

RG-4W Series



4W 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%
- -25 ~ 85°C Operating Temperature
- Plastic Case Standard, Optional Metal Case



The RG series is a family of cost effective 4W 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 12, 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 82% and output voltage accuracy of $\pm 1\%$ maximum.

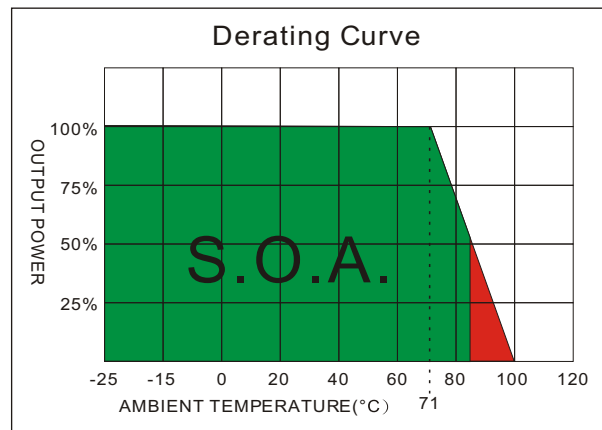
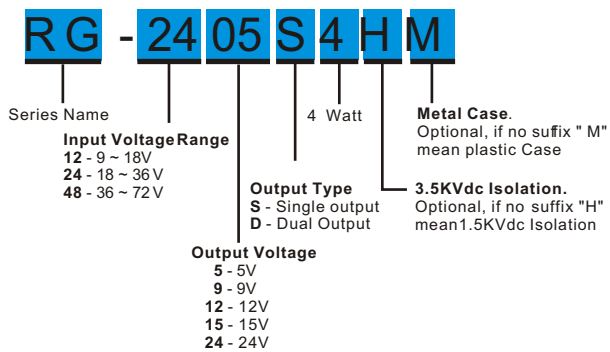
All specifications typical at $T_a = 25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS		PHYSICAL SPECIFICATIONS	
Voltage accuracy	$\pm 1\%$	Case Material	Non-conductive Black Plastic (UL94V-0 rated)
Line regulation	$\pm 0.5\%$		Nickel-coated Copper
Load regulation	$\pm 0.5\%$	Base Material	Non-conductive Black Plastic (UL94V-0 rated)
Ripple & noise (20 MHz bandwidth)(1)	60mV pk-pk	Pin Material	$\varnothing 0.5\text{mm}$ Brass Solder-coated
Short circuit protection	Continuous	Potting Material	Epoxy (UL94V-0 rated)
Temperature coefficient	$\pm 0.02\%/^\circ\text{C}$	Weight	12.5g (Plastic Case) / 15.0g (Metal Case)
Capacitor load(2)	See table	Dimensions	1.25" x 0.8" x 0.4"
INPUT SPECIFICATIONS		ENVIRONMENT SPECIFICATIONS	
Voltage Range	See table	Operating Temperature	-25°C ~ 85°C (See Derating Curve)
Max. Input Current	See table		-25°C ~ 71°C (For 100% load)
No-Load Input Current	See table	Maximum Case Temperature	100°C
Input Filter	PI Type	Storage Temperature	-40°C ~ 125°C
Input Reflected Ripple Current(3)	35mA pk-pk	Cooling	Nature Convection
GENERAL SPECIFICATIONS		ABSOLUTE MAXIMUM RATINGS(4)	
Efficiency	See table, typ	These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
I/O Isolation Voltage(3 sec)		Input Voltage(100mS)	
Input/Output	1500~3500Vdc	12 Modes	-0.7~24 Vdc
Metal Case/Input & Output	1000Vdc	24 Modes	-0.7~40 Vdc
I/O Isolation Capacitance	60 pF Typ.	48 Modes	-0.7~80 Vdc
I/O Isolation Resistance	1000M Ohm	Soldering Temperature	260°C
Switching Frequency	100~400kHz	(1.5mm from case 10sec.)	
Humidity	95% rel H		
Reliability Calculated MTBF(MIL-HDBK-217 F)	>2,199 Mhrs		
Safety Standard : (designed to meet)	IEC 60950-1		

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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)		
RG-1205S4	9-18	20	432	5	200	800	77	2200
RG-1209S4	9-18	20	416	9	111	444	80	470
RG-1212S4	9-18	20	416	12	83.3	333	80	470
RG-1215S4	9-18	20	416	15	66.8	267	80	470
RG-1224S4	9-18	20	416	24	41.8	167	80	220
RG-1205D4	9-18	20	432	±5	±100	±400	77	±1000
RG-1209D4	9-18	20	416	±9	±55.5	±222	80	±220
RG-1212D4	9-18	20	416	±12	±41.8	±167	80	±220
RG-1215D4	9-18	20	416	±15	±33.3	±133	80	±220
RG-1224D4	9-18	20	416	±24	±20.8	±83	80	±100
RG-2405S4	18-36	12	210	5	200	800	79	2200
RG-2409S4	18-36	12	203	9	111	444	82	470
RG-2412S4	18-36	12	203	12	83.3	333	82	470
RG-2415S4	18-36	12	203	15	66.8	267	82	470
RG-2424S4	18-36	12	203	24	41.8	167	82	220
RG-2405D4	18-36	12	210	±5	±100	±400	79	±1000
RG-2409D4	18-36	12	203	±9	±55.5	±222	82	±220
RG-2412D4	18-36	12	203	±12	±41.8	±167	82	±220
RG-2415D4	18-36	12	203	±15	±33.3	±133	82	±220
RG-2424D4	18-36	12	203	±24	±20.8	±83	82	±100
RG-4805S4	36-72	8	106	5	200	800	78	2200
RG-4809S4	36-72	8	101	9	111	444	82	470
RG-4812S4	36-72	8	101	12	83.3	333	82	470
RG-4815S4	36-72	8	101	15	66.8	267	82	470
RG-4824S4	36-72	8	101	24	41.8	167	82	220
RG-4805D4	36-72	8	109	±5	±100	±400	76	±1000
RG-4809D4	36-72	8	101	±9	±55.5	±222	82	±220
RG-4812D4	36-72	8	101	±12	±41.8	±167	82	±220
RG-4815D4	36-72	8	101	±15	±33.3	±133	82	±220
RG-4824D4	36-72	8	101	±24	±20.8	±83	82	±100

Suffix "H" means 3.5KVdc isolation

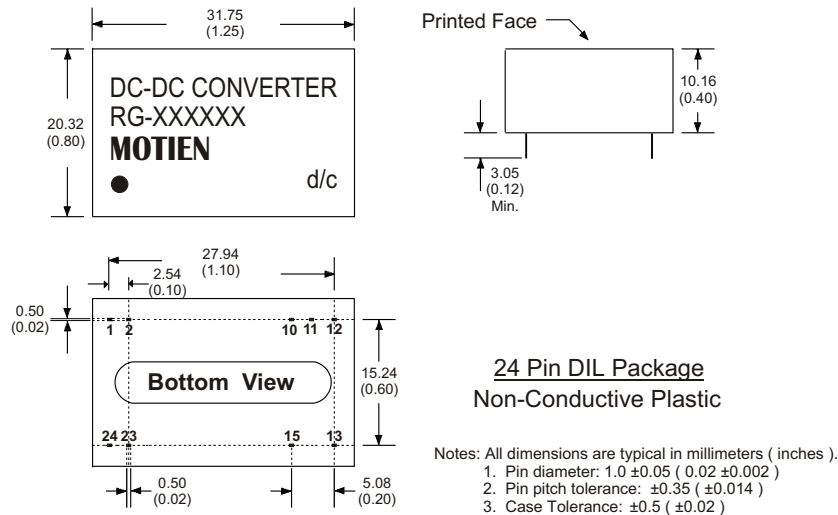
Suffix "M" means Metal Case instead of standard Plastic case

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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.

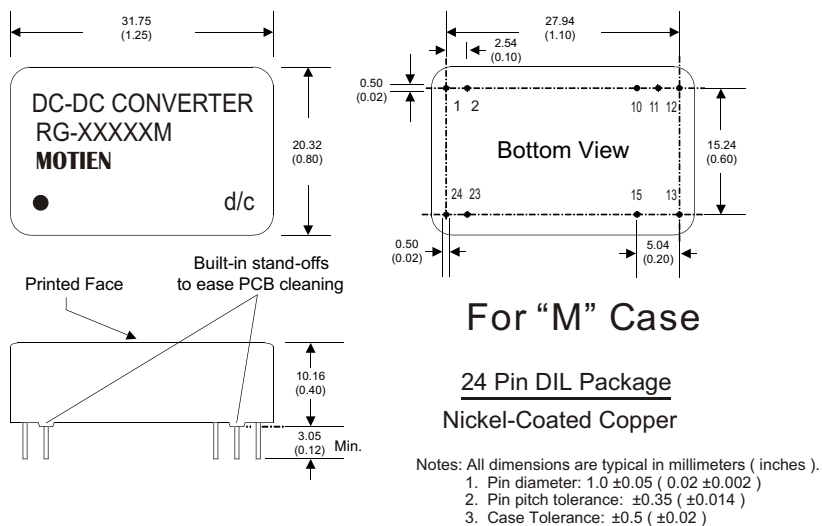
MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
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		
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.)