DS-RVP003-RMR-010-1205-1

1W ◊ Unregulated Isolated Output ◊ 1:1 Input

RECOM
DC/DC Converter

FEATURES

- Isolation voltage 3kVDC/min
- Operating temperature: -40°C to +85°C
- Short circuit protection
- Castellated connections



Dimensions (LxWxH): 25.4x15.24 x4.8 mm (1.0 x 0.6 x 0.19 inch)
1.40g (0.003lbs)

DESCRIPTION

This solution is composed of RVP003 and the matching transformer RMR-010. Combined with necessary rectifier diodes and resistive-capacitive components, it realizes a 12V ± 10% input and 5V/200mA output isolated non-stabilized power supply. The primary and secondary side isolation withstand voltage is not less than 3000VDC. It can provide long-term short-circuit protection and self-recovery. It is mainly applied in distributed power supply systems on circuit boards where a set of power supply needs to be generated to achieve safety and anti-interference by isolating from the input.

SELECTION GUIDE

Part Number	Input Voltage [VDC]	Output Voltage [VDC]	Output Current max. [mA]	Efficiency typ. [%]	max. Capacitive[1] [µF]
DS-RVP003-RMR-010-1205-1	12	5	200	86	6800

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	nom.V_{IN}=12V±10%	10.8VDC	12VDC	13.2VDC
Minimum Load		0%		
Internal Operating Frequency			250kHz	
Output Ripple and Noise	20MHz BW			100mVp-p

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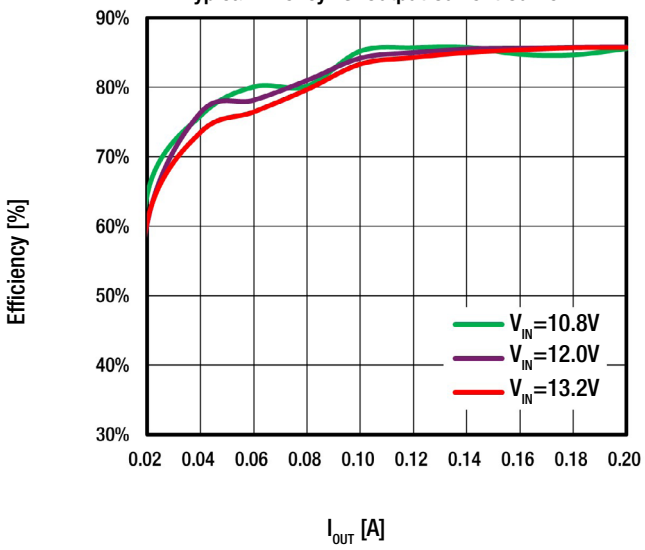
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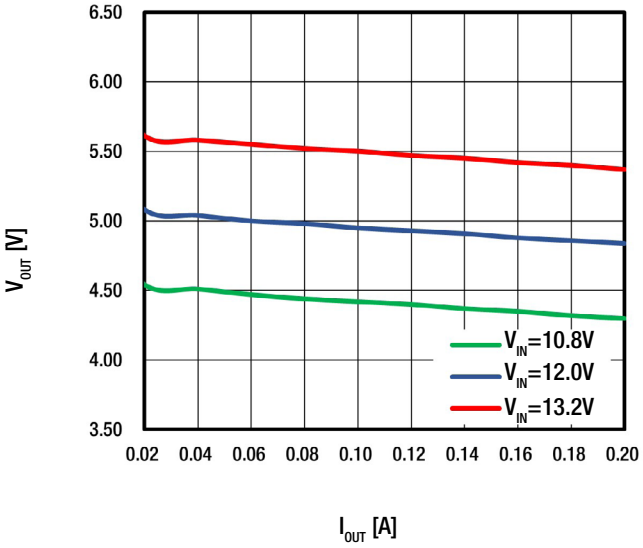
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SPECIFICATIONS (measured @ T_{AMB}= 25°C, nominal input and full load after warm-up time unless otherwise stated)

Typical Effiency vs. Output Current Curve

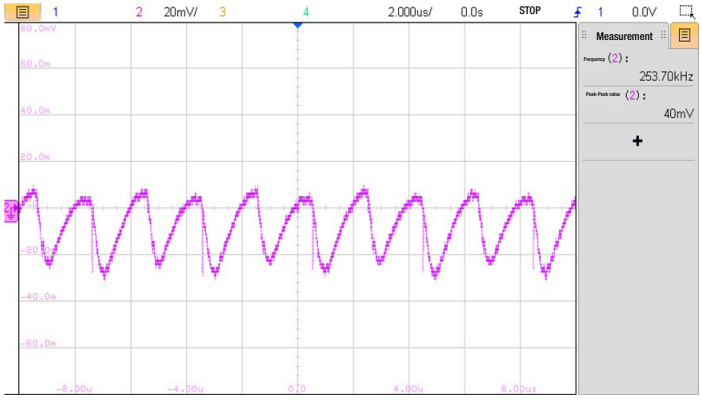


Typical Output Voltage vs. Output Current Curve

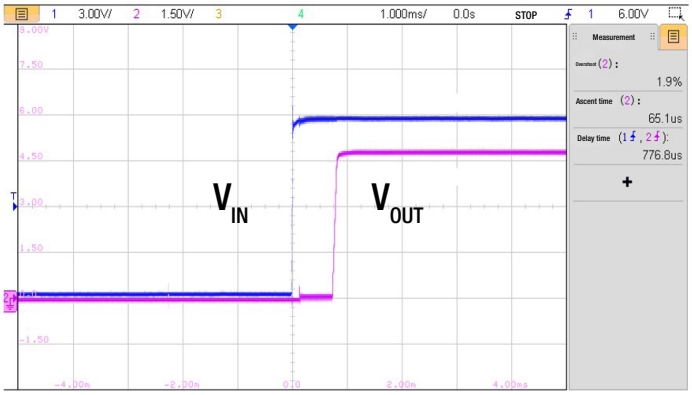


Typical Waveform

V_{IN} =12V, Full-load output voltage ripple waveform



V_{IN} =12V, Full load startup waveform



REGULATIONS

Parameter	Condition	Values
Output Accuracy		±3.0% Typ.
Line Regulation	low line to high line, full load	1.1% of 1.2%V_{IN} Typ.
Load Regulation	10% to 100% load, V_{OUT}	±5.0% Typ.

PROTECTION AND ISOLATION CAPABILITIES

Short Circuit Protection		continuous, automatic recovery
Isolation Voltage	tested for 1 minute	3kVDC min.
Insulation Grade		functional

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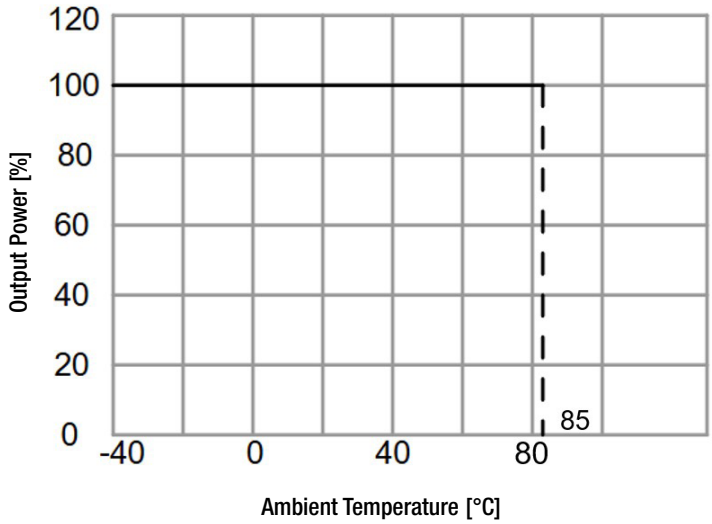
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ENVIRONMENT

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

Derating Graph

(@ Chamber and natural convection 0.1m/s)

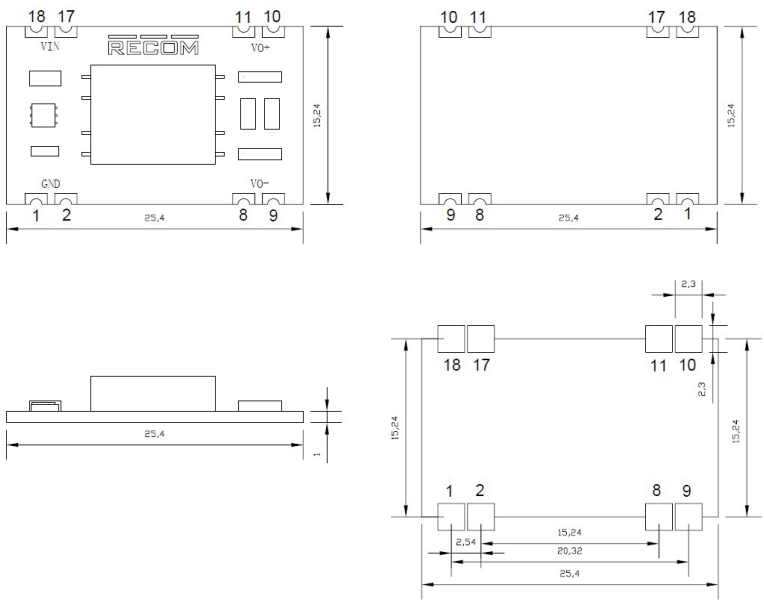


DIMENSION & PHYSICAL CHARACTERISTICS

Parameter	Type	Values
Material	PCB	FR4, (UL94 V-0)
Dimension (LxWxH)		25.4x15.24 x4.8 mm
Weight		1.40g typ. (0.004 lbs)

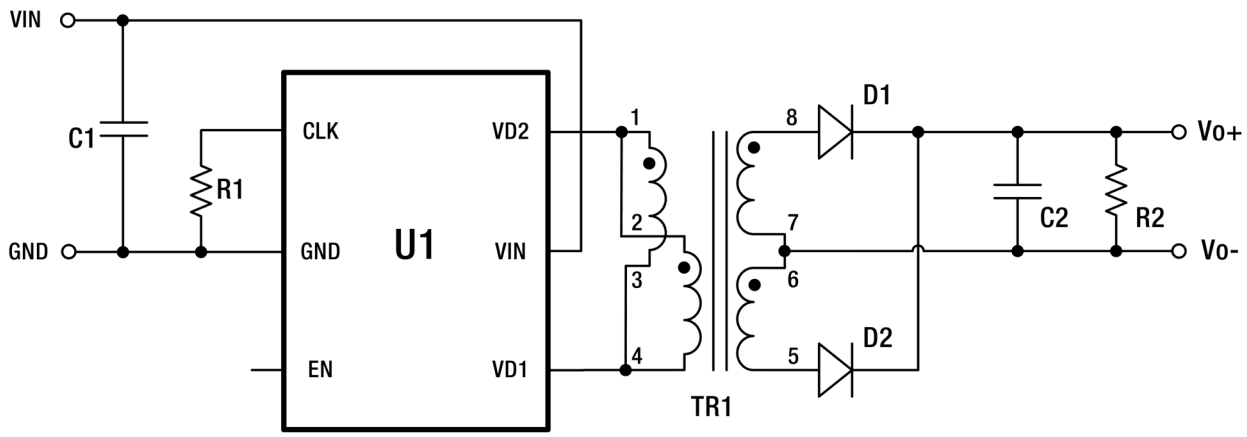
Dimension Drawing (mm)

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



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SCHEMATIC



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Component Designator	Description	Package	Manufacturer Part Number	Manufacturer
C1	1uF/50V-X7R	0805	CC0805KKX7R9BB105	YAGEO
C2	4.7uF/50V-X5R	0805	CC0805KKX5R9BB475	YAGEO
R1	NC	-	-	-
R2	4.7KΩ±1%	0805	0805W8F4701T5E	UNI-ROYAL
D1,D2	60V/1A	SOD-123	MBRX160	MDD
U1	-	DFN2x2	RVP003	RECOM
TR1	-	SMD	RMR-010	RECOM

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