

RJ-3W Series

3W 4:1 Regulated Single & Dual output

Features

- Wide 4:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation, Up to 3500 VDC
- Continuous Short Circuit Protection
- Efficiency up to 78%
- -40 ~ 85°C Operating Temperature
- Plastic Case Standard, Optional Metal Case



The RJ 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 high line / load regulation. Devices are encapsulated using flame retardant resin. Input voltages of 24 and 48 with output voltage of 5, 9, 12, 15, 24, ± 5 , ± 9 , ± 12 , ± 15 and ± 24 Vdc. High performance features include high efficiency operation up to 78% 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

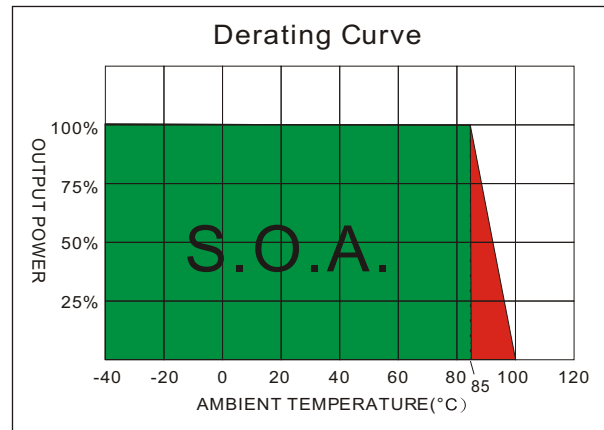
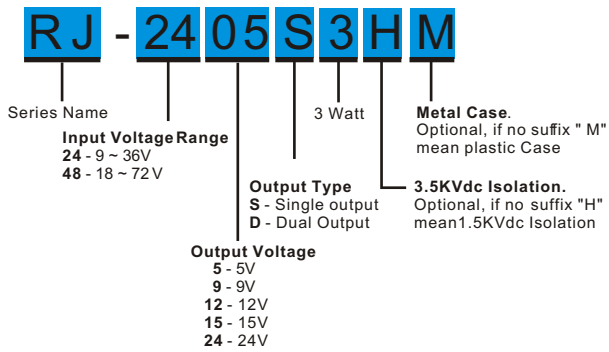
PHYSICAL SPECIFICATIONS	
Case Material	Non-conductive Black Plastic(UL94V-0 rated) Nickel-coated Copper
Base Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	$\varnothing 0.5\text{mm}$ Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	12.5g(Plastic Case)/15.0g(Metal Case)
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 stressratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Surge Voltage(100mS)	
24 Models	40 Vdc ,max.
48 Models	80 Vdc ,max.
Soldering Temperature (1.5mm from case 10sec.)	260°C

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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)		
RJ-2405S3	9-36	20	173	5	200	600	72	2200
RJ-2409S3	9-36	20	168	9	111	333	74	470
RJ-2412S3	9-36	20	164	12	83.3	250	76	470
RJ-2415S3	9-36	20	164	15	66.7	200	76	470
RJ-2424S3	9-36	30	166	24	41.7	125	75	220
RJ-2405D3	9-36	20	178	±5	±100	±300	70	±1000
RJ-2409D3	9-36	20	173	±9	±55.7	±167	72	±220
RJ-2412D3	9-36	20	168	±12	±41.7	±125	74	±220
RJ-2415D3	9-36	20	168	±15	±33.3	±100	74	±220
RJ-2424D3	9-36	30	171	±24	±21	±63	73	±100
RJ-4805S3	18-72	10	83	5	200	600	75	2200
RJ-4809S3	18-72	10	81	9	111	333	77	470
RJ-4812S3	18-72	10	81	12	83.3	250	77	470
RJ-4815S3	18-72	10	80	15	66.7	200	78	470
RJ-4824S3	18-72	10	80	24	41.7	125	78	220
RJ-4805D3	18-72	10	85	±5	±100	±300	73	±1000
RJ-4809D3	18-72	10	83	±9	±55.7	±167	75	±220
RJ-4812D3	18-72	10	82	±12	±41.7	±125	76	±220
RJ-4815D3	18-72	10	82	±15	±33.3	±100	76	±220
RJ-4824D3	18-72	10	81	±24	±21	±63	77	±100

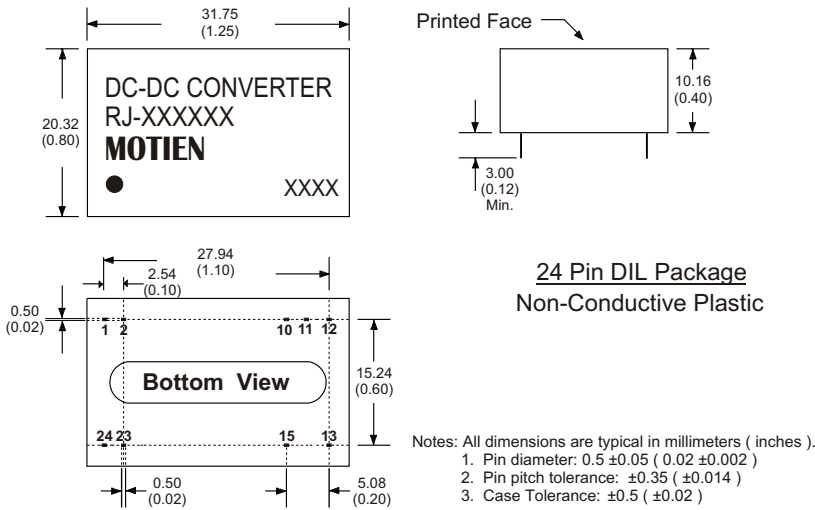
Suffix "H" means 3.5KVdc isolation
 Suffix "M" means Metal Case instead of standard Plastic case

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.

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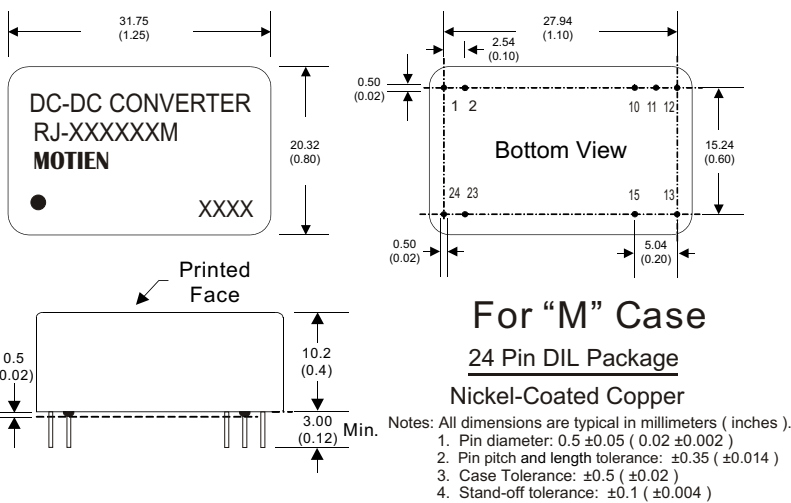
MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+V Input	+V Input
2	+V Input	+V Input
10	N.C.	Common
11	N.C.	Common
12	-V Output	N.C.
13	+V Output	-V Output
15	N.C.	+V Output
23	-V Input	-V Input
24	-V Input	-V Input

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

MECHANICAL SPECIFICATIONS



PIN CONNECTIONS		
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12	-V Output	N.C.
13	+V Output	-V Output
15	N.C.	+V Output
23	-V Input	-V Input
24	-V Input	-V Input

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