RD-3W Series

MOTIEN TECHNOLOGY

3W 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 82%
- -40 ~ 85°C Operating Temperature
- Plastic Case Standard, Optional Metal Case

ROHS

The RD series is a family of cost effective 3W 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 tight 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 ±1% maximum.

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

OUTPUT SPECIFICATIONS

Voltage accuracy	±1%
Line regulation	±0.5%
Load regulation	±0.5%
Ripple & noise (20 MHz bandwidth)(1)	60mV pk-pk
Short circuit protection	Continuous
Temperature coefficient	±0.02%/°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(60 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	Φ0.5mm 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

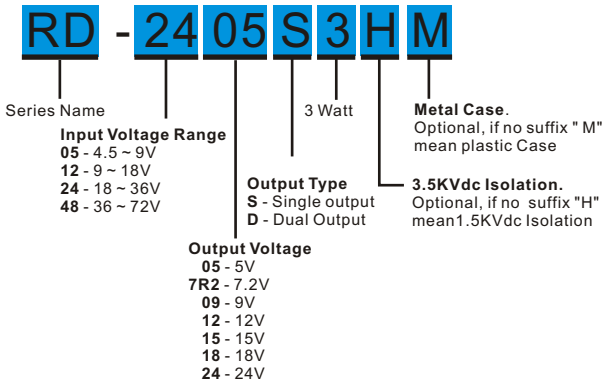
Operating Temperature	-40°C~85°C(See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

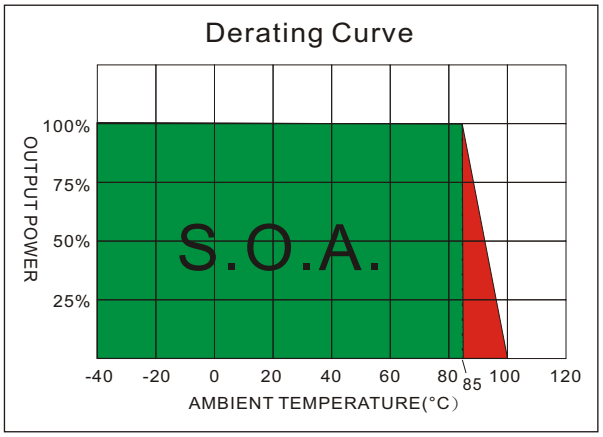
ABSOLUTE MAXIMUM RATINGS(4)

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 10 sec. max.)	260°C max.

PART NUMBER STRUCTURE





MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
RD-0505S3	4.5-9	40	857	5	150	600	70	2200
RD-057R2S3	4.5-9	40	833	7.2	104	417	72	1000
RD-0509S3	4.5-9	40	833	9	83	333	72	470
RD-0512S3	4.5-9	40	810	12	63	250	74	470
RD-0515S3	4.5-9	40	810	15	50	200	74	470
RD-0518S3	4.5-9	40	810	18	42	167	74	220
RD-0524S3	4.5-9	40	857	24	31	125	70	220
RD-0505D3	4.5-9	40	869	±5	±75	±300	69	±1000
RD-057R2D3	4.5-9	40	896	±7.2	±52	±208	67	±220
RD-0509D3	4.5-9	40	857	±9	±42	±167	70	±220
RD-0512D3	4.5-9	40	833	±12	±31	±125	72	±220
RD-0515D3	4.5-9	40	810	±15	±25	±100	74	±220
RD-0518D3	4.5-9	40	810	±18	±21	±83	74	±220
RD-0524D3	4.5-9	40	857	±24	±16	±63	70	±100
RD-1205S3	9-18	20	328	5	150	600	76	2200
RD-127R2S3	9-18	20	338	7.2	104	417	74	1000
RD-1209S3	9-18	20	324	9	83	333	77	470
RD-1212S3	9-18	20	316	12	63	250	79	470
RD-1215S3	9-18	20	316	15	50	200	79	470
RD-1218S3	9-18	20	316	18	42	167	79	220
RD-1224S3	9-18	20	316	24	31	125	79	220
RD-1205D3	9-18	20	329	±5	±75	±300	76	±1000
RD-127R2D3	9-18	20	325	±7.2	±52	±208	77	±220
RD-1209D3	9-18	20	325	±9	±42	±167	77	±220
RD-1212D3	9-18	20	316	±12	±31	±125	79	±220
RD-1215D3	9-18	20	316	±15	±25	±100	79	±220
RD-1218D3	9-18	20	321	±18	±21	±83	78	±220
RD-1224D3	9-18	20	316	±24	±16	±63	79	±100
RD-2405S3	18-36	12	156	5	150	600	80	2200
RD-247R2S3	18-36	12	162	7.2	104	417	77	1000

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

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@motien.com.tw

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
RD-2409S3	18-36	12	156	9	83	333	80	470
RD-2412S3	18-36	12	152	12	62	250	82	470
RD-2415S3	18-36	12	152	15	50	200	82	470
RD-2418S3	18-36	12	158	18	42	167	79	220
RD-2424S3	18-36	12	156	24	31	125	80	220
RD-2405D3	18-36	12	156	±5	±75	±300	80	±1000
RD-247R2D3	18-36	12	160	±7.2	±52	±208	78	±220
RD-2409D3	18-36	12	158	±9	±42	±167	80	±220
RD-2412D3	18-36	12	152	±12	±31	±125	82	±220
RD-2415D3	18-36	12	152	±15	±25	±100	82	±220
RD-2418D3	18-36	12	156	±18	±21	±83	80	±220
RD-2424D3	18-36	12	156	±24	±16	±63	80	±100
RD-4805S3	36-72	8	81	5	150	600	77	2200
RD-487R2S3	36-72	8	80	7.2	104	417	78	1000
RD-4809S3	36-72	8	80	9	83	333	78	470
RD-4812S3	36-72	8	78	12	63	250	80	470
RD-4815S3	36-72	8	78	15	50	200	80	470
RD-4818S3	36-72	8	81	18	42	167	77	220
RD-4824S3	36-72	8	78	24	31	125	80	220
RD-4805D3	36-72	8	80	±5	±75	±300	78	±1000
RD-487R2D3	36-72	8	80	±7.2	±52	±208	78	±220
RD-4809D3	36-72	8	79	±9	±42	±167	79	±220
RD-4812D3	36-72	8	78	±12	±31	±125	80	±220
RD-4815D3	36-72	8	78	±15	±25	±100	80	±220
RD-4818D3	36-72	8	80	±18	±21	±83	78	±220
RD-4824D3	36-72	8	78	±24	±16	±63	80	±100

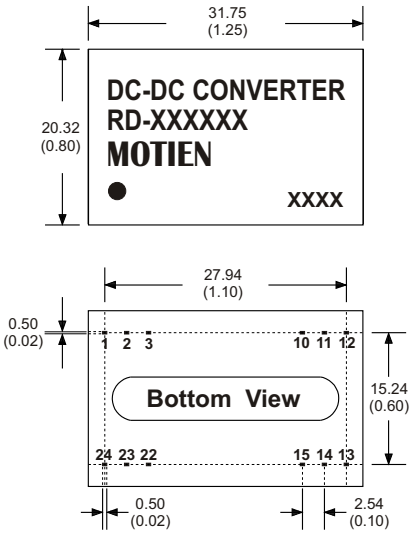
Suffix “H” means 3.5KVdc isolation
Suffix “M” means Metal Case instead of standard Plastic case

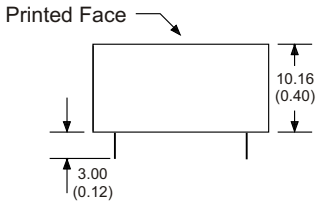
NOTE

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 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.

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@motien.com.tw

MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL





24 Pin DIL Package

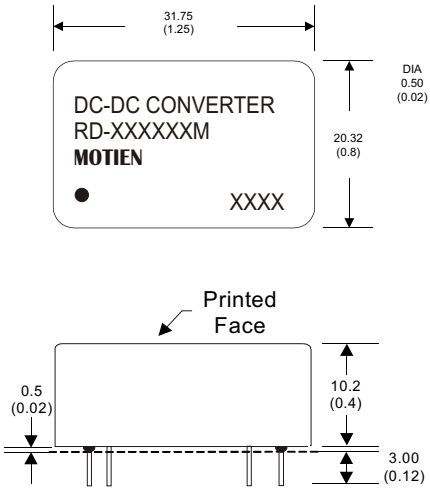
Non-Conductive Plastic

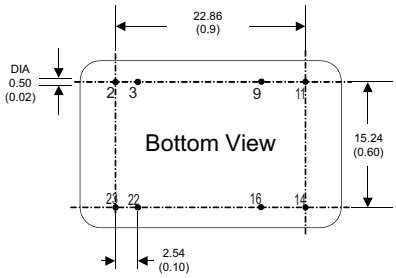
Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch and length tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

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.)

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DRAWING: APPROVED:

Last Update : 25.Sep.2014