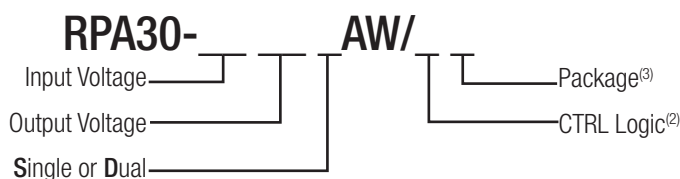
Selection Guide

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current [mA]	Input ⁽¹⁾ Current [mA]	Efficiency ⁽¹⁾ typ. [%]	Max. Capacitive Load [μF]
RPA30-243.3SAW ^(2,3)	9-36	3.3	7500	1170	88	10000
RPA30-2405SAW ^(2,3)	9-36	5	6000	1450	89	10000
RPA30-2412SAW ^(2,3)	9-36	12	2500	1450	88	1000
RPA30-2415SAW ^(2,3)	9-36	15	2000	1450	88	1000
RPA30-2412DAW ^(2,3)	9-36	±12	±1250	1450	88	±1000
RPA30-2415DAW ^(2,3)	9-36	±15	±1000	1450	88	±680

Notes:

Note1: Efficiency is tested by nominal Vin, full load and at 25°C.

Model Numbering



Ordering Examples

RPA30-243.3SAW = 24V Input, 3.3V Output, Single, no CTRL pin

RPA30-2405SAW/P = 24V Input, 5V Output, Single, Pos. CTRL. function

RPA30-2415SAW-HC = 24V Input, 15V Output, Single, no CTRL pin, glued Heat-sink

RPA30-2415DAW/N-HC = 24V Input, 15V Output, Dual, Neg. CTRL function, glued Heat-sink

Notes:

Note2: part without suffixes is without CTRL pin, trim pin fitted
add suffix "P" for positive CTRL function (1=ON, 0=OFF), trim pin fitted
add suffix "N" for negative CTRL function (0=ON, 1=OFF), trim pin fitted
trim pin is only available for single outputs

Note3: add suffix “-HC” for glued Heat-sink (compatible with all other suffixes)

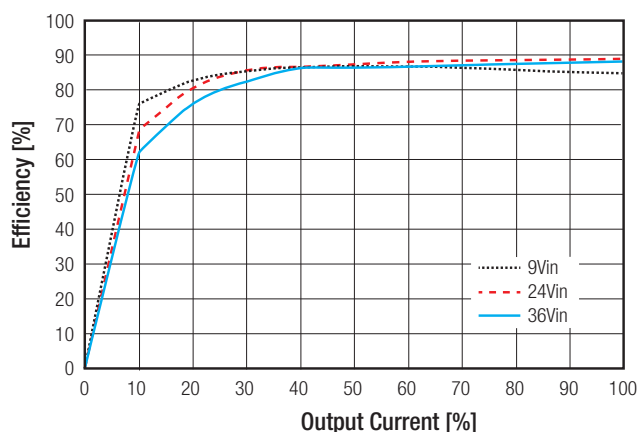
Specifications measured @ $t_a = 25^\circ\text{C}$, resistive load, nominal V_{in} and rated I_{out} unless otherwise noted

BASIC CHARACTERISTICS

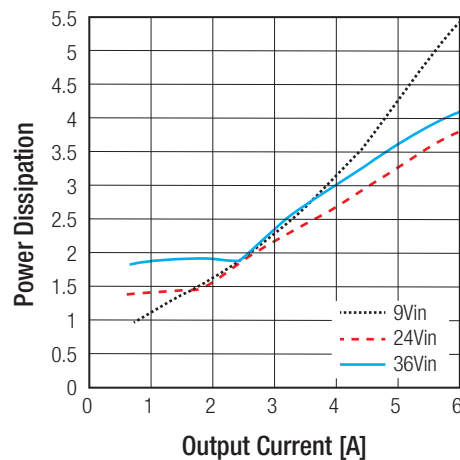
Parameter	Condition	Min.	Typ.	Max.
Internal Input Filter				Pi-Type
Input Voltage Range		9VDC	24VDC	36VDC
Input Surge Voltage	100ms			50VDC
Quiescent Current				
Start-up time	Power up CTRL ON/OFF		8ms	16ms
Internal Operating Frequency			550kHz	
Minimum Load		0%		
Ripple and Noise	20MHz BW, 10 μF tantalum capacitor and 1 μF ceramic capacitor		50mVp-p	
Under Voltage Lockout (UVLO)	DC-DC ON DC-DC OFF	8VDC 7VDC	8.5VDC 7.5VDC	9VDC 8VDC
ON/OFF Control	Positive Logic	DC-DC ON DC-DC OFF Open or $2.4 < V_r < 10\text{VDC}$ Short or $0 < V_r < 0.8\text{VDC}$		
	Negative Logic	DC-DC ON DC-DC OFF Short or $0 < V_r < 0.8\text{VDC}$ Open or $2.4 < V_r < 10\text{VDC}$		
Input current of CTRL pin			6mA	
Output Trim	Single Outputs	-10%		+10%

RPA30-2405SAW

Efficiency vs. Output Current

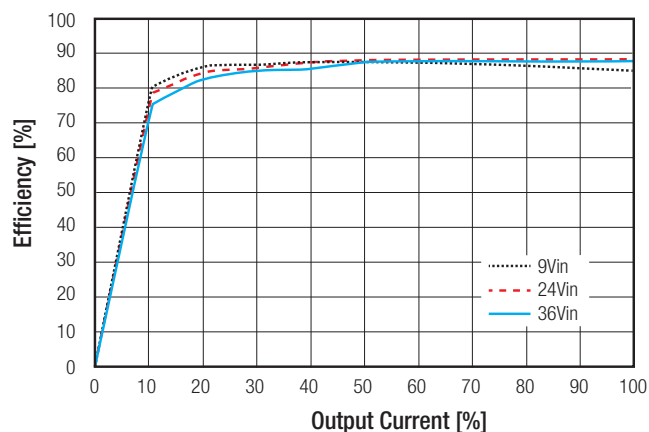


Power Dissipation vs Output Current

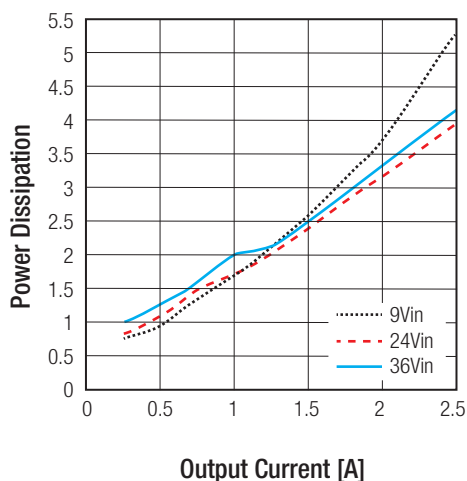


RPA30-2412SAW

Efficiency vs. Output Current



Power Dissipation vs Output Current



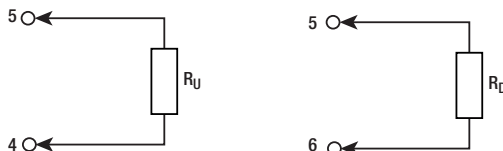
continued on next page

Specifications measured @ $t_a = 25^\circ\text{C}$, resistive load, nominal V_{in} and rated I_{out} unless otherwise noted

OUTPUT TRIM

Output Voltage Trimming

RPA30-AW converters offer the feature of trimming the output voltage over a certain range around the nominal value by using external trim resistors. The values for trim resistors shown in trim tables below are according to standard E96 values; therefore, the specified voltage may slightly vary.



RPA30-243.3SAW

Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	3.33	3.36	3.39	3.43	3.46	3.49	3.53	3.56	3.59	3.63	Volts
$R_U =$	402	169	100	75	47.5	34.8	26.1	17.8	12.1	8.06	KOhms
Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	3.27	3.23	3.20	3.17	3.14	3.10	3.07	3.04	3.0	2.97	Volts
$R_D =$	402	191	113	75	52.3	39.2	26.7	20	12.1	8.06	KOhms

RPA30-2405SAW

Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	5.05	5.10	5.15	5.20	5.25	5.30	5.35	5.40	5.45	5.50	Volts
$R_U =$	604	243	147	95.3	68.1	39.2	34.8	22.1	15	8.06	KOhms
Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	4.95	4.90	4.85	4.80	4.75	4.70	4.65	4.60	4.55	4.50	Volts
$R_D =$	604	287	169	124	105	78.7	54.9	39.2	15	0.5	KOhms

RPA30-2412SAW

Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	12.12	12.24	12.36	12.48	12.6	12.72	12.84	12.96	13.08	13.20	Volts
$R_U =$	604	267	162	105	75	499	40.2	24.9	18.2	10	KOhms
Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	11.88	11.76	11.64	11.52	11.40	11.28	11.16	11.04	10.92	10.80	Volts
$R_D =$	750	309	200	124	90.9	64.9	45.3	32.4	20	12.1	KOhms

RPA30-2415SAW

Trim up	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	16.50	Volts
$R_U =$	1000	243	200	130	90.9	61.9	40.2	30.1	24.9	10	KOhms
Trim down	1	2	3	4	5	6	7	8	9	10	%
$V_{out} =$	14.85	14.70	14.55	14.40	14.25	14.10	13.95	13.80	13.65	13.50	Volts
$R_D =$	1000	348	210	140	95.3	68.1	45.3	30.1	18.2	8.06	KOhms

Specifications measured @ $t_a = 25^{\circ}\text{C}$, resistive load, nominal V_{in} and rated I_{out} unless otherwise noted

REGULATION

Parameter	Condition		Value
Output Accuracy	Single & Dual		±2.0% max.
Line Regulation	low line to high line	Single Dual	±0.2% max. ±0.5% max.
Load Regulation	3.3Vout		±0.3%
	5Vout		±0.2%
	12Vout, 15Vout		±0.1%
	±12Vout, ±15Vout		±1.0%
Cross Regulation	asymmetrical 25%<>100% load		±3.0% max.
Transient Response	50-75%, full load, 0.1A/μs		±3.0% Vout typ.
	25% load step change		250μs typ.

PROTECTION

Parameter	Condition	Value
Short Circuit Protection (SCP)	below 100m Ω	continuous, auto recovery
Over Voltage Protection (OVP)		115%-150% Output Voltage, Hiccup, auto recovery
Over Current Protection (OCP)	Output Voltage 10% low	110%-160% Output Current, Hiccup
Over Temperature Protection (OTP)		115 $^{\circ}\text{C} \pm 5^{\circ}\text{C}$
Isolation Voltage	I/P to O/P	1.6kVDC/1 minute
Isolation Resistance		10M Ω min.
Isolation Capacitance		1100pF typ.

Notes:

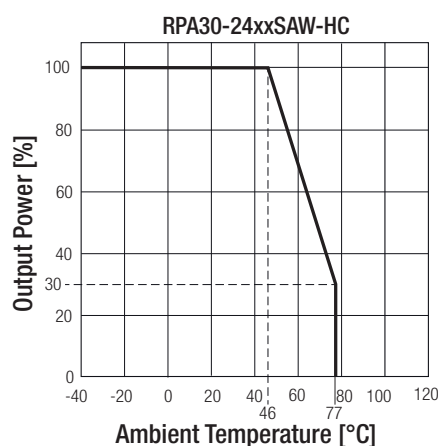
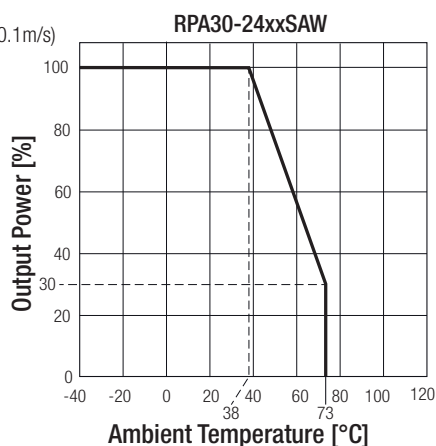
Note4: An input fuse is required if the mains supply is not over-current protected. Recommended fuse: 4A slow blow type.

ENVIRONMENTAL

Parameter	Condition	Value
Operating Temperature Range ⁽⁵⁾		refer to derating graph
Maximum Case Temperature		+105 $^{\circ}\text{C}$
Temperature Coefficient		0.02%/ $^{\circ}\text{C}$
Thermal Impedance	vertical direction by natural convection without Heat-sink vertical direction by natural convection with Heat-sink	18 $^{\circ}\text{C}/\text{W}$ 16 $^{\circ}\text{C}/\text{W}$
Operating Altitude		2134m
Operating Humidity		95% RH
MTBF		5888x 10 ³ h

Derating Graph ⁽⁵⁾

(@ Chamber and natural convection 0.1m/s)



Notes:

Note5: Derating graphs are valid only for the shown part numbers. If you need detailed derating-information about a part-number not shown here please contact our technical support service team at techsupportAT@recom-power.com

Specifications measured @ $t_a = 25^{\circ}\text{C}$, resistive load, nominal V_{in} and rated I_{out} unless otherwise noted

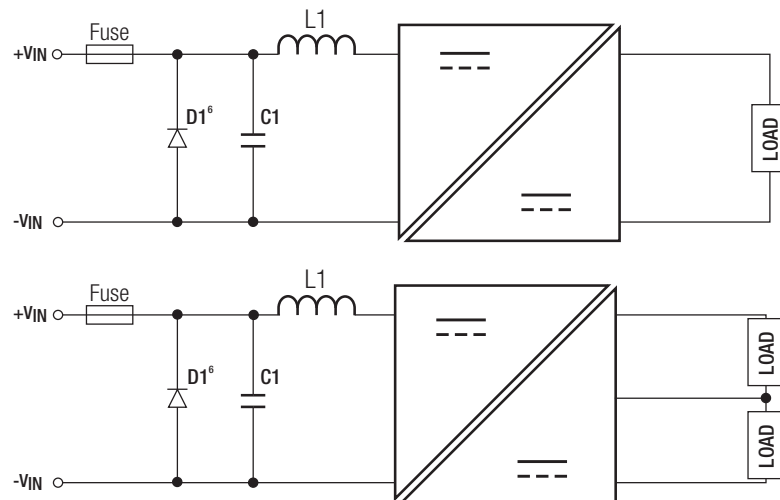
SAFETY AND CERTIFICATIONS

Certificate Type (Safety)	Report / File Number	Standard
Information Technology Equipment, General Requirements for Safety	E224736 pending	UL60950-1, 2nd Edition, 2014 CSA C22.2 No. 60950, 2nd Edition, 2014
IEC/EN Information Technology Equipment - General Requirements for Safety (CB Scheme)	E224736-A42+A43 pending	IEC60950-1, 2nd Edition, 2005 EN60950-1, 1st Edition, 2005
EN Information Technology Equipment - General Requirements for Safety (LVD Directive)	pending	EN60950-1, 1st Edition, 2006
Railway Applications - Electrical Equipment used on rolling stock	pending	EN50155, 1st Edition, 2007

EMC Compliance (designed to meet)

Condition	Standard / Criterion
Information technology equipment - Radio disturbance characteristics Limits and methods of measurement	with external filter EN55022, Class A, 2010

EMI Filtering according to EN50121-3-2 and EN55022 Class A



MODEL	C1	L1
RPA30-xyyS_DAW	47 μF /50V electrolytic capacitor	1 μH

Notes:

Note6: Diode is only needed for EN50155.

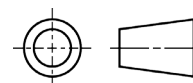
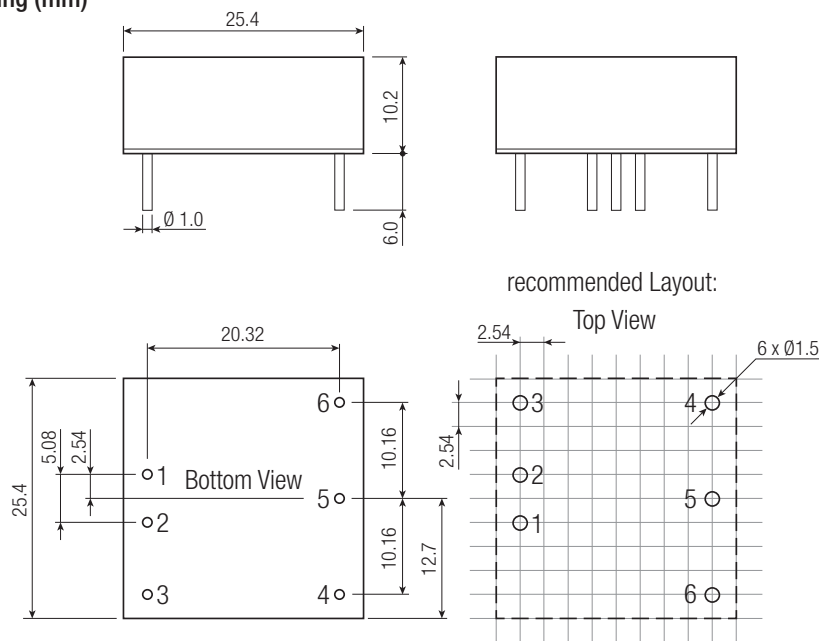
DIMENSIONS and PHYSICAL CHARACTERISTICS

Parameter	Type	Value
Material	Case	Al Alloy, anodize black
	Baseplate	non-conductive FR4
	Potting	Silicone
Package Dimensions (LxWxH)	without Heat-sink	25.4 x 25.4 x 10.2mm
	with Heat-sink	25.4 x 25.4 x 16.8mm
Package Weight	without Heat-sink	17g
	with Heat-sink	21g

continued next page

Specifications measured @ $t_a = 25^{\circ}\text{C}$, resistive load, nominal V_{in} and rated I_{out} unless otherwise noted

Dimension Drawing (mm)

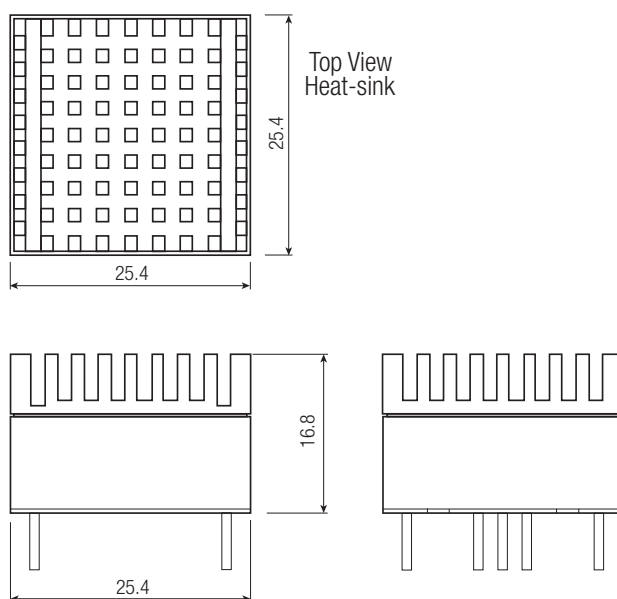


Pin Connections

Pin #	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	CTRL ⁽²⁾	CTRL ⁽²⁾
4	-Vout	-Vout
5	Trim	Com
6	+Vout	+Vout

Pin Pitch Tolerance $\pm 0.25\text{mm}$
Pin dimension tolerance $\pm 0.1\text{mm}$
XX.X $\pm 0.5\text{mm}$
XX.XX $\pm 0.25\text{mm}$

Heat-sink Dimension Drawing (mm)



PACKAGING INFORMATION

Parameter	Type		Value
Packaging Dimensions (LxWxH)	without Heat-sink	Tube	285.0 x 27.6 x 19.0mm
	with Heat-sink		285.0 x 27.6 x 25.8mm
Packaging Quantity			10pcs
Storage Temperature Range			-55°C to +125°C
Storage Humidity			5% - 95% RH

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer 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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

RECOM:

[RPA30-2405SAW](#) [RPA30-2405SAW/N](#) [RPA30-2405SAW/N-HC](#) [RPA30-2405SAW/P](#) [RPA30-2405SAW/P-HC](#)
[RPA30-2405SAW-HC](#) [RPA30-243.3SAW](#) [RPA30-243.3SAW/N](#) [RPA30-243.3SAW/N-HC](#) [RPA30-243.3SAW/P](#)
[RPA30-243.3SAW/P-HC](#) [RPA30-243.3SAW-HC](#) [RPA30-2415SAW](#) [RPA30-2415SAW/N](#) [RPA30-2415SAW/N-HC](#)
[RPA30-2415SAW/P](#) [RPA30-2415SAW/P-HC](#) [RPA30-2415SAW-HC](#) [RPA30-2415DAW](#) [RPA30-2415DAW/N](#) [RPA30-](#)
[2415DAW/N-HC](#) [RPA30-2415DAW/P](#) [RPA30-2415DAW/P-HC](#) [RPA30-2415DAW-HC](#) [RPA30-2412SAW](#) [RPA30-](#)
[2412SAW/N](#) [RPA30-2412SAW/N-HC](#) [RPA30-2412SAW/P](#) [RPA30-2412SAW/P-HC](#) [RPA30-2412SAW-HC](#) [RPA30-](#)
[2412DAW](#) [RPA30-2412DAW/N](#) [RPA30-2412DAW/N-HC](#) [RPA30-2412DAW/P](#) [RPA30-2412DAW/P-HC](#) [RPA30-](#)
[2412DAW-HC](#)