

RG-2W Series



2W 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 78%
- -40 ~ 85°C Operating Temperature
- Plastic Case Standard, Optional Metal Case



The RG series is a family of cost effective 2W 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 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 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"

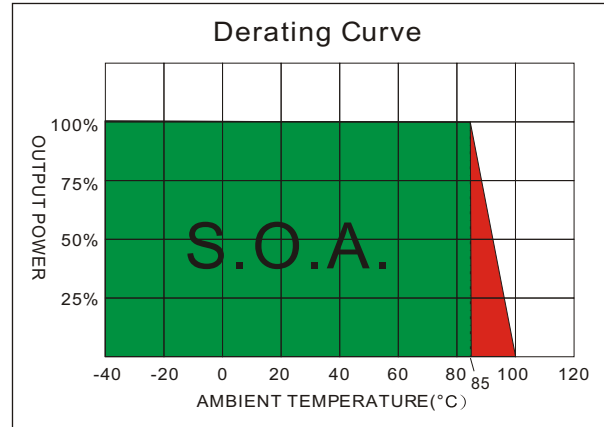
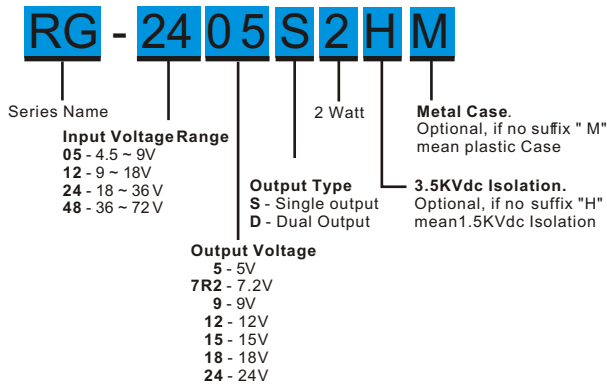
ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-40°C~85°C(See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS(4)	
These are 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 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(µF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
RG-050 5S2	4.5-9	40	588	5	100	400	68	2200
RG-057 R2S2	4.5-9	40	588	7.2	69	278	68	1000
RG-050 9S2	4.5-9	40	571	9	56	222	70	470
RG-051 2S2	4.5-9	40	571	12	43	167	70	470
RG-051 5S2	4.5-9	40	571	15	33	133	70	470
RG-051 8S2	4.5-9	40	571	18	28	111	70	220
RG-052 4S2	4.5-9	40	579	24	21	83	69	220
RG-0505 D2	4.5-9	40	588	±5	±50	±200	68	±1000
RG-057R2 D2	4.5-9	40	588	±7.2	±35	±139	68	±220
RG-0509 D2	4.5-9	40	571	±9	±28	±111	70	±220
RG-0512 D2	4.5-9	40	571	±12	±21	±83	70	±220
RG-0515 D2	4.5-9	40	571	±15	±17	±67	70	±220
RG-0518 D2	4.5-9	40	579	±18	±14	±56	69	±220
RG-0524 D2	4.5-9	40	579	±24	±11	±42	69	±100
RG-120 5S2	9-18	20	231	5	100	400	72	2200
RG-127 R2S2	9-18	20	231	7.2	69	278	72	1000
RG-120 9S2	9-18	20	228	9	56	222	73	470
RG-121 2S2	9-18	20	216	12	43	167	77	470
RG-121 5S2	9-18	20	216	15	33	133	77	470
RG-121 8S2	9-18	20	222	18	28	111	75	220
RG-122 4S2	9-18	20	225	24	21	83	74	220
RG-1205 D2	9-18	20	231	±5	±50	±200	72	±1000
RG-127R2 D2	9-18	20	231	±7.2	±35	±139	72	±220
RG-1209 D2	9-18	20	231	±9	±28	±111	72	±220
RG-1212 D2	9-18	20	219	±12	±21	±83	76	±220
RG-1215 D2	9-18	20	219	±15	±17	±67	76	±220
RG-1218 D2	9-18	20	222	±18	±14	±56	75	±220
RG-1224 D2	9-18	20	222	±24	±11	±42	75	±100
RG-240 5S2	18-36	12	111	5	100	400	75	2200
RG-247 R2S2	18-36	12	111	7.2	69	278	75	1000

Suffix "H" means 3.5KVdc isolation

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

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MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(μF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
RG-240 9S2	18-36	12	110	9	56	222	76	470
RG-241 2S2	18-36	12	110	12	43	167	76	470
RG-241 5S2	18-36	12	107	15	33	133	78	470
RG-241 8S2	18-36	12	108	18	28	111	77	220
RG-242 4S2	18-36	12	108	24	21	83	77	220
RG-2405 D2	18-36	12	111	±5	±50	±200	75	±1000
RG-247R2 D2	18-36	12	111	±7.2	±35	±139	75	±220
RG-2409 D2	18-36	12	110	±9	±28	±111	76	±220
RG-2412 D2	18-36	12	107	±12	±21	±83	78	±220
RG-2415 D2	18-36	12	107	±15	±17	±67	78	±220
RG-2418 D2	18-36	12	108	±18	±14	±56	77	±220
RG-2424 D2	18-36	12	110	±24	±11	±42	76	±100
RG-480 5S2	36-72	8	57	5	100	400	73	2200
RG-487 R2S2	36-72	8	57	7.2	69	278	73	1000
RG-480 9S2	36-72	8	56	9	56	222	74	470
RG-481 2S2	36-72	8	56	12	43	167	75	470
RG-481 5S2	36-72	8	56	15	33	133	75	470
RG-481 8S2	36-72	8	57	18	28	111	73	220
RG-482 4S2	36-72	8	57	24	21	83	73	220
RG-4805 D2	36-72	8	56	±5	±50	±200	74	±1000
RG-487R2 D2	36-72	8	56	±7.2	±35	±139	74	±220
RG-4809 D2	36-72	8	56	±9	±28	±111	75	±220
RG-4812 D2	36-72	8	53	±12	±21	±83	78	±220
RG-4815 D2	36-72	8	53	±15	±17	±67	78	±220
RG-4818 D2	36-72	8	55	±18	±14	±56	76	±220
RG-4824 D2	36-72	8	55	±24	±11	±42	76	±100

Suffix "H" means 3.5KVdc isolation

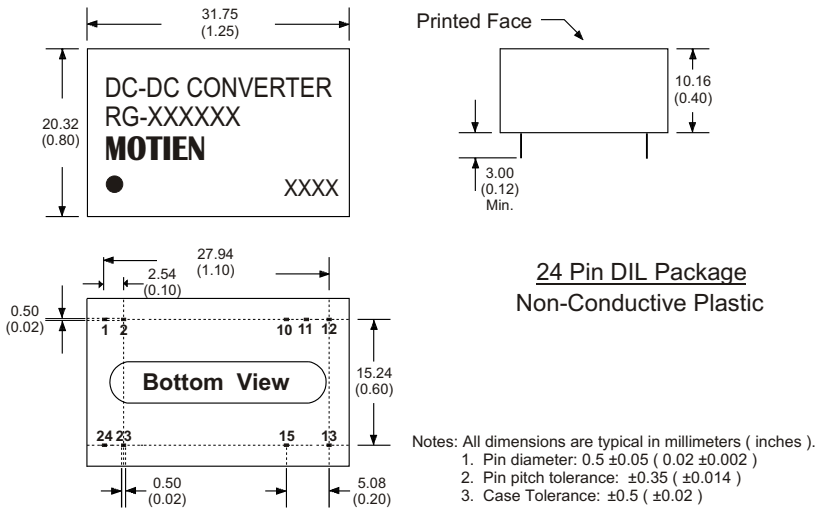
Suffix "M" means Metal Case instead of standard Plastic case

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 12μH.
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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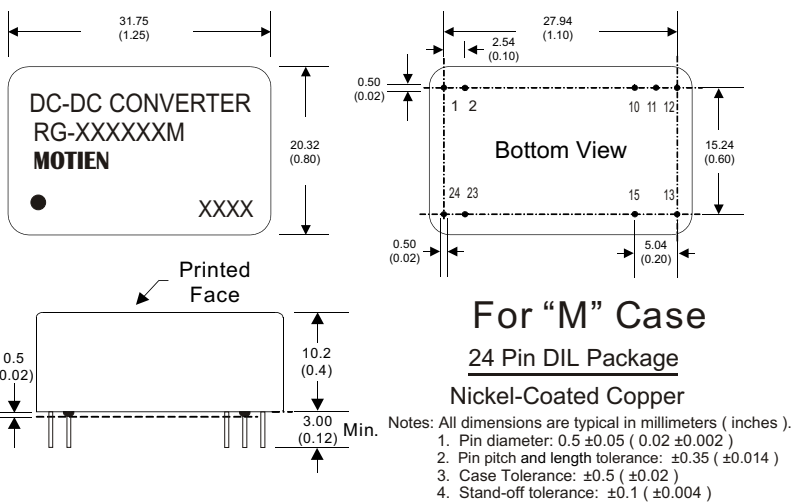
MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



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		
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.)