RDD08U SERIES

DC - DC CONVERTER

6.6 ~ 8.1W SINGLE & DUAL OUTPUT

FEATURES

- EFFICIENCY UP TO 85%
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- UL/cUL/TUV/CE
- 2 YEARS WARRANTY

TÜV Rheinland Product Safety | BAUART GEPRÜFT | TYPE APPROVED — EN 60950-1

cULus — UL 60950-1

CE

MODEL LIST

MODEL NO.	INPUT VOLTAGE	INPUT CURRENT (typ.)	INPUT CURRENT (max.)	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	CAPACITOR LOAD (max.)
Single Output Models									
RDD08 - 03S1U	9~18 VDC	0.69A	0.97A	6.6 WATTS	+3.3 VDC	2000 mA	78%	80%	3300 μF
RDD08 - 05S1U	9~18 VDC	0.77A	1.07A	7.5 WATTS	+ 5 VDC	1500 mA	80%	82%	2200 μF
RDD08 - 12S1U	9~18 VDC	0.79A	1.11A	8 WATTS	+ 12 VDC	670 mA	83%	85%	470 μF
RDD08 - 15S1U	9~18 VDC	0.80A	1.11A	8.1 WATTS	+ 15 VDC	540 mA	83%	85%	330 μF
RDD08 - 03S2U	18~36 VDC	0.35A	0.48A	6.6 WATTS	+3.3 VDC	2000 mA	78%	80%	3300 μF
RDD08 - 05S2U	18~36 VDC	0.38A	0.53A	7.5 WATTS	+ 5 VDC	1500 mA	81%	83%	2200 μF
RDD08 - 12S2U	18~36 VDC	0.40A	0.55A	8 WATTS	+ 12 VDC	670 mA	83%	85%	470 μF
RDD08 - 15S2U	18~36 VDC	0.40A	0.55A	8.1 WATTS	+ 15 VDC	540 mA	83%	85%	330 μF
RDD08 - 03S3U	35~75 VDC	0.17A	0.25A	6.6 WATTS	+3.3 VDC	2000 mA	78%	80%	3300 μF
RDD08 - 05S3U	35~75 VDC	0.19A	0.27A	7.5 WATTS	+ 5 VDC	1500 mA	81%	83%	2200 μF
RDD08 - 12S3U	35~75 VDC	0.20A	0.28A	8 WATTS	+ 12 VDC	670 mA	83%	85%	470 μF
RDD08 - 15S3U	35~75 VDC	0.20A	0.28A	8.1 WATTS	+ 15 VDC	540 mA	83%	85%	330 μF
Dual Output Models									
RDD08 - 05D1U	9~18 VDC	0.82A	1.14A	8 WATTS	± 5 VDC	± 800 mA	80%	82%	± 1000 μF
RDD08 - 12D1U	9~18 VDC	0.81A	1.12A	8.1 WATTS	± 12 VDC	± 340 mA	83%	85%	± 180 μF
RDD08 - 15D1U	9~18 VDC	0.81A	1.12A	8.1 WATTS	± 15 VDC	± 270 mA	83%	85%	± 100 μF
RDD08 - 05D2U	18~36 VDC	0.41A	0.56A	8 WATTS	± 5 VDC	± 800 mA	81%	83%	± 1000 μF
RDD08 - 12D2U	18~36 VDC	0.40A	0.56A	8.1 WATTS	± 12 VDC	± 340 mA	83%	85%	± 180 μF
RDD08 - 15D2U	18~36 VDC	0.40A	0.56A	8.1 WATTS	± 15 VDC	± 270 mA	83%	85%	± 100 μF
RDD08 - 05D3U	35~75 VDC	0.20A	0.29A	8 WATTS	± 5 VDC	± 800 mA	81%	83%	± 1000 μF
RDD08 - 12D3U	35~75 VDC	0.20A	0.29A	8.1 WATTS	± 12 VDC	± 340 mA	83%	85%	± 180 μF
RDD08 - 15D3U	35~75 VDC	0.20A	0.29A	8.1 WATTS	± 15 VDC	± 270 mA	83%	85%	± 100 μF

SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL

Characteristics	Conditions	min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		280		KHz
Isolation voltage	Input / Output	1500			VDC
Isolation resistance	Input / Output, @ 500VDC	100			MΩ
Isolation capacitance	100KHz / 1V		1000		PF
Ambient temperature	Operating at Vi nom, Io nom	-40		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 100	°C
Derating	Vi nom	See derating curve			
Storage temperature	Non operational	-40		+100	°C
Relative humidity	Vi nom, Io nom	20		95	% RH
Temperature coefficient	Vi nom, Io min			± 0.02	% / °C
Dimension		L31.8 x W20.3 x H10.2			mm
MTBF	Bellcore issue 6@40°C, GB		1309000		Hours
Cooling	Free air convection				

INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom		9	12	18	VDC
			18	24	36	VDC
			36	48	75	VDC
No load input current	Vi nom, Io = 0	12V models			30	mA
		24V models			25	mA
		48V models			20	mA
Input voltage w/o damage	Io nom	12V models			20	VDC
		24V models			40	VDC
		48V models			80	VDC
Startup voltage	Io nom	12V models		8.7		VDC
		24V models		17.4		VDC
		48V models		31.5		VDC
Input filter	Pi type					

OUTPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom				± 2	%
Minimum load	Vi nom	single output models	0			%
		dual output models (each output)	10			%
Line regulation	Io nom, Vi min ...Vi max				± 0.5	%
Load regulation	Vi nom, Io 0 ...Io nom, single output models				± 0.5	%
	Vi nom, Io min ...Io nom, dual output models				± 1	%
Cross regulation (Dual modle)	Aymmetrical load 10% - 100% FL				± 5	%
Startup time	Vi nom, Io nom				700	ms
Transient recovery time	Vi nom, 1~0.5 Io nom				1	ms
Ripple & noise	Vi nom, Io nom, BW = 20MHz				50	mV
Efficiency	Vi nom, Io nom, Po / Pi		Up to 85%, See model list and efficiency curve			

SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

CONTROL AND PROTECTION

Input reversed	Shunt diode built in, external fuse recommended 1A
Output short circuit	Current limited (Auto-recovery)
Rated over load protection	110%min....140%max
Remote on/off control	ON : 3....10Vdc or open circuit OFF: 0....1.5Vdc or short circuit pin1 and pin2,3

APPROVALS AND STANDARD

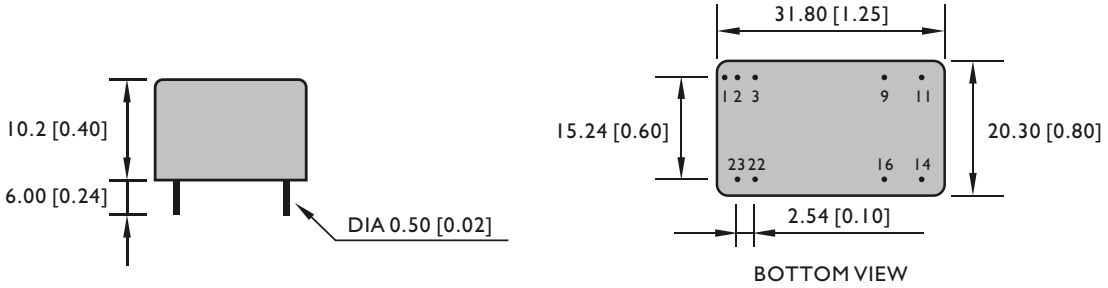
UL/cUL	UL 60950-1 Recognized
TUV	EN 60950-1, CB scheme
CE	EN 61204-3, EN 55022 Class A, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-6
Vibration	meet IEC 60068-2-6 (10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)

PHYSICAL CHARACTERISTICS

Case size	31.8 x 20.3 x 10.2 mm (1.25 x 0.8 x 0.4 inches)
Case material	Plastic base / Metal case
Weight	18 g
Patting material	Silicone

MECHANISM & PIN CONFIGURATION

mm [inch]



GENERAL TOLERANCE	
0.00[0.00] - 30.00[1.18]	±0.30[0.01]
30.00[1.18] - 120.00[4.72]	±0.50[0.02]

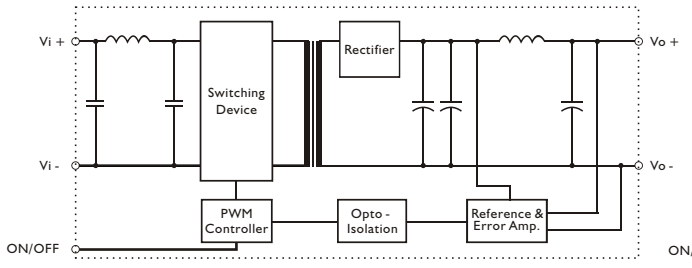
PIN ASSIGNMENT

GENERAL

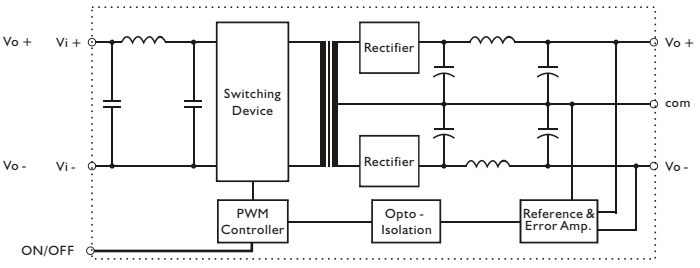
PIN NO.	1	2 & 3	9	11	14	16	22 & 23
SINGLE	Remote On/Off	Vi -	N. C.	N. C.	Vo+	Vo -	Vi+
DUAL	Remote On/Off	Vi -	com	Vo -	Vo+	com	Vi+

CIRCUIT SCHEMATIC

• Block diagram for RDD08U series with single output

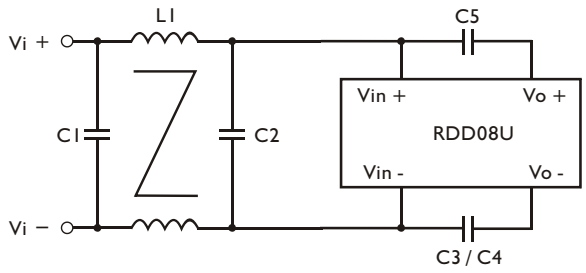


• Block diagram for RDD08U series with dual output



RECOMMENDED CIRCUIT

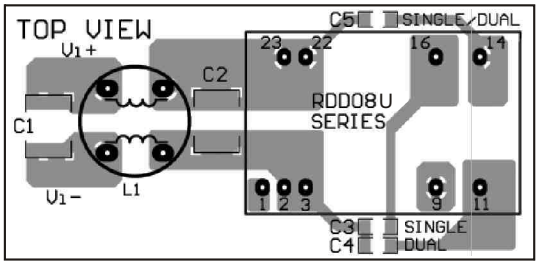
• Recommended filter for EN55022 Class B compliance.



• The commponents used in the above figure, together with the manufacturer part numbers for these components, are as follows.

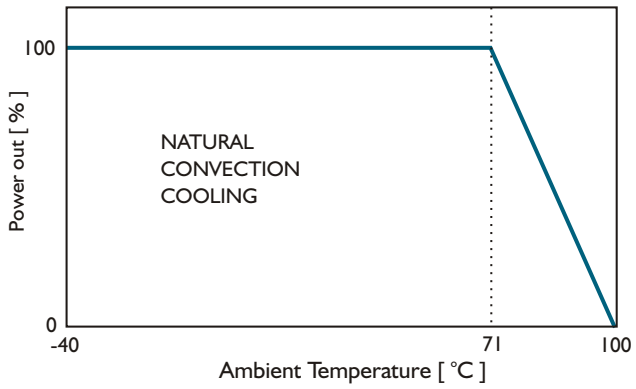
	C1	C2	C3 / C4	C5	L1
RDD08-XXX1U	2.2 μF / 50V MLCC	4.7 μF / 50V MLCC	1nF/2KV MLCC	1nF/2KV MLCC	1.5mH Common Choke
RDD08-XXX2U	2.2 μF / 50V MLCC	4.7 μF / 50V MLCC	1nF/2KV MLCC	1nF/2KV MLCC	1.5mH Common Choke
RDD08-XXX3U	2.2 μF / 100V MLCC	2.2 μF / 100V MLCC	1nF/2KV MLCC	1nF/2KV MLCC	1.5mH Common Choke

• Recommended EN 55022 Class B filter circuit layout.



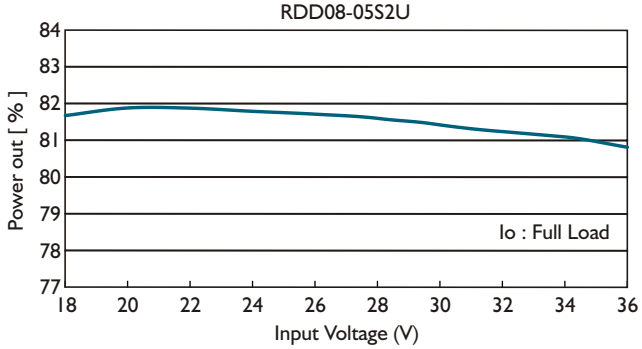
DERATING AND EFFICIENCY CURVE

Temperature derating curve



Efficiency Vs Input Voltage

RDD08-05S2U



Efficiency Vs Output Load

RDD08-05S2U