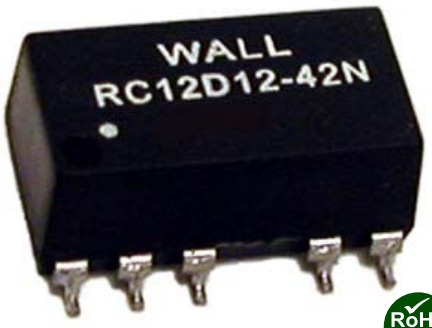


RoHS COMPLIANT

Package 1 Size: 0.60 x 0.31 x 0.29 inch
Package 2 Size: 0.60 x 0.31 x 0.33 inches
Weight: 0.06oz (1.8g)

FEATURES

- 1 Watt Output Power
- RoHS Compliant
- Unregulated Single & Dual Outputs
- High I/O Isolation: 3000VDC
- No External Components Required
- -40°C to +85°C Operating Temperature
- 22-PIN SMT Package and Industry Standard Pin-out
- High Efficiency up to 80%
- Recognized by UL60950-1
- MTBF > 3,500,000 Hours

DESCRIPTION

The RC series of 1 watt DC/DC power converters are specially designed to provide high levels of isolation in a 22-PIN SMT package. This series consists of 50 models with nominal input voltages of 3.3V, 5V, 9V, 12V, and 15V and standard unregulated output voltages of 3.3V, 5V, 9V, 12V, and 15V in both single and dual output configurations. The RC series is highly suitable for high speed SMT pick-and-place machine operation. The operating temperature range of -40°C to +85°C is ideal for designers requiring industrial temperature operation. The RC series is RoHS compliant and has UL60950-1 safety approvals.

SPECIFICATIONS: RC SERIES

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	3.3VDC nominal input models		2.97	3.3	3.63	VDC
	5VDC nominal input models		4.5	5	5.5	
	9VDC nominal input models		8.1	9	9.9	
	12VDC nominal input models		10.8	12	13.2	
	15VDC nominal input models		13.5	15	16.5	
Input Filter			capacitor			
OUTPUT SPECIFICATIONS						
Output Voltage			See Table			
Output Voltage Tolerance	100% full load				±5	%
Line Regulation	For Vin change of 1%			1.2		%
Load Regulation	10% to 100% full load	3.3 VDC output models		15		%
		5VDC output models			12	
		9VDC output models			8.0	
		12 VDC output models			8.5	
		15VDC output models			7.0	
Output Current			See Table			
Output Power					1	W
Minimum Load			10			%
Ripple & Noise	20MHz limited bandwidth				75	mVp-p
Transient Response Setting Time	50% load step change			350		µs
PROTECTION						
Short Circuit Protection			none			
GENERAL SPECIFICATIONS						
Efficiency			See Table			
Switching Frequency	Nominal input and full load			100		KHz
Isolation Voltage (Input to Output)			3000			VDC
Isolation Resistance	500VDC		1000			MΩ
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	See derating curve		-40		+85	°C
Humidity	Non-condensing				95	% RH
Cooling			Free air convection			
MTBF	MIL-HDBK-217F at 25°C, ground benign		3,500,000			hours
PHYSICAL SPECIFICATIONS						
Case Material			DAP			
Weight	Package 1 & Package 2		0.06oz (1.8g)			
Dimensions (L x W x H)	Package 1		0.60 x 0.31 x 0.29 inches (15.24 x 8.0 x 7.30 mm)			
	Package 2		0.60 x 0.31 x 0.33 inches (15.24 x 8.0 x 8.50 mm)			
SAFETY						
Safety Approvals			UL60950-1			

**Due to advances in technology, specifications subject to change without notice.*

MODEL SELECTION TABLE

SINGLE OUTPUT MODELS

Model Number	Input Voltage	Output Voltage	Output Current Min[1]	Output Current Max	Load Reg.	Ripple & Noise	Output Power	Efficiency[2]	Package Type
RC33S33-303NH	3.3 VDC (2.97 - 3.63 VDC)	3.3 VDC	30.3mA	303mA	15%	75mVp-p	1W	65%	1
RC33S5-200NH		5 VDC	20mA	200mA	12%	75mVp-p	1W	70%	1
RC33S9-112NH		9 VDC	11.2mA	112mA	8.0%	75mVp-p	1W	75%	1
RC33S12-83NH		12 VDC	8.4mA	84mA	8.5%	75mVp-p	1W	78%	2
RC33S15-67NH		15 VDC	6.7mA	67mA	7.0%	75mVp-p	1W	80%	2
RC5S33-303NH	5 VDC (4.5 - 5.5 VDC)	3.3 VDC	30.3mA	303mA	15%	75mVp-p	1W	65%	1
RC5S5-200NH		5 VDC	20mA	200mA	12%	75mVp-p	1W	70%	1
RC5S9-112NH		9 VDC	11.2mA	112mA	8.0%	75mVp-p	1W	75%	1
RC5S12-83NH		12 VDC	8.4mA	84mA	8.5%	75mVp-p	1W	78%	2
RC5S15-67NH		15 VDC	6.7mA	67mA	7.0%	75mVp-p	1W	80%	2
RC9S33-303NH	9 VDC (8.1 - 9.9 VDC)	3.3 VDC	30.3mA	303mA	15%	75mVp-p	1W	65%	1
RC9S5-200NH		5 VDC	20mA	200mA	12%	75mVp-p	1W	70%	1
RC9S9-112NH		9 VDC	11.2mA	112mA	8.0%	75mVp-p	1W	75%	1
RC9S12-83NH		12 VDC	8.4mA	84mA	8.5%	75mVp-p	1W	78%	2
RC9S15-67NH		15 VDC	6.7mA	67mA	7.0%	75mVp-p	1W	80%	2
RC12S33-303NH	12 VDC (10.8 - 13.2 VDC)	3.3 VDC	30.3mA	303mA	15%	75mVp-p	1W	65%	2
RC12S5-200NH		5 VDC	20mA	200mA	12%	75mVp-p	1W	70%	2
RC12S9-112NH		9 VDC	11.2mA	112mA	8.0%	75mVp-p	1W	75%	2
RC12S12-83NH		12 VDC	8.4mA	84mA	8.5%	75mVp-p	1W	78%	2
RC12S15-67NH		15 VDC	6.7mA	67mA	7.0%	75mVp-p	1W	80%	2
RC24S33-303NH	15 VDC (13.5 - 16.5 VDC)	3.3 VDC	30.3mA	303mA	15%	75mVp-p	1W	65%	2
RC24S5-200NH		5 VDC	20mA	200mA	12%	75mVp-p	1W	70%	2
RC24S9-112NH		9 VDC	11.2mA	112mA	8.0%	75mVp-p	1W	75%	2
RC24S12-83NH		12 VDC	8.4mA	84mA	8.5%	75mVp-p	1W	78%	2
RC24S15-67NH		15 VDC	6.7mA	67mA	7.0%	75mVp-p	1W	80%	2

DUAL OUTPUT MODELS

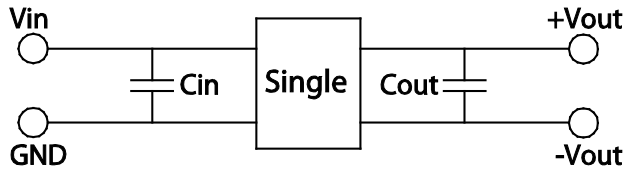
Model Number	Input Voltage	Output Voltage	Output Current Min[1]	Output Current Max	Load Reg.	Ripple & Noise	Output Power	Efficiency[2]	Package Type
RC33D33-150NH	3.3 VDC (2.97 - 3.63 VDC)	±3.3 VDC	±15mA	±150mA	15%	75mVp-p	1W	65%	1
RC33D5-100NH		±5 VDC	±10mA	±100mA	12%	75mVp-p	1W	70%	1
RC33D9-55NH		±9 VDC	±5.6mA	±56mA	8.0%	75mVp-p	1W	75%	1
RC33D12-42NH		±12 VDC	±4.2mA	±42mA	8.5%	75mVp-p	1W	78%	2
RC33D15-33NH		±15 VDC	±3.4mA	±34mA	7.0%	75mVp-p	1W	80%	2
RC5D33-150NH	5 VDC (4.5 - 5.5 VDC)	±3.3 VDC	±15mA	±150mA	15%	75mVp-p	1W	65%	1
RC5D5-100NH		±5 VDC	±10mA	±100mA	12%	75mVp-p	1W	70%	1
RC5D9-55NH		±9 VDC	±5.6mA	±56mA	8.0%	75mVp-p	1W	75%	1
RC5D12-42NH		±12 VDC	±4.2mA	±42mA	8.5%	75mVp-p	1W	78%	2
RC5D15-33NH		±15 VDC	±3.4mA	±34mA	7.0%	75mVp-p	1W	80%	2
RC9D33-150NH	9 VDC (8.1 - 9.9 VDC)	±3.3 VDC	±15mA	±150mA	15%	75mVp-p	1W	65%	1
RC9D5-100NH		±5 VDC	±10mA	±100mA	12%	75mVp-p	1W	70%	1
RC9D9-55NH		±9 VDC	±5.6mA	±56mA	8.0%	75mVp-p	1W	75%	1
RC9D12-42NH		±12 VDC	±4.2mA	±42mA	8.5%	75mVp-p	1W	78%	2
RC9D15-33NH		±15 VDC	±3.4mA	±34mA	7.0%	75mVp-p	1W	80%	2
RC12D33-150NH	12 VDC (10.8 - 13.2 VDC)	±3.3 VDC	±15mA	±150mA	15%	75mVp-p	1W	65%	2
RC12D5-100NH		±5 VDC	±10mA	±100mA	12%	75mVp-p	1W	70%	2
RC12D9-55NH		±9 VDC	±5.6mA	±56mA	8.0%	75mVp-p	1W	75%	2
RC12D12-42NH		±12 VDC	±4.2mA	±42mA	8.5%	75mVp-p	1W	78%	2
RC12D15-33NH		±15 VDC	±3.4mA	±34mA	7.0%	75mVp-p	1W	80%	2
RC15D33-150NH	15 VDC (13.5 - 16.5 VDC)	±3.3 VDC	±15mA	±150mA	15%	75mVp-p	1W	65%	2
RC15D5-100NH		±5 VDC	±10mA	±100mA	12%	75mVp-p	1W	70%	2
RC15D9-55NH		±9 VDC	±5.6mA	±56mA	8.0%	75mVp-p	1W	75%	2
RC15D12-42NH		±12 VDC	±4.2mA	±42mA	8.5%	75mVp-p	1W	78%	2
RC15D15-33NH		±15 VDC	±3.4mA	±34mA	7.0%	75mVp-p	1W	80%	2

NOTES

1. The RC series requires a ±10% minimum output load to maintain all specified regulations.
2. As the input voltage increases, the efficiency will also increase.

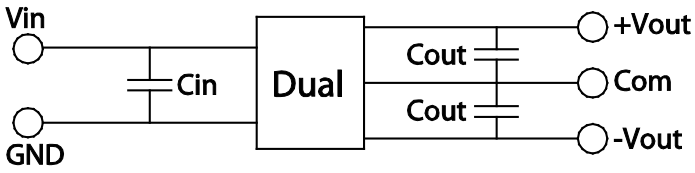
RECOMMENDED TEST CIRCUITS

Single Output



3.3V: Cin	4.7µF, 25V	3.3V: Cout	22uF,16V
5V: Cin	4.7µF, 25V	5V: Cout	10uF,25V
9V: Cin	4.7µF, 25V	9V: Cout	4.7uF,25V
12V: Cin	2.2µF, 25V	12V: Cout	2.2uF,25V
15V: Cin	1µF, 50V	15V: Cout	1uF,50V

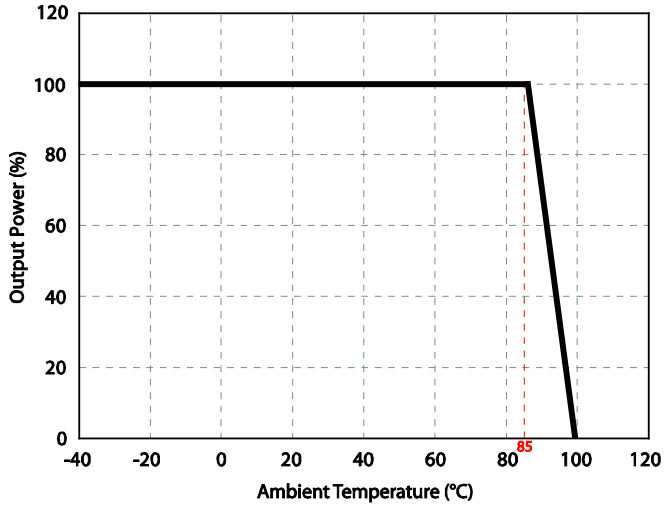
Dual Output



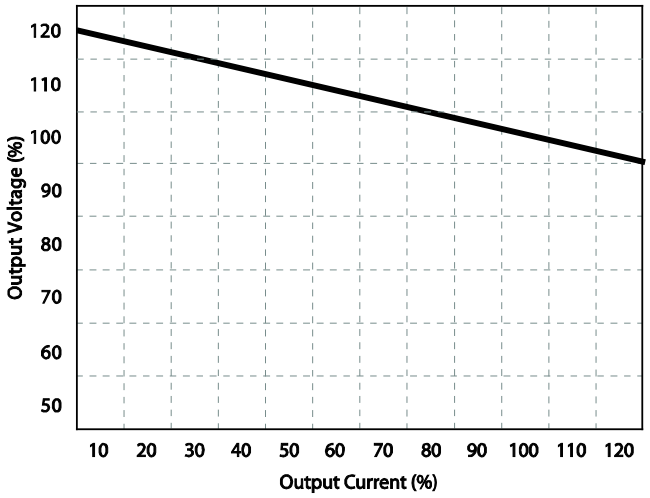
3.3V: Cin	4.7µF, 25V	3.3V: Cout	22uF,16V
5V: Cin	4.7µF, 25V	5V: Cout	10uF,25V
9V: Cin	4.7µF, 25V	9V: Cout	4.7uF,25V
12V: Cin	2.2µF, 25V	12V: Cout	2.2uF,25V
15V: Cin	1µF, 50V	15V: Cout	1uF,50V

CHARACTERISTIC CURVES

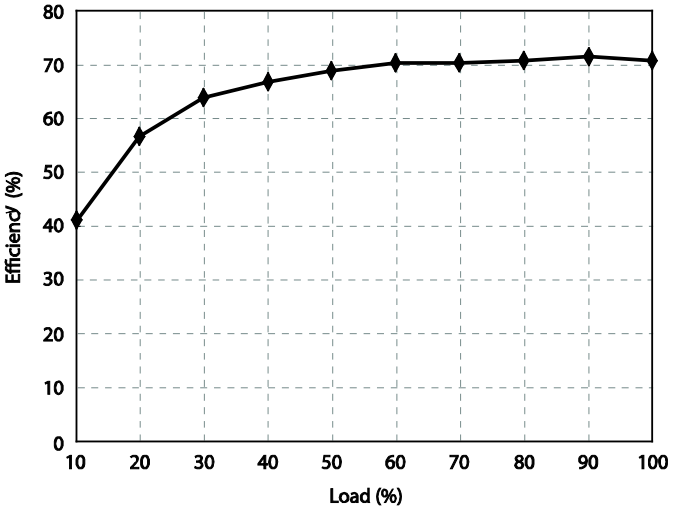
Derating Curve



Output Voltage vs Output Current Curve

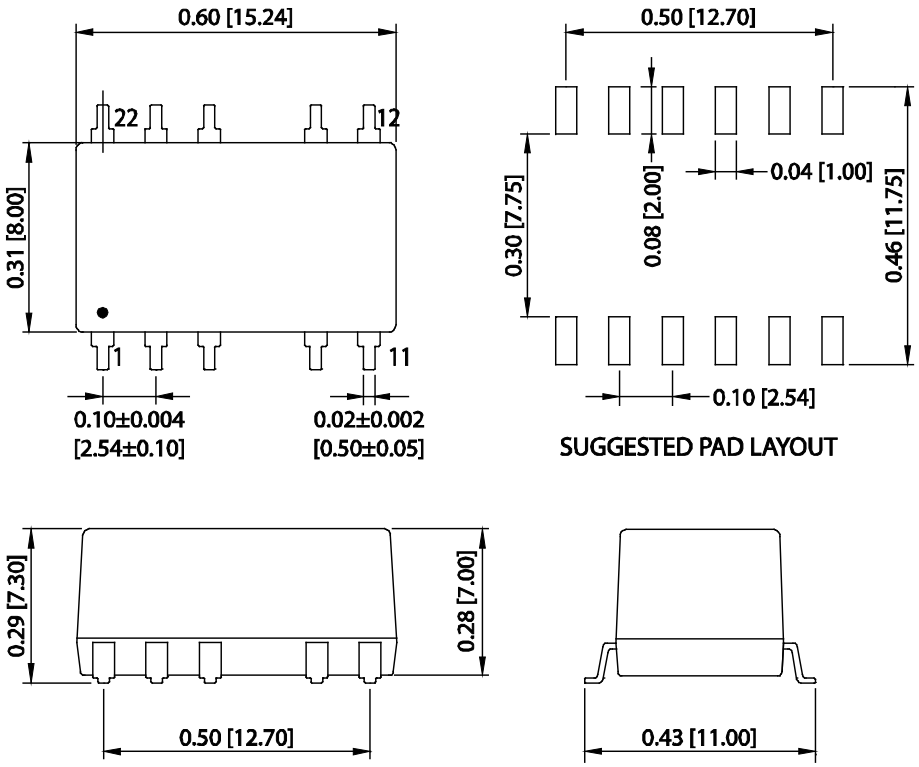


RC5D5-100NH Efficiency vs Load Curve



MECHANICAL DRAWINGS

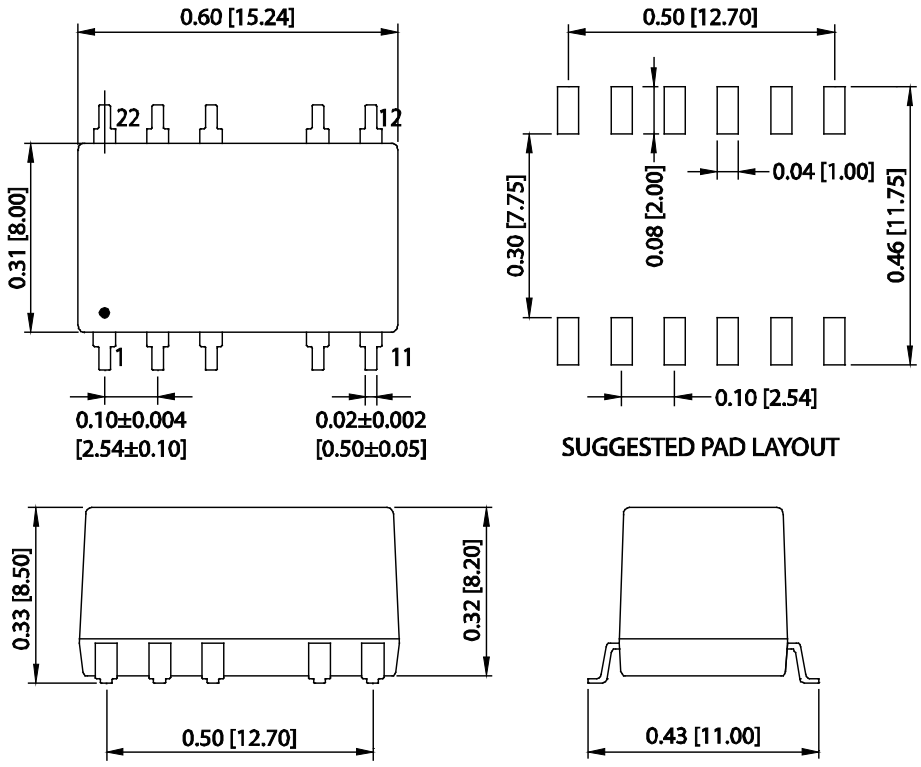
Package 1



Notes
1. Unit: inches [mm]
2. Tolerance: ±0.01 [±0.25]
3. Case Material: DAP
4. Weight: 0.06oz (1.8g)

PIN CONNECTIONS		
Pin	Single	Dual
1	-Vin	-Vin
3	+Vin	+Vin
5	NC	NC
9	-Vout	Com
11	NC	-Vout
12	NC	NC
14	+Vout	+Vout
18	NC	NC
20	NC	NC
22	NC	NC

Package 2



Notes
1. Unit: inches [mm]
2. Tolerance: ±0.01 [±0.25]
3. Case Material: DAP
4. Weight: 0.06oz (1.8g)

PIN CONNECTIONS		
Pin	Single	Dual
1	-Vin	-Vin
3	+Vin	+Vin
5	NC	NC
9	-Vout	Com
11	NC	-Vout
12	NC	NC
14	+Vout	+Vout
18	NC	NC
20	NC	NC
22	NC	NC

MODEL NUMBER SETUP

RC	15	S	15	-	67	N	H
Series Name	Input Voltage	Output Quantity	Ouptut Voltage		Output Current	Unregulated	I/O Isolation
	33: 3.3 VDC	**S:** Single Output	**33:** 3.3 VDC		**303:** 303mA	**N:** Unregulated	**H:** 3000VDC
	5: 5 VDC		**5:** 5 VDC		**200:** 200mA		
	9: 9 VDC		**9:** 9 VDC		**112:** 112mA		
	12: 12 VDC		**12:** 12 VDC		**83:** 83mA		
	15: 15 VDC		**15:** 15 VDC		**67:** 67mA		
		D: Dual Output	**33:** ±3.3 VDC		**150:** ±150mA		
			5: ±5 VDC		**100:** ±100mA		
			9: ±9 VDC		**55:** ±56mA		
			12: ±12 VDC		**42:** ±42mA		
			15: ±15 VDC		**33:** ±34mA		

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001-2008 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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