

# RDD05 SERIES



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

## FEATURES

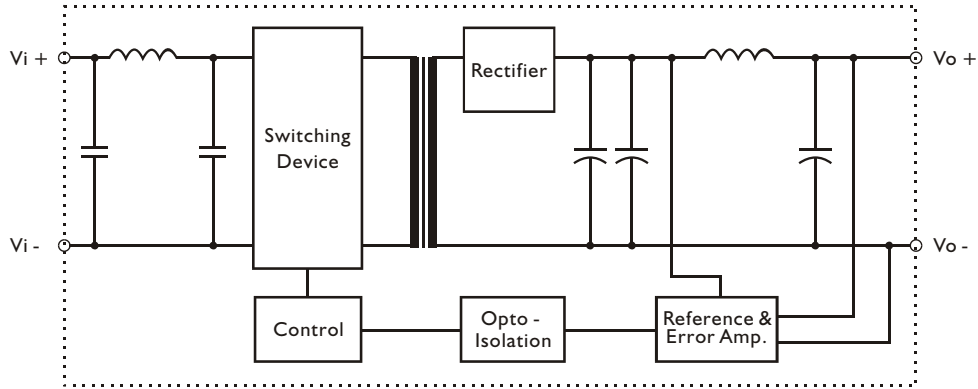
- LOW COST
- 2:1 WIDE INPUT RANGE
- I/O ISOLATION
- INPUT Pi FILTER
- SHORT CIRCUIT PROTECTION
- HIGH PERFORMANCE

## MODEL LIST

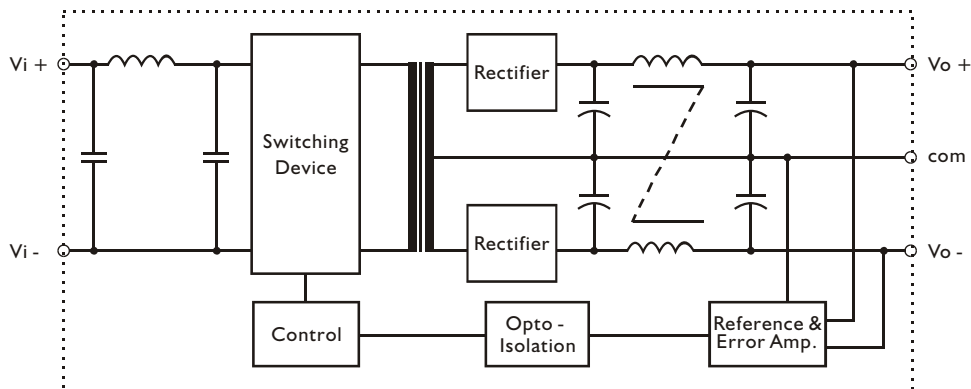
MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)
<b>Single Output Models</b>					
RDD05 - 03S1	9~18 VDC	5 WATTS	+3.3 VDC	1500 mA	74%
RDD05 - 05S1	9~18 VDC	5 WATTS	+ 5 VDC	1000 mA	77%
RDD05 - 12S1	9~18 VDC	6 WATTS	+ 12 VDC	500 mA	81%
RDD05 - 15S1	9~18 VDC	6 WATTS	+ 15 VDC	400 mA	82%
RDD05 - 03S2	18~36 VDC	5 WATTS	+3.3 VDC	1500 mA	77%
RDD05 - 05S2	18~36 VDC	5 WATTS	+ 5 VDC	1000 mA	80%
RDD05 - 12S2	18~36 VDC	6 WATTS	+ 12 VDC	500 mA	84%
RDD05 - 15S2	18~36 VDC	6 WATTS	+ 15 VDC	400 mA	85%
RDD05 - 03S3	35~75 VDC	5 WATTS	+3.3 VDC	1500 mA	78%
RDD05 - 05S3	35~75 VDC	5 WATTS	+ 5 VDC	1000 mA	81%
RDD05 - 12S3	35~75 VDC	6 WATTS	+ 12 VDC	500 mA	85%
RDD05 - 15S3	35~75 VDC	6 WATTS	+ 15 VDC	400 mA	86%
<b>Dual Output Models</b>					
RDD05 - 05D1	9~18 VDC	5 WATTS	± 5 VDC	± 500 mA	76%
RDD05 - 12D1	9~18 VDC	6 WATTS	± 12 VDC	± 250 mA	80%
RDD05 - 15D1	9~18 VDC	6 WATTS	± 15 VDC	± 200 mA	81%
RDD05 - 05D2	18~36 VDC	5 WATTS	± 5 VDC	± 500 mA	78%
RDD05 - 12D2	18~36 VDC	6 WATTS	± 12 VDC	± 250 mA	83%
RDD05 - 15D2	18~36 VDC	6 WATTS	± 15 VDC	± 200 mA	84%
RDD05 - 05D3	35~75 VDC	5 WATTS	± 5 VDC	± 500 mA	79%
RDD05 - 12D3	35~75 VDC	6 WATTS	± 12 VDC	± 250 mA	84%
RDD05 - 15D3	35~75 VDC	6 WATTS	± 15 VDC	± 200 mA	85%

### CIRCUIT SCHEMATIC

- Block diagram for RDD05 series with single output



- Block diagram for RDD05 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	150			KHz
Isolation voltage	Input / Output	1,500			VDC
Isolation resistance	Input / Output, @ 500VDC	1G			Ω
Ambient temperature	Operating at Vi nom, Io nom	-25		+ 71	°C
Case temperature	Operating at Vi nom, Io nom			+ 90	°C
Derating	Vi nom	See derating curve			% / °C
Storage temperature	Non operational	-40		+ 100	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40		277,000		Hrs
Dimension	L20.3 x W31.8 x H12.7				mm
Cooling	Free air convection				
Case material	Plastic				

#### 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	72	VDC
No load input current	Vi nom, Io = 0	12V models		30	mA
		24V models		22	mA
		48V models		15	mA
Input voltage w/o damage	Io nom	12V models		20	VDC
		24V models		40	VDC
		48V models		75	VDC
Input filter	Pi type				

#### OUTPUT SPECIFICATIONS

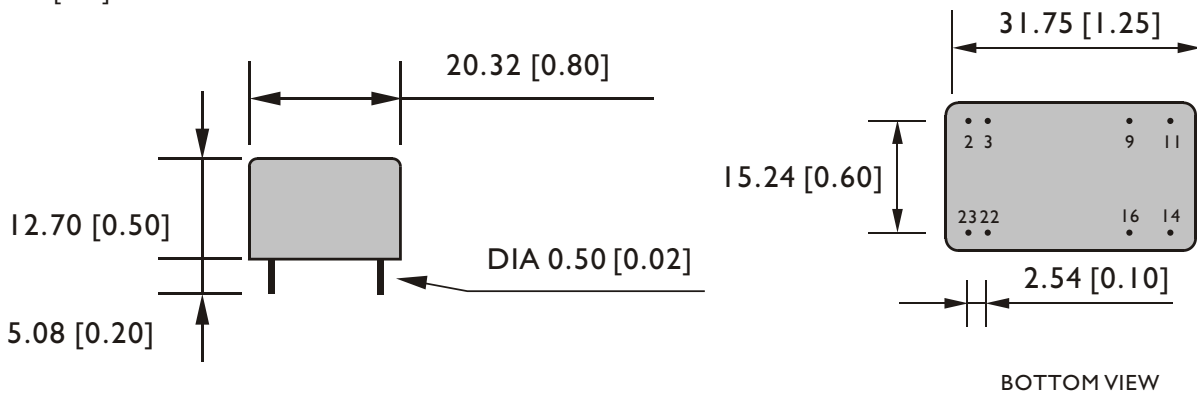
Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	Vi nom, Io nom			± 2	%
Minimum load	Vi nom single output models	0			%
	Vi nom dual output models (each output)	20			%
Line regulation	Io nom, Vi min ... Vi max			± 1	%
Load regulation	Vi nom, Io 0 ... Io nom, single output models			± 2	%
	Vi nom, Io min ... Io nom, dual output models			± 3	%
Transient recovery time	25% load step changed		500		μs
Temperature coefficient	Vi nom, Io nom			± 0.02	% / °C
Ripple & noise	Vi nom, Io nom, BW = 20MHz			100	mV
Efficiency	Vi nom, Io nom, Po / Pi	Up to 86%, See model list			

#### CONTROL AND PROTECTION

Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Continuous

### MECHANISM & PIN CONFIGURATION

mm [inch]



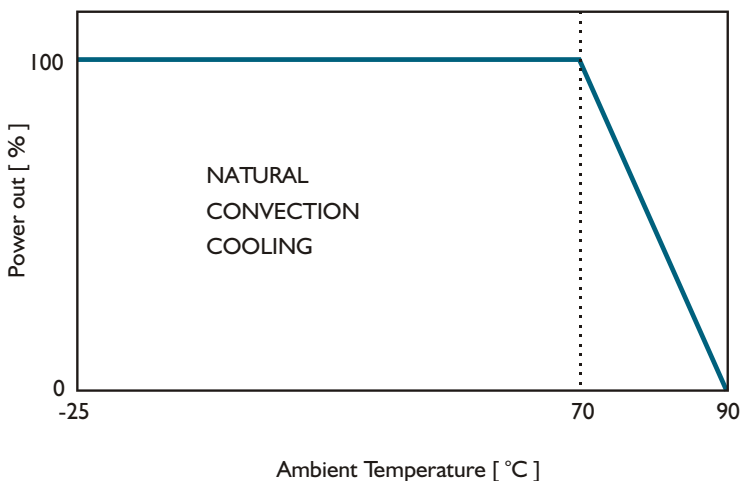
### PHYSICAL CHARACTERISTICS

CASE SIZE	20.3 x 31.8 x 12.7 mm 0.8 x 1.25 x 0.5 inches
CASE MATERIAL	Plastic
WEIGHT	16 g

### PIN ASSIGNMENT

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

### DERATING



# RDD05 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

## MODEL LIST

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

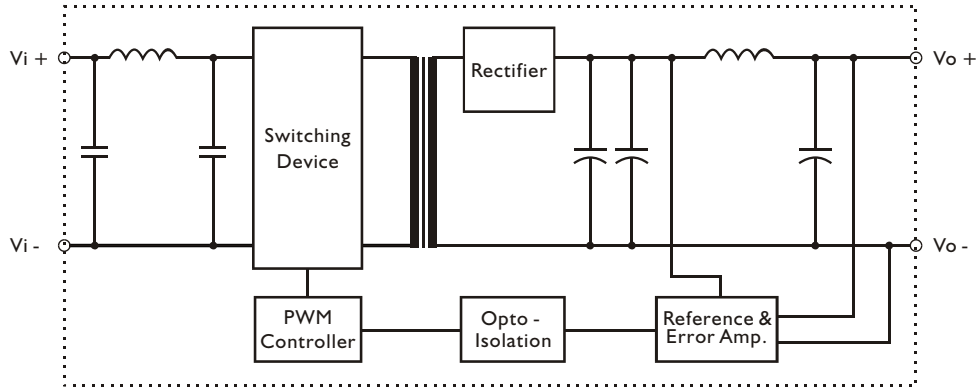
RDD05 - 03S4	9~36 VDC	4 WATTS	+3.3 VDC	1200 mA	77%	75%
RDD05 - 05S4	9~36 VDC	5 WATTS	+ 5 VDC	1000 mA	79%	77%
RDD05 - 12S4	9~36 VDC	6 WATTS	+ 12 VDC	500 mA	81%	79%
RDD05 - 15S4	9~36 VDC	6 WATTS	+ 15 VDC	400 mA	81%	79%
RDD05 - 03S5	18~75 VDC	4 WATTS	+3.3 VDC	1200 mA	77%	75%
RDD05 - 05S5	18~75 VDC	5 WATTS	+ 5 VDC	1000 mA	80%	78%
RDD05 - 12S5	18~75 VDC	6 WATTS	+ 12 VDC	500 mA	82%	80%
RDD05 - 15S5	18~75 VDC	6 WATTS	+ 15 VDC	400 mA	82%	80%

### Dual Output Models

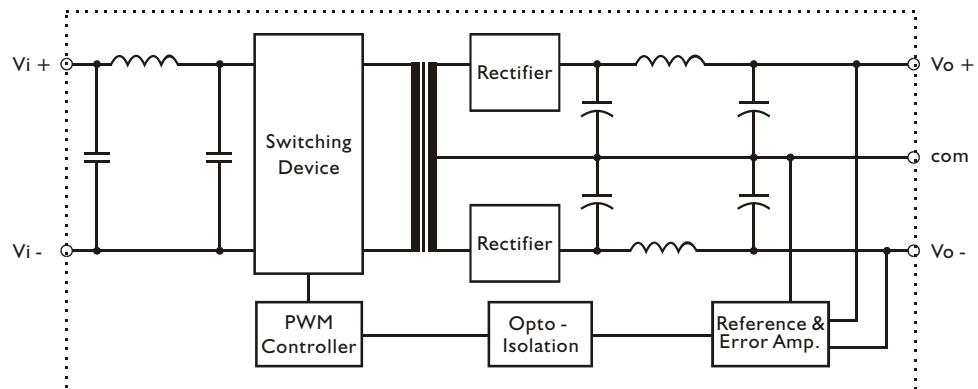
RDD05 - 05D4	9~36 VDC	5 WATTS	± 5 VDC	± 500 mA	80%	78%
RDD05 - 12D4	9~36 VDC	6 WATTS	± 12 VDC	± 250 mA	81%	79%
RDD05 - 15D4	9~36 VDC	6 WATTS	± 15 VDC	± 200 mA	81%	79%
RDD05 - 05D5	18~75 VDC	5 WATTS	± 5 VDC	± 500 mA	80%	78%
RDD05 - 12D5	18~75 VDC	6 WATTS	± 12 VDC	± 250 mA	82%	80%
RDD05 - 15D5	18~75 VDC	6 WATTS	± 15 VDC	± 200 mA	82%	80%

### CIRCUIT SCHEMATIC

- Block diagram for RDD05 series with single output



- Block diagram for RDD05 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		300		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		20	mA
		48V models		15	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 86%, See model list			
Capacitive Load	Io nom	3.3Vout models		2200	μF
		5.0Vout models		1500	
		12.0Vout models		330	
		15.0Vout models		220	
		± 5Vout models		± 680	
		± 12Vout models		± 150	
		± 15Vout models		± 68	

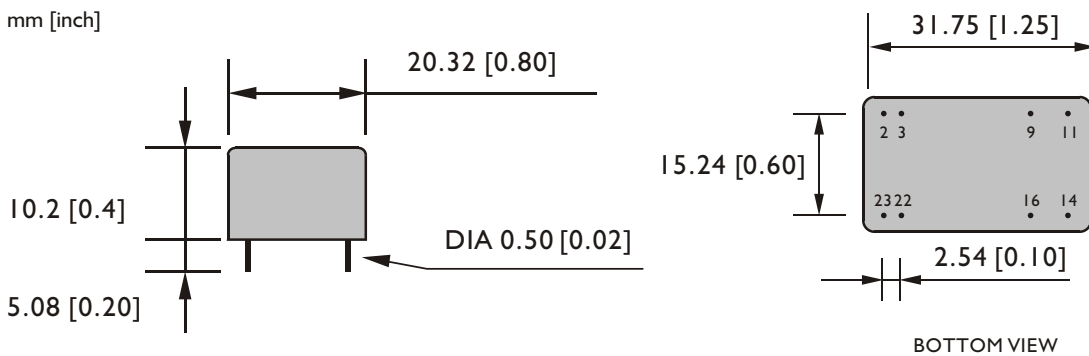
### CONTROL AND PROTECTION

Input reversed	Shunt diode built in, external fuse recommended
Output short circuit	Continuous
Rated over load protection	115%min....160%max

### APPROVALS AND STANDARD

UL/cUL	UL1950
TUV	EN60950
CE	EN61204(Class A for EMI)

### MECHANISM & PIN CONFIGURATION



### 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

