Technical Data Sheet

DS-RVPW014-RBE-024-2412-1

6W ◊ Regulated Isolated Output ◊ 4:1 Input

RECOM
DC/DC Converter

FEATURES

- Wide input range (9V - 36V)
- Isolation voltage 1.5kVDC/min
- Secondary side regulation
- Operating temperature: -40°C to +85°C
- Short circuit protection
- Castellated connections



Dimensions (LxWxH): 43.18 x 25.4 x 7.0 mm(1.7 x 1.0 x 0.28 inch)
5g (0.011lbs)

DESCRIPTION

This application scheme is based on a highly integrated peak current type flyback power supply controller RVPW014, combined with an isolated power transformer RBE-024, an output rectifier diode, and necessary resistive and capacitive components, to achieve a 9V - 36V input, 12V output isolated voltage stabilizing power supply solution. This scheme can achieve an output power of up to 6W within the full input voltage range, with an isolation withstand voltage between the primary and secondary sides not less than 1500VDC. It also features remote control shutdown, long-term short-circuit protection and self-recovery functions. This scheme can be applied in situations where electrical isolation is required on the system board to achieve safety and anti-interference purposes.

SELECTION GUIDE

Part Number	Input Voltage Range [VDC]	Output Voltage [VDC]	Output Current max. [mA]	Efficiency typ. [%]	max. Capacitive[1] [uF]
DS-RVPW014-RBE-024-2412-1	9-36	12	500	85	1000

Note 1: Max. capacitive load is tested at nominal input voltage and full load

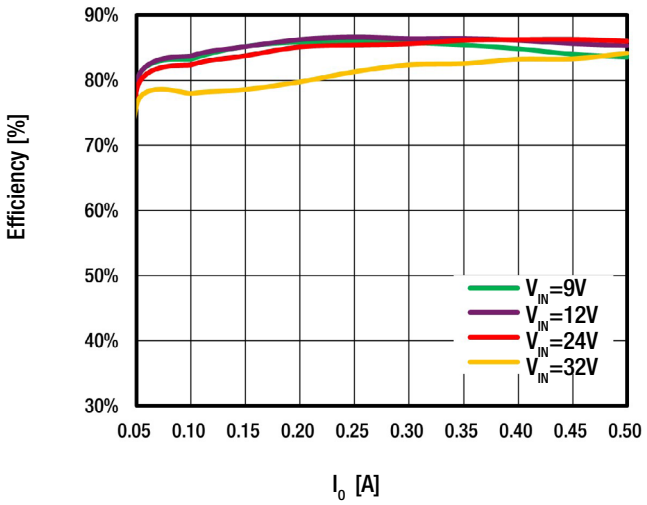
BASIC CHARACTERISTIC (measured @ T_{AMB}= 25°C, nominal Input and full load after warm-up time unless otherwise stated)

Parameter	Condition	Min.	Typ.	Max.
Input Voltage Range		9VDC	24VDC	36VDC
Minimum Load		0%		
Internal Operating Frequency			330kHz	
Output Ripple and Noise	20MHz BW			100mVp-p

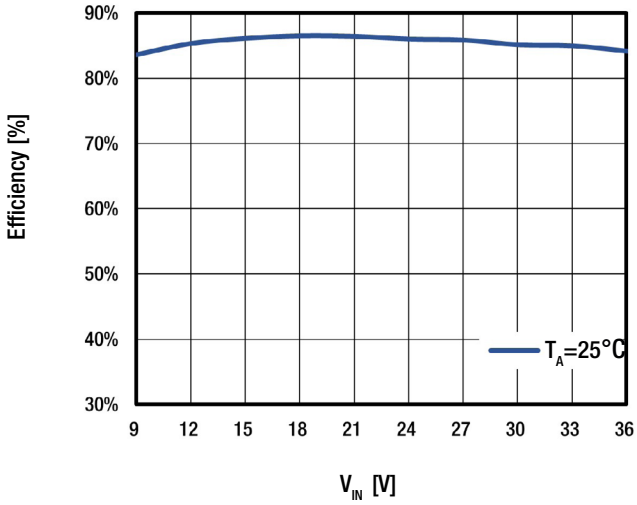
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SPECIFICATIONS (measured @ T_{AMB}= 25°C, nominal Input and full load after warm-up time unless otherwise stated)

Typical Effiency vs. Output Current Curve

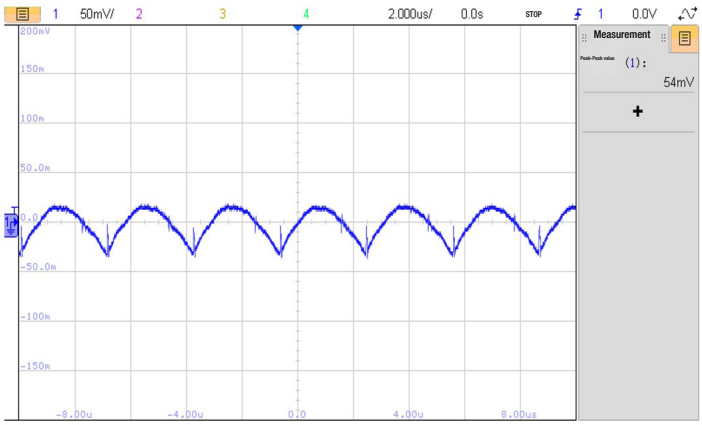


Typical Effiency vs. Input Voltage Curve

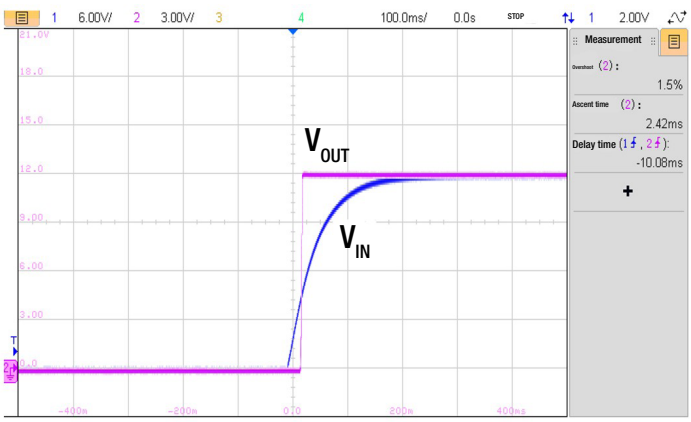


Typical waveform

V_{IN}=24V, Full-load output voltage ripple waveform



V_{IN}=24V, Full-load start-up waveform



REGULATIONS

Parameter	Condition	Values
Output Accuracy		±1.0% Typ.
Line Regulation	low line to high line, full load	±1.0% Typ.
Load Regulation	10% to 100% load, V_{OUT}	±1.0% Typ.

PROTECTION AND ISOLATION CAPABILITIES

Short Circuit Protection		continuous, automatic recovery
Isolation Voltage	tested for 1 minute	1.5kVDC min.
Insulation Grade		functional

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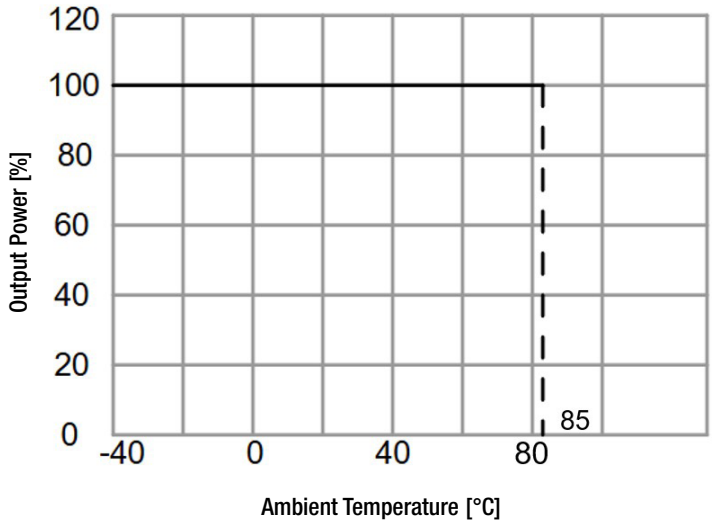
RECOM DC/DC Converter

ENVIRONMENT

Parameter	Condition	Values
Operating Temperature Range	full load	-40°C to +85°C

Derating Graph

(@ Chamber and natural convection 0.1m/s)

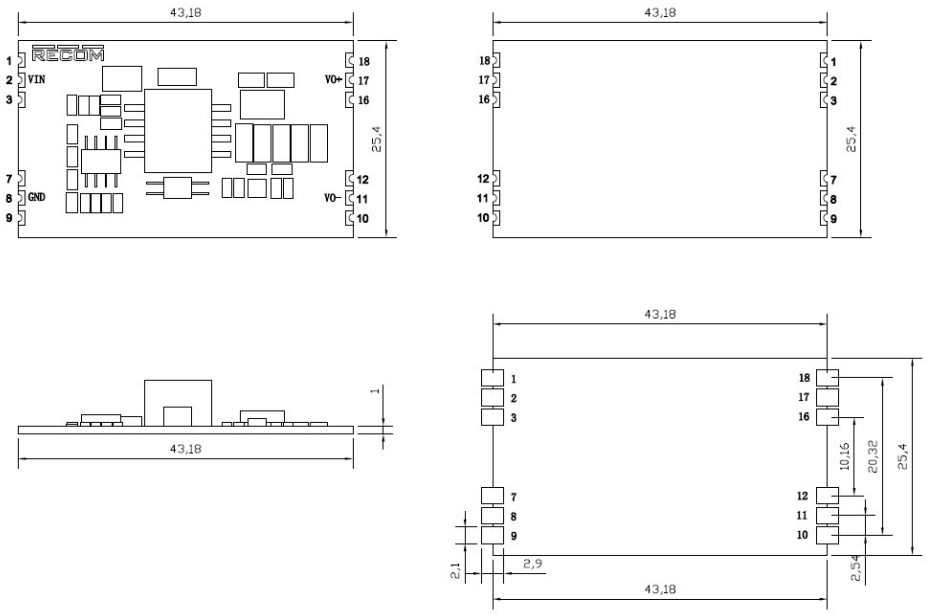


DIMENSION & PHYSICAL CHARACTERISTICS

Parameter	Type	Values
Material	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)		43.18 x 25.4 x 7.0 mm
Weight		5g (0.011lbs)

Dimension Drawing (mm)

Pinning Information	
Pin #	**Single**
1,2,3	V_{IN}
7,8,9	GND
10,11,12	V_{OUT-}
16,17,18	V_{OUT+}



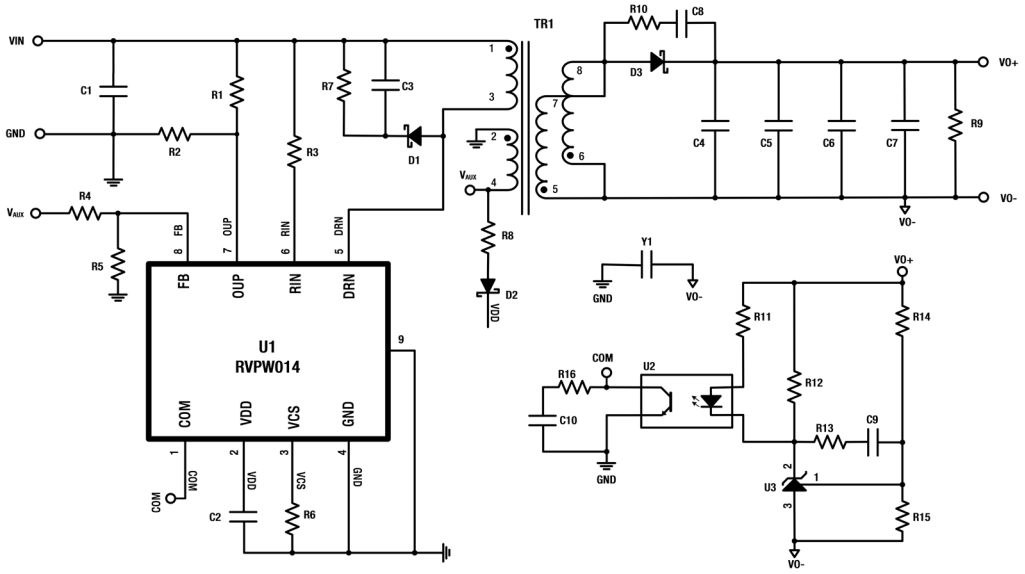
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SCHEMATIC



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Component Designator	Description	Package	Manufacturer Part Number	Manufacturer
C1	10uF/50V-X7R	1210	CC1210KKX7R9BB106	YAGEO
C2	1uF/25V-X7R	0603	CC0603KRX7R8BB105	YAGEO
C3	100nF/50V-X7R	0603	CC0603KRX7R9BB104	YAGEO
C4,C5,C6	22uF/16V-X5R	1206	CC1206KKX5R7BB226	YAGEO
C8	100pF/200V-NPO	0805	CC0805JRNP0ABN101	YAGEO
C9	10nF/50V-X7R	0603	CC0603KRX7R9BB103	YAGEO
C7,C10	NC	-	-	-
Y1	1nF/2KV-X7R	1206	CC1206KKX7RDBB102	YAGEO
R1	470KΩ±1%	0603	RC0603FR-07470KL	YAGEO
R2	150KΩ±1%	0603	RC0603FR-07150KL	YAGEO
R3	330KΩ±1%	0603	RC0603FR-07330KL	YAGEO
R5	0Ω±1%	0603	RC0603FR-070RL	YAGEO
R6	22KΩ±1%	0603	RC0603FR-0722KL	YAGEO
R7	10KΩ±1%	0603	RC0603FR-0710KL	YAGEO
R8	20Ω±1%	0603	RC0603FR-0720RL	YAGEO
R9	5.1KΩ±1%	1206	RC1206FR-075K1L	YAGEO
R10	10Ω±1%	0805	RC0805FR-0710RL	YAGEO
R11	2KΩ±1%	0603	RC0603FR-072KL	YAGEO
R12	20KΩ±1%	0603	RC0603FR-0720KL	YAGEO
R13	51KΩ±1%	0603	RC0603FR-0751KL	YAGEO
R14	18KΩ±1%	0603	RC0603FR-0718KL	YAGEO
R15	4.7KΩ±1%	0603	RC0603FR-074K7L	YAGEO
R4,R16	NC	-	-	-
TR1	-	ER11.5	RBE-024	RECOM
D1,D2	200V/0.2A	SOD-323	BAV21WS	CJ
D3	100V/2A	SMA	SS210A	YANGJIE
U1	-	ESOP-8	RVPW014	RECOM
U2	CTR=80%~160%, Viso=3750VAC	SSOP-4	EL3H7(A)(TA)-G	EVERLIGHT
U3	Vref=2.495V	SOT23-3	CJ431	CJ

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