

RD-2W Series

2W 2:1 Regulated Single & Dual output

Features

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation, Up to 3500 VDC
- Continuous Short Circuit Protection
- Efficiency up to 80%
- -40 ~ 85°C Operating Temperature
- Plastic Case Standard, Optional Metal Case



The RD series is a family of cost effective 2W single & dual output DC-DC converters. These converters combine Plastic case in a 24-pin DIL package with high performance features such as 1500 VDC ~ 3500VDC input/output isolation voltage, continuous short circuit protection with automatic restart and high line / load regulation. Devices are encapsulated using flame retardant resin. Input voltages of 5, 12, 24 and 48 with output voltage of 5, 7.2, 9, 12, 15, 18, 24, ± 5 , ± 7.2 , ± 9 , ± 12 , ± 15 , ± 18 and ± 24 Vdc. High performance features include high efficiency operation up to 82% and output voltage accuracy of $\pm 1\%$ maximum.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS	
Voltage accuracy	$\pm 1\%$
Line regulation	$\pm 0.5\%$
Load regulation	$\pm 0.5\%$
Ripple & noise(20 MHz bandwidth)(1)	60mV pk-pk
Short circuit protection	Continuous
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
Capacitor load(2)	See table

INPUT SPECIFICATIONS	
Voltage Range	See table
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	PI Type
Input Reflected Ripple Current(3)	35mA pk-pk

GENERAL SPECIFICATIONS	
Efficiency	See table, typ.
I/O Isolation Voltage(3 sec)	
Input/Output	1500~3500Vdc
Metal Case/Input & Output	1000Vdc
I/O Isolation Capacitance	60 pF typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	100~400kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

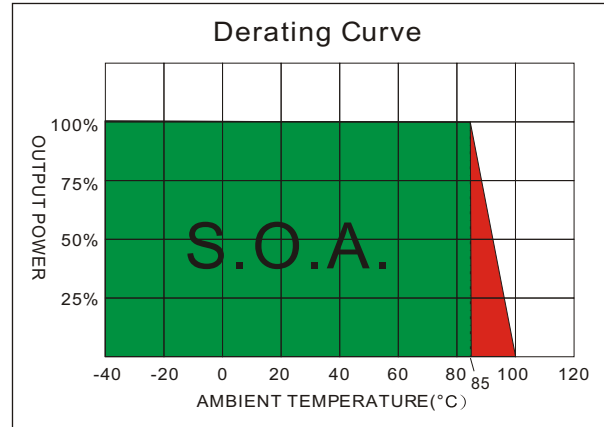
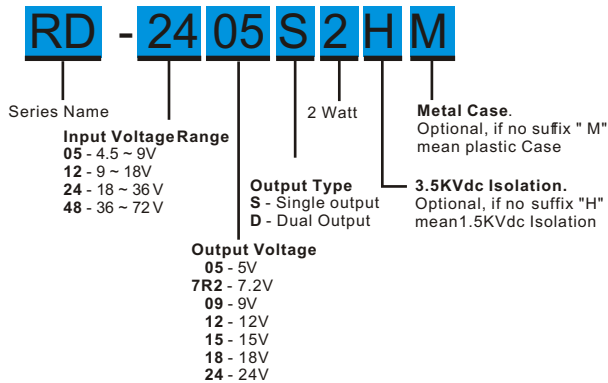
PHYSICAL SPECIFICATIONS	
Case Material	Non-conductive Black Plastic(UL94V-0 rated) Nickel-coated Copper
Base Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	$\varnothing 0.5\text{mm}$ Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	12.5g(Plastic Case)/15.0g(Metal Case)
Dimensions	1.25"x0.8"x0.4"

ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-40°C~85°C(See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS(4)		
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.		
Input Surge Voltage(100mS)		
5 Models		15 Vdc, max.
12 Models		24 Vdc, max.
24 Models		40 Vdc, max.
48 Models		80 Vdc, max.
Soldering Temperature (1.5mm from case 10sec. max.)		260°C max.

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PART NUMBER STRUCTURE



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL (%)	Capacitor Load (uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
RD-0505S2	4.5-9	40	588	5	100	400	68	2200
RD-057R2S2	4.5-9	40	588	7.2	69	277	68	1000
RD-0509S2	4.5-9	40	571	9	56	222	70	470
RD-0512S2	4.5-9	40	571	12	43	167	70	470
RD-0515S2	4.5-9	40	571	15	33	133	70	470
RD-0518S2	4.5-9	40	571	18	28	111	70	220
RD-0524S2	4.5-9	40	579	24	21	83	69	220
RD-0505D2	4.5-9	40	588	±5	±50	±200	68	±1000
RD-057R2D2	4.5-9	40	588	±7.2	±35	±139	68	±220
RD-0509D2	4.5-9	40	571	±9	±28	±111	70	±220
RD-0512D2	4.5-9	40	571	±12	±21	±83	70	±220
RD-0515D2	4.5-9	40	571	±15	±17	±67	70	±220
RD-0518D2	4.5-9	40	571	±18	±14	±56	70	±220
RD-0524D2	4.5-9	40	579	±24	±11	±42	69	±100
RD-1205S2	9-18	20	222	5	100	400	75	2200
RD-127R2S2	9-18	20	222	7.2	69	277	75	1000
RD-1209S2	9-18	20	213	9	56	222	78	470
RD-1212S2	9-18	20	213	12	43	167	78	470
RD-1215S2	9-18	20	213	15	33	133	78	470
RD-1218S2	9-18	20	213	18	28	111	78	220
RD-1224S2	9-18	20	210	24	20.8	83	79	220
RD-1205D2	9-18	20	225	±5	±50	±200	74	±1000
RD-127R2D2	9-18	20	225	±7.2	±35	±139	74	±220
RD-1209D2	9-18	20	225	±9	±28	±111	74	±220
RD-1212D2	9-18	20	219	±12	±21	±83	76	±220
RD-1215D2	9-18	20	216	±15	±17	±67	77	±220
RD-1218D2	9-18	20	216	±18	±14	±56	77	±220
RD-1224D2	9-18	20	219	±24	±10.5	±42	76	±100
RD-2405S2	18-36	12	106	5	100	400	78	2200
RD-247R2S2	18-36	12	106	7.2	69	277	78	1000

Suffix "H" means 3.5KVdc isolation
 Suffix "M" means Metal Case instead of standard Plastic case

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MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL (%)	Capacitor Load(μF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
RD-2409S2	18-36	12	104	9	56	222	80	470
RD-2412S2	18-36	12	105	12	43	167	79	470
RD-2415S2	18-36	12	106	15	33	133	78	470
RD-2418S2	18-36	12	106	18	28	111	78	220
RD-2424S2	18-36	12	104	24	20.8	83	80	220
RD-2405D2	18-36	12	111	±5	±50	±200	75	±1000
RD-247R2D2	18-36	12	111	±7.2	±35	±139	75	±220
RD-2409D2	18-36	12	111	±9	±28	±111	75	±220
RD-2412D2	18-36	12	105	±12	±21	±83	79	±220
RD-2415D2	18-36	12	105	±15	±17	±67	79	±220
RD-2418D2	18-36	12	105	±18	±14	±56	79	±220
RD-2424D2	18-36	12	106	±24	±10.5	±42	78	±100
RD-4805S2	36-72	8	56	5	100	400	75	2200
RD-487R2S2	36-72	8	56	7.2	69	277	75	1000
RD-4809S2	36-72	8	53	9	56	222	78	470
RD-4812S2	36-72	8	52	12	43	167	79	470
RD-4815S2	36-72	8	52	15	33	133	80	470
RD-4818S2	36-72	8	52	18	28	111	80	220
RD-4824S2	36-72	8	52	24	20.8	83	80	220
RD-4805D2	36-72	8	56	±5	±50	±200	74	±1000
RD-487R2D2	36-72	8	56	±7.2	±35	±139	74	±220
RD-4809D2	36-72	8	56	±9	±28	±111	75	±220
RD-4812D2	36-72	8	53	±12	±21	±83	78	±220
RD-4815D2	36-72	8	53	±15	±17	±67	78	±220
RD-4818D2	36-72	8	53	±18	±14	±56	78	±220
RD-4824D2	36-72	8	53	±24	±10.5	±42	79	±100

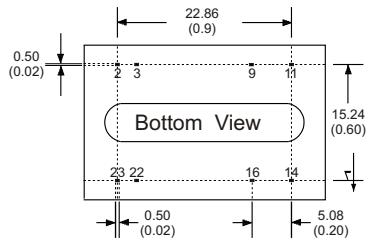
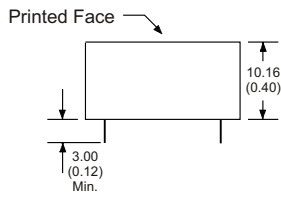
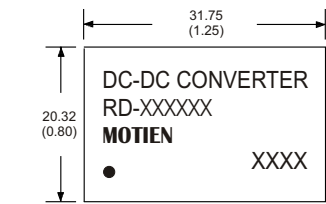
Suffix "H" means 3.5KVdc isolation

Suffix "M" means Metal Case instead of standard Plastic case

NOTE

1. Typical value at nominal input voltage and full load.
2. Test by nominal input voltage and constant resistor load.
3. Measured Input reflected ripple current with a simulated source inductance of 12μH.
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.
6. It's necessary to add minimum capacitor in output for some models, please check single model datasheet for detail value.

MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



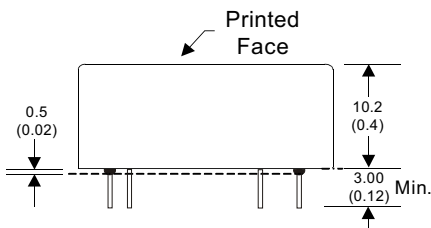
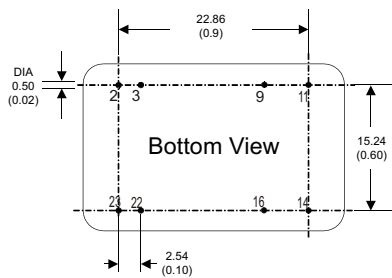
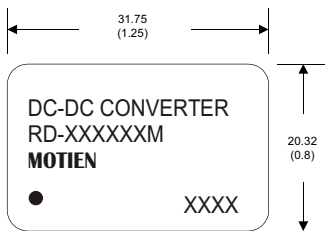
24 Pin DIL Package
Non-Conductive Plastic

- Notes: All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
 2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
 3. Case Tolerance: ± 0.5 (± 0.02)

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

(The Pin Connection of high isolation one is the same with normal one.)

MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



For "M" Case

24 Pin DIL Package
Nickel-Coated Copper

- Notes: All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
 2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
 3. Case Tolerance: ± 0.5 (± 0.02)
 4. Stand-off tolerance: ± 0.1 (± 0.004)

PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

(The Pin Connection of high isolation one is the same with normal one.)