

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



The RG 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 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 $\pm 1\%$ 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"

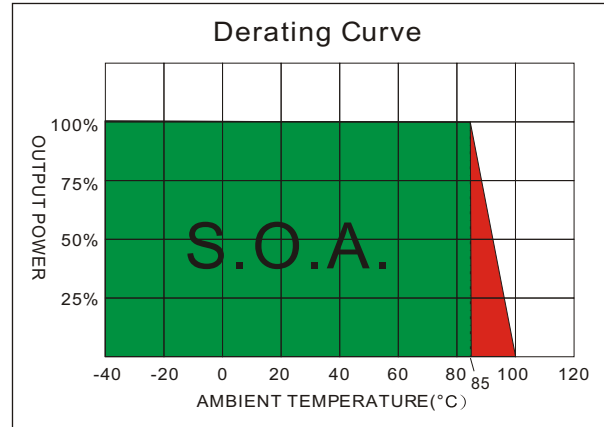
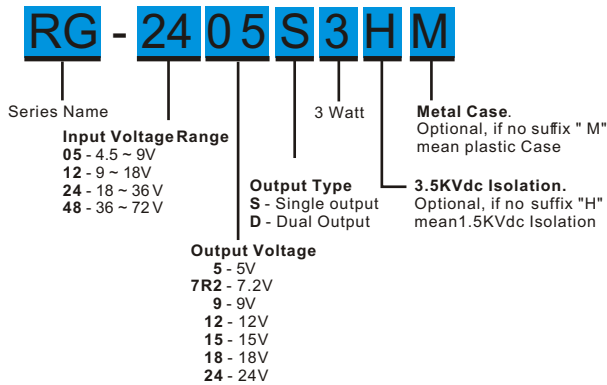
ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-40°C~85°C(See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

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 5S3	4.5-9	40	857	5	150	600	70	2200
RG-057 R2S3	4.5-9	40	833	7.2	104	417	72	1000
RG-050 9S3	4.5-9	40	833	9	83	333	72	470
RG-051 2S3	4.5-9	40	810	12	63	250	74	470
RG-051 5S3	4.5-9	40	810	15	50	200	74	470
RG-051 8S3	4.5-9	40	810	18	42	167	74	220
RG-052 4S3	4.5-9	40	857	24	31	125	70	220
RG-0505 D3	4.5-9	40	869	±5	±75	±300	69	±1000
RG-057R2 D3	4.5-9	40	896	±7.2	±52	±208	67	±220
RG-0509 D3	4.5-9	40	857	±9	±42	±167	70	±220
RG-0512 D3	4.5-9	40	833	±12	±31	±125	72	±220
RG-0515 D3	4.5-9	40	810	±15	±25	±100	74	±220
RG-0518 D3	4.5-9	40	810	±18	±21	±83	74	±220
RG-0524 D3	4.5-9	40	857	±24	±16	±63	70	±100
RG-120 5S3	9-18	20	328	5	150	600	76	2200
RG-127 R2S3	9-18	20	338	7.2	104	417	74	1000
RG-120 9S3	9-18	20	324	9	83	333	77	470
RG-121 2S3	9-18	20	316	12	63	250	79	470
RG-121 5S3	9-18	20	316	15	50	200	79	470
RG-121 8S3	9-18	20	316	18	42	167	79	220
RG-122 4S3	9-18	20	316	24	31	125	79	220
RG-1205 D3	9-18	20	329	±5	±75	±300	76	±1000
RG-127R2 D3	9-18	20	325	±7.2	±52	±208	77	±220
RG-1209 D3	9-18	20	325	±9	±42	±167	77	±220
RG-1212 D3	9-18	20	316	±12	±31	±125	79	±220
RG-1215 D3	9-18	20	316	±15	±25	±100	79	±220
RG-1218 D3	9-18	20	321	±18	±21	±83	78	±220
RG-1224 D3	9-18	20	316	±24	±16	±63	79	±100
RG-240 5S3	18-36	12	156	5	150	600	80	2200
RG-247 R2S3	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

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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 9S3	18-36	12	156	9	83	333	80	470
RG-241 2S3	18-36	12	152	12	62	250	82	470
RG-241 5S3	18-36	12	152	15	50	200	82	470
RG-241 8S3	18-36	12	158	18	42	167	79	220
RG-242 4S3	18-36	12	156	24	31	125	80	220
RG-2405 D3	18-36	12	156	±5	±75	±300	80	±1000
RG-247R2 D3	18-36	12	160	±7.2	±52	±208	78	±220
RG-2409 D3	18-36	12	158	±9	±42	±167	80	±220
RG-2412 D3	18-36	12	152	±12	±31	±125	82	±220
RG-2415 D3	18-36	12	152	±15	±25	±100	82	±220
RG-2418 D3	18-36	12	156	±18	±21	±83	80	±220
RG-2424 D3	18-36	12	156	±24	±16	±63	80	±100
RG-480 5S3	36-72	8	81	5	150	600	77	2200
RG-487 R2S3	36-72	8	80	7.2	104	417	78	1000
RG-480 9S3	36-72	8	80	9	83	333	78	470
RG-481 2S3	36-72	8	78	12	63	250	80	470
RG-481 5S3	36-72	8	78	15	50	200	80	470
RG-481 8S3	36-72	8	81	18	42	167	77	220
RG-482 4S3	36-72	8	78	24	31	125	80	220
RG-4805 D3	36-72	8	80	±5	±75	±300	78	±1000
RG-487R2 D3	36-72	8	80	±7.2	±52	±208	78	±220
RG-4809 D3	36-72	8	79	±9	±42	±167	79	±220
RG-4812 D3	36-72	8	78	±12	±31	±125	80	±220
RG-4815 D3	36-72	8	78	±15	±25	±100	80	±220
RG-4818 D3	36-72	8	80	±18	±21	±83	78	±220
RG-4824 D3	36-72	8	78	±24	±15.8	±63	80	±100

Suffix "H" means 3.5KVdc isolation

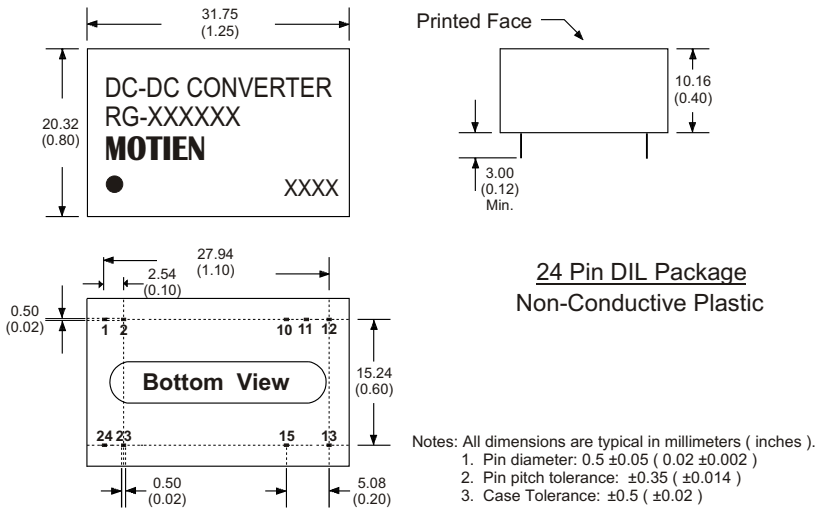
Suffix "M" means Metal Case instead of standard Plastic case

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 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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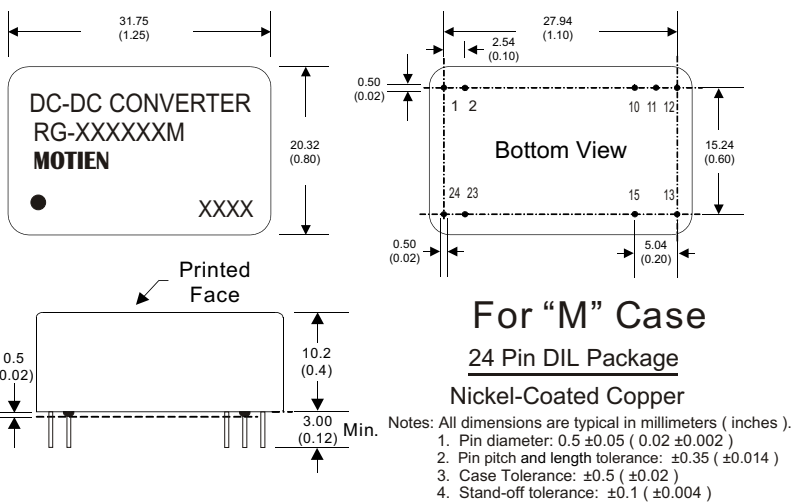
MECHANICAL SPECIFICATIONS FOR HIGH ISOLATION MODEL



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.)