

# RD-5W Series



5W 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 5W 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 12, 24 and 48 with output voltage of 5, 9, 12, 15, 24,  $\pm 5$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$  and  $\pm 24$  Vdc. High performance features include high efficiency operation up to 80% 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"

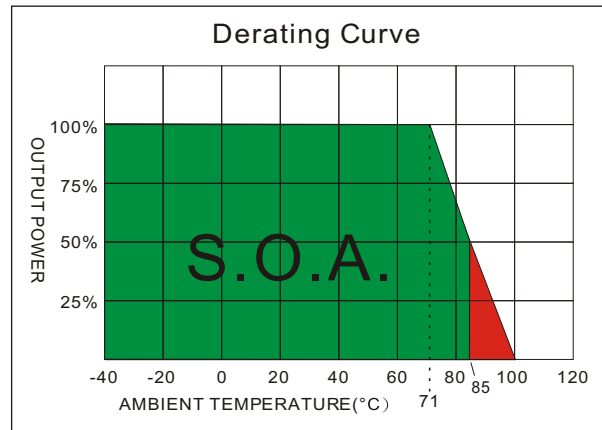
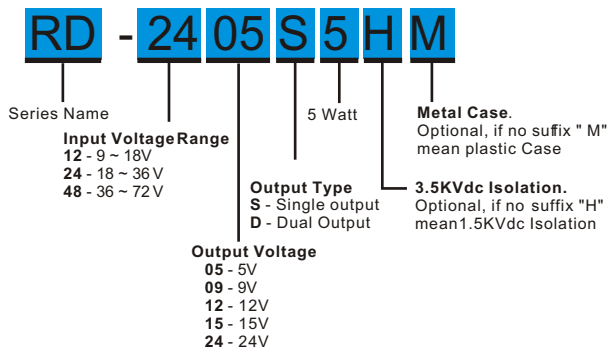
ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-40°C~85°C(See Derating Curve) -40°C~71°C(For 100% load)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

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)	
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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### PARTNUMBER 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-12 05S5	9-18	20	563	5	250	1000	74	2200
RD-12 09S5	9-18	20	541	9	139	555	77	470
RD-12 12S5	9-18	20	534	12	104	417	78	470
RD-12 15S5	9-18	20	534	15	83	333	78	470
RD-12 24S5	9-18	20	556	24	52	208	75	220
RD-1205D5	9-18	20	579	±5	±125	±500	72	±1000
RD-1209D5	9-18	20	548	±9	±70	±278	76	±220
RD-1212D5	9-18	20	541	±12	±52	±208	77	±220
RD-1215D5	9-18	20	541	±15	±42	±167	77	±220
RD-1224D5	9-18	20	548	±24	±26	±104	76	±100
RD-24 05S5	18-36	12	278	5	250	1000	75	2200
RD-24 09S5	18-36	12	274	9	139	555	76	470
RD-24 12S5	18-36	12	271	12	104	417	77	470
RD-24 15S5	18-36	12	267	15	83	333	78	470
RD-24 24S5	18-36	12	274	24	52	208	76	220
RD-2405D5	18-36	12	282	±5	±125	±500	74	±1000
RD-2409D5	18-36	12	274	±9	±70	±278	76	±220
RD-2412D5	18-36	12	267	±12	±52	±208	78	±220
RD-2415D5	18-36	12	267	±15	±42	±167	78	±220
RD-2424D5	18-36	12	278	±24	±26	±104	75	±100
RD-48 05S5	36-72	8	135	5	250	1000	77	2200
RD-48 09S5	36-72	8	134	9	139	555	78	470
RD-48 12S5	36-72	8	130	12	104	417	80	470
RD-48 15S5	36-72	8	130	15	83	333	80	470
RD-48 24S5	36-72	8	135	24	52	208	77	220
RD-4805D5	36-72	8	137	±5	±125	±500	76	±1000
RD-4809D5	36-72	8	134	±9	±70	±278	78	±220
RD-4812D5	36-72	8	134	±12	±52	±208	78	±220
RD-4815D5	36-72	8	130	±15	±42	±167	80	±220
RD-4824D5	36-72	8	135	±24	±26	±104	77	±100

Suffix "H" means 3.5KVdc isolation

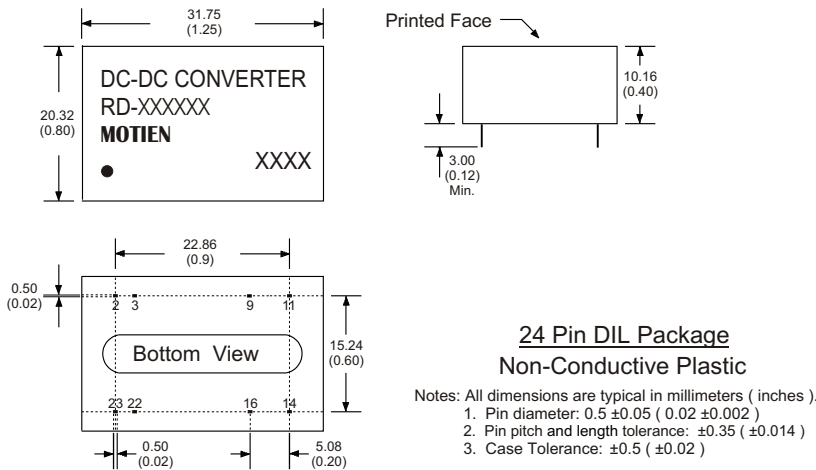
Suffix "M" means Metal Case instead of standard Plastic case

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## 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 12uH.
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.

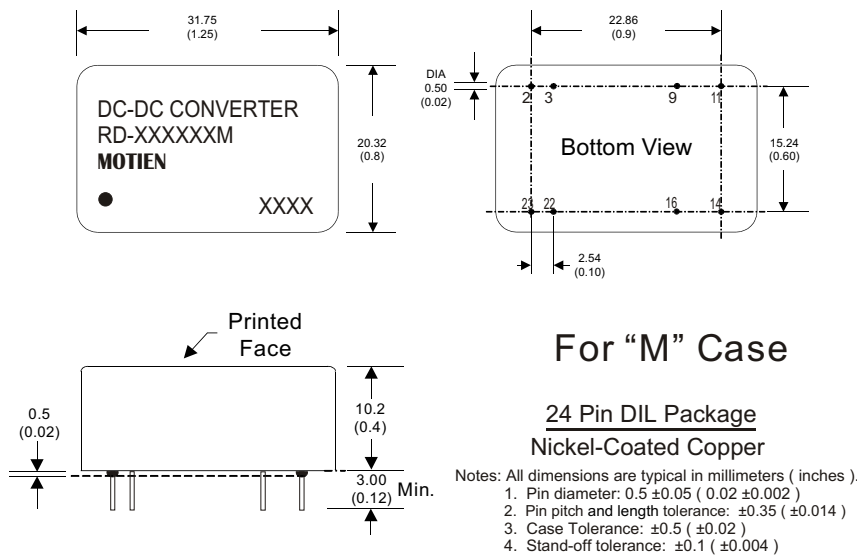
## MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



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.)

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