

# RDD05U SERIES



DC - DC CONVERTER  
5 ~ 6W SINGLE & DUAL OUTPUT

## FEATURES

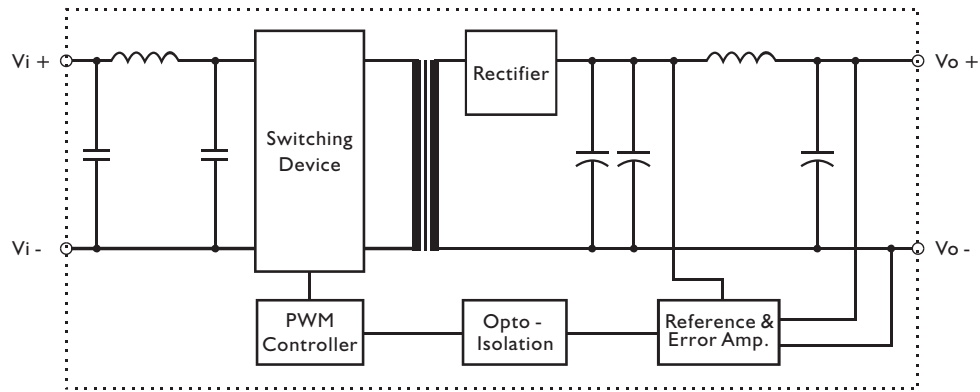
- LOW COST
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- UL/cUL/TUV/CE

## MODEL LIST

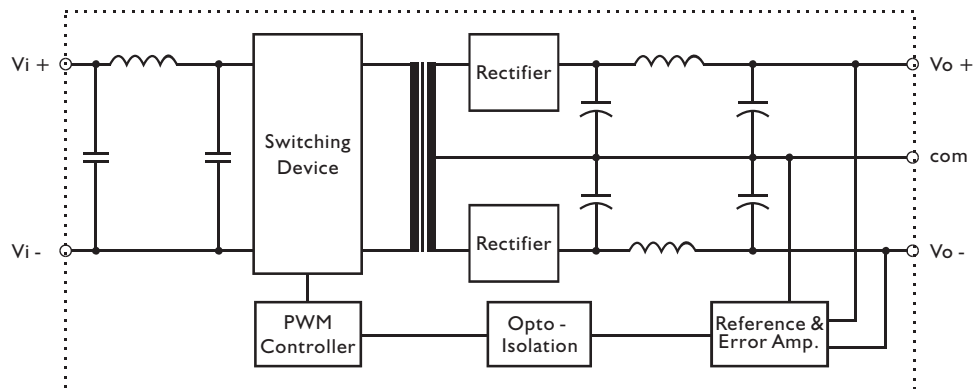
MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (TYP.)	EFF. (min.)
<b>Single Output Models</b>						
RDD05 - 03S1U	9~18 VDC	5 WATTS	+3.3 VDC	1500 mA	81%	79%
RDD05 - 05S1U	9~18 VDC	5 WATTS	+ 5 VDC	1000 mA	82%	80%
RDD05 - 12S1U	9~18 VDC	6 WATTS	+ 12 VDC	500 mA	85%	83%
RDD05 - 15S1U	9~18 VDC	6 WATTS	+ 15 VDC	400 mA	85%	83%
RDD05 - 03S2U	18~36 VDC	5 WATTS	+3.3 VDC	1500 mA	80%	78%
RDD05 - 05S2U	18~36 VDC	5 WATTS	+ 5 VDC	1000 mA	82%	80%
RDD05 - 12S2U	18~36 VDC	6 WATTS	+ 12 VDC	500 mA	83%	81%
RDD05 - 15S2U	18~36 VDC	6 WATTS	+ 15 VDC	400 mA	83%	81%
RDD05 - 03S3U	35~75 VDC	5 WATTS	+3.3 VDC	1500 mA	80%	78%
RDD05 - 05S3U	35~75 VDC	5 WATTS	+ 5 VDC	1000 mA	82%	80%
RDD05 - 12S3U	35~75 VDC	6 WATTS	+ 12 VDC	500 mA	82%	80%
RDD05 - 15S3U	35~75 VDC	6 WATTS	+ 15 VDC	400 mA	83%	81%
<b>Dual Output Models</b>						
RDD05 - 05D1U	9~18 VDC	5 WATTS	± 5 VDC	± 500 mA	82%	80%
RDD05 - 12D1U	9~18 VDC	6 WATTS	± 12 VDC	± 250 mA	84%	82%
RDD05 - 15D1U	9~18 VDC	6 WATTS	± 15 VDC	± 200 mA	85%	83%
RDD05 - 05D2U	18~36 VDC	5 WATTS	± 5 VDC	± 500 mA	81%	79%
RDD05 - 12D2U	18~36 VDC	6 WATTS	± 12 VDC	± 250 mA	83%	81%
RDD05 - 15D2U	18~36 VDC	6 WATTS	± 15 VDC	± 200 mA	82%	80%
RDD05 - 05D3U	35~75 VDC	5 WATTS	± 5 VDC	± 500 mA	82%	80%
RDD05 - 12D3U	35~75 VDC	6 WATTS	± 12 VDC	± 250 mA	83%	81%
RDD05 - 15D3U	35~75 VDC	6 WATTS	± 15 VDC	± 200 mA	82%	80%

### CIRCUIT SCHEMATIC

• Block diagram for RDD05U series with single output



• Block diagram for RDD05U series with dual output



### 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	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	1G			Ω
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			% / °C
Storage temperature	Non operational	-40		+ 100	°C
Dimension	L20.3 x W31.8 x H10.2				mm
Cooling	Free air convection				
Case material	Tinplate nickel plated				

#### 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
		35	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			%
	Vi nom 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	%
Transient recovery time	Vi nom, Io nom = I ↔ 1/2 Io nom		1		ms
Temperature coefficient	Vi nom, Io nom			± 0.02	% / °C
Ripple & noise	Vi nom, Io nom, BW = 20MHz			50	mV
Efficiency	Vi nom, Io nom, Po / Pi	Up to 84%, See model list			
Capacitive Load	Io nom	3.3Vout models		2200	μ F
		5.0Vout models		1500	
		12.0Vout models		270	
		15.0Vout models		180	
		± 5Vout models		± 680	
		± 12Vout models		± 150	
		± 15Vout models		± 68	

### CONTROL AND PROTECTION

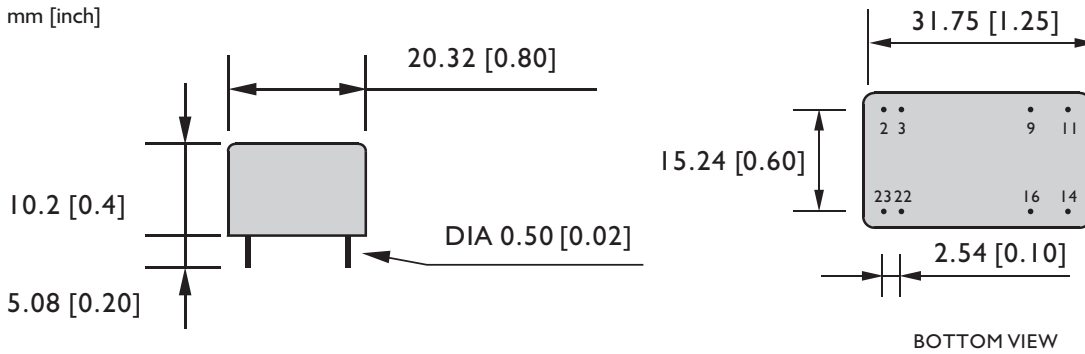
Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Continuous
Rated over load protection	110%min....140%max

### APPROVALS AND STANDARD

UL/cUL	UL60950-1
TUV	EN60950-1
CE	EN61204-3(Class A for EMI)

### MECHANISM & PIN CONFIGURATION

mm [inch]



### PHYSICAL CHARACTERISTICS

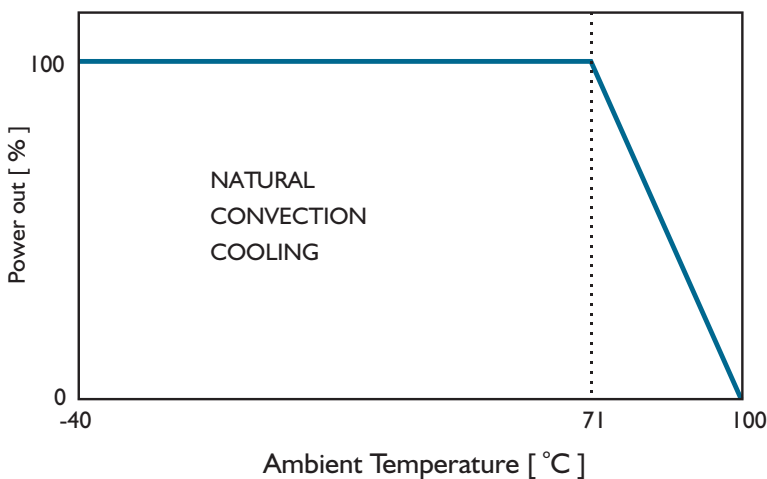
CASE SIZE	20.3 x 31.8 x 10.2 mm 0.8 x 1.25 x 0.4 inches
CASE MATERIAL	Tinplate nickel plated
WEIGHT	16 g

### PIN ASSIGNMENT

#### GENERAL

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

### DERATING



# RDD05U SERIES



DC - DC CONVERTER  
4 ~ 6W SINGLE & DUAL OUTPUT

## FEATURES

- LOW COST
- 4:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE
- UL/cUL/TUV/CE

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (TYP.)	EFF. (min.)
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### Single Output Models

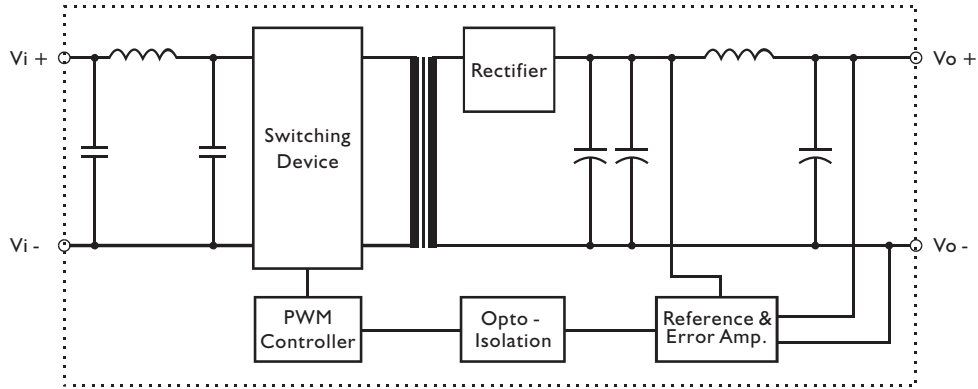
RDD05 - 03S4U	9~36 VDC	4 WATTS	+3.3 VDC	1200 mA	77%	75%
RDD05 - 05S4U	9~36 VDC	5 WATTS	+ 5 VDC	1000 mA	79%	77%
RDD05 - 12S4U	9~36 VDC	6 WATTS	+ 12 VDC	500 mA	82%	80%
RDD05 - 15S4U	9~36 VDC	6 WATTS	+ 15 VDC	400 mA	82%	80%
RDD05 - 03S5U	18~75 VDC	4 WATTS	+3.3 VDC	1200 mA	77%	75%
RDD05 - 05S5U	18~75 VDC	5 WATTS	+ 5 VDC	1000 mA	79%	77%
RDD05 - 12S5U	18~75 VDC	6 WATTS	+ 12 VDC	500 mA	82%	80%
RDD05 - 15S5U	18~75 VDC	6 WATTS	+ 15 VDC	400 mA	82%	80%

### Dual Output Models

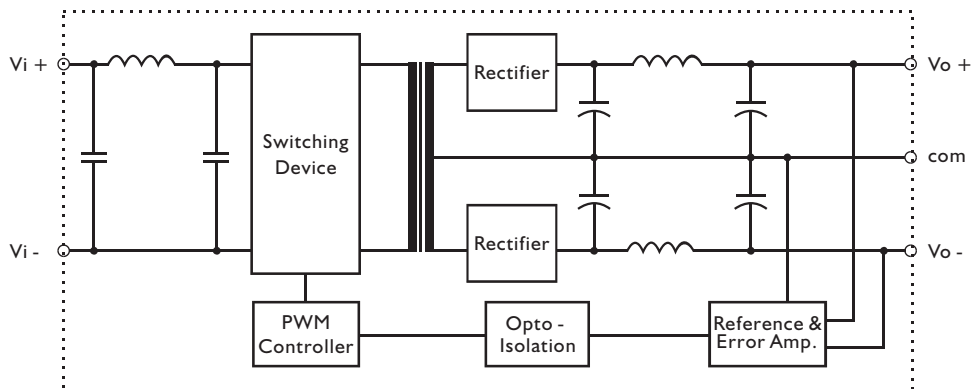
RDD05 - 05D4U	9~36 VDC	5 WATTS	± 5 VDC	± 500 mA	79%	77%
RDD05 - 12D4U	9~36 VDC	6 WATTS	± 12 VDC	± 250 mA	82%	80%
RDD05 - 15D4U	9~36 VDC	6 WATTS	± 15 VDC	± 200 mA	82%	80%
RDD05 - 05D5U	18~75 VDC	5 WATTS	± 5 VDC	± 500 mA	79%	77%
RDD05 - 12D5U	18~75 VDC	6 WATTS	± 12 VDC	± 250 mA	82%	80%
RDD05 - 15D5U	18~75 VDC	6 WATTS	± 15 VDC	± 200 mA	82%	80%

### CIRCUIT SCHEMATIC

• Block diagram for RDD05U series with single output



• Block diagram for RDD05U series with dual output



### 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		250		KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	1G			Ω
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			% / °C
Storage temperature	Non operational	-40		+ 100	°C
Dimension	L20.3 x W31.8 x H10.2				mm
Cooling	Free air convection				
Case material	Tinplate nickel plated				

#### INPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Input voltage range	Ta min ... Ta max, Io nom	9	24	36	VDC
		18	48	75	VDC
No load input current	Vi nom, Io = 0	24V models	30		mA
		48V models	25		mA
Input voltage w/o damage	Io nom	24V models		40	VDC
		48V models		80	VDC
startup voltage	Io nom	24V models	8.7		VDC
		48V models	17.4		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			%
	Vi nom 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	%
Transient recovery time	Vi nom, Io nom = I ↔ 1/2 Io nom		1		ms
Temperature coefficient	Vi nom, Io nom			± 0.02	% / °C
Ripple & noise	Vi nom, Io nom, BW = 20MHz			50	mV
Efficiency	Vi nom, Io nom, Po / Pi	Up to 82%, See model list			
Capacitive Load	Io nom	3.3Vout models		2200	μF
		5.0Vout models		1500	
		12.0Vout models		270	
		15.0Vout models		180	
		± 5Vout models		± 680	
		± 12Vout models		± 150	
		± 15Vout models		± 68	

# RDD05U SERIES

SINGLE & DUAL OUTPUT

## CONTROL AND PROTECTION

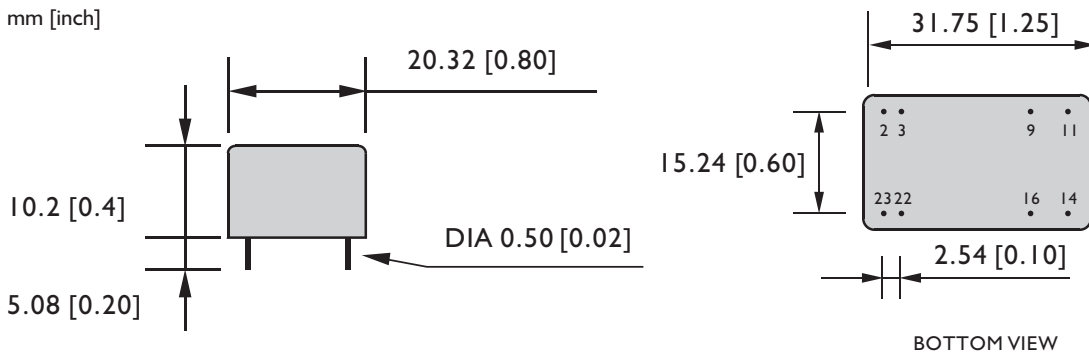
Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Continuous
Rated over load protection	110%min....160%max

## APPROVALS AND STANDARD

UL/cUL	UL60950-1
TUV	EN60950-1
CE	EN61204-3(Class A for EMI)

## MECHANISM & PIN CONFIGURATION

mm [inch]



## PHYSICAL CHARACTERISTICS

CASE SIZE	20.3 x 31.8 x 10.2 mm 0.8 x 1.25 x 0.4 inches
CASE MATERIAL	Tinplate nickel plated
WEIGHT	16 g

## PIN ASSIGNMENT

### GENERAL

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

## DERATING

