

# RD-6W Series

6W 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 81%
- -40 ~ 85°C Operating Temperature
- Plastic Case Standard, Optional Metal Case



The RD series is a family of cost effective 6W 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 81% and output voltage accuracy of  $\pm 1\%$  maximum.

All specifications typical at  $T_a=25^\circ\text{C}$ , 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	100~500kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

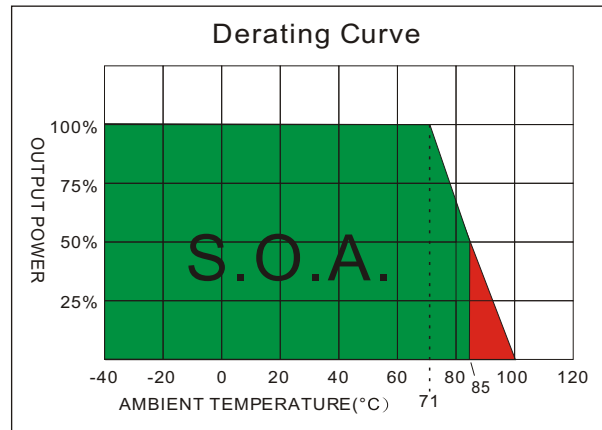
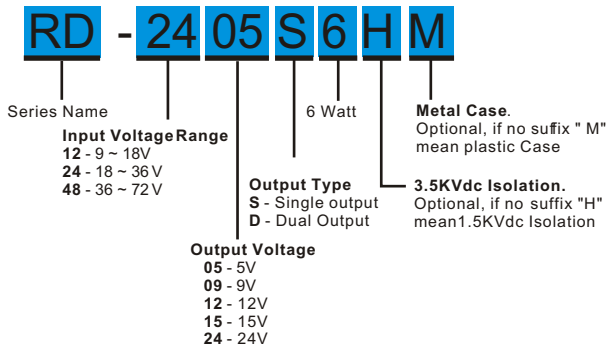
PHYSICAL SPECIFICATIONS	
Case Material	Non-conductive Black Plastic(UL94V-0 rated) Nickel-coated Copper
Base Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	$\varnothing 0.5\text{mm}$ Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	12.5g(Plastic Case)/15.0g(Metal Case)
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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### 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-1205S6	9-18	20	735	5	300	1200	68	2200
RD-1209S6	9-18	20	694	9	167	666	72	470
RD-1212S6	9-18	20	676	12	125	500	74	470
RD-1215S6	9-18	20	633	15	100	400	79	470
RD-1224S6	9-18	20	658	24	63	250	76	220
RD-1205D6	9-18	20	649	±5	±150	±600	78	±1000
RD-1209D6	9-18	20	641	±9	±83	±333	78	±220
RD-1212D6	9-18	20	641	±12	±63	±250	78	±220
RD-1215D6	9-18	20	625	±15	±50	±200	80	±220
RD-1224D6	9-18	20	641	±24	±31	±125	78	±100
RD-2405S6	18-36	12	329	5	300	1200	76	2200
RD-2409S6	18-36	12	312	9	167	666	80	470
RD-2412S6	18-36	12	312	12	125	500	80	470
RD-2415S6	18-36	12	308	15	100	400	81	470
RD-2424S6	18-36	12	325	24	63	250	77	220
RD-2405D6	18-36	12	329	±5	±150	±600	76	±1000
RD-2409D6	18-36	12	325	±9	±83	±333	77	±220
RD-2412D6	18-36	12	312	±12	±63	±250	80	±220
RD-2415D6	18-36	12	312	±15	±50	±200	80	±220
RD-2424D6	18-36	12	321	±24	±31	±125	78	±100
RD-4805S6	36-72	8	169	5	300	1200	74	2200
RD-4809S6	36-72	8	162	9	167	666	77	470
RD-4812S6	36-72	8	162	12	125	500	77	470
RD-4815S6	36-72	8	158	15	100	400	79	470
RD-4824S6	36-72	8	167	24	63	250	75	220
RD-4805D6	36-72	8	169	±5	±150	±600	74	±1000
RD-4809D6	36-72	8	164	±9	±83	±333	76	±220
RD-4812D6	36-72	8	164	±12	±63	±250	76	±220
RD-4815D6	36-72	8	160	±15	±50	±200	78	±220
RD-4824D6	36-72	8	162	±24	±31	±125	77	±100

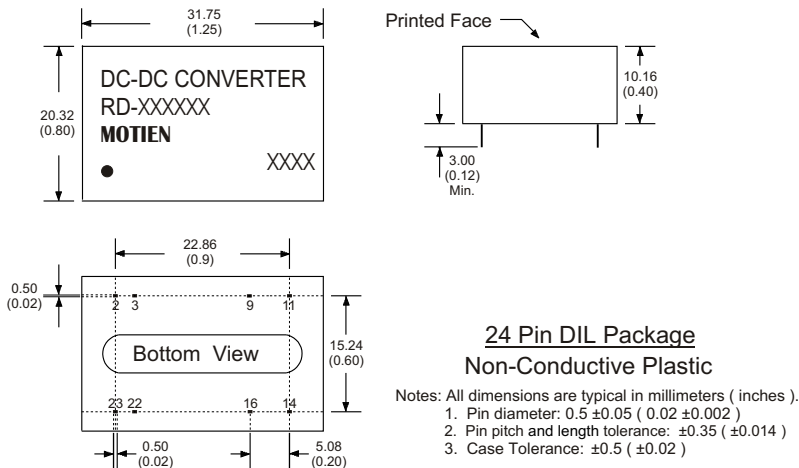
Suffix "H" means 3.5KVdc isolation  
 Suffix "M" means Metal Case instead of standard Plastic case

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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.

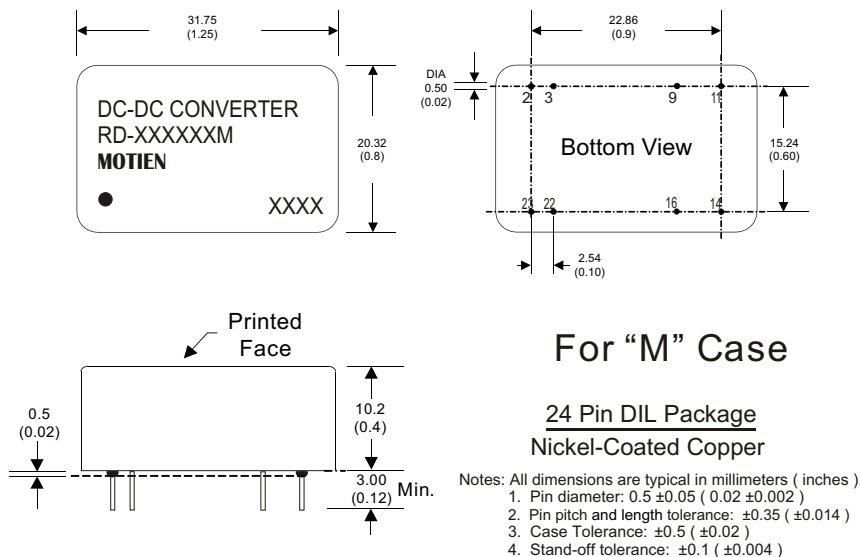
## MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



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.)

## MECHANICAL SPECIFICATIONS



PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
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23	+V Input	+V Input

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