

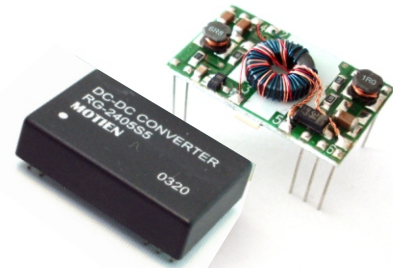
RG-3W Series



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



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 tight line / load regulation. Devices are encapsulated using flame retardant resin. Input voltages of 5, 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.

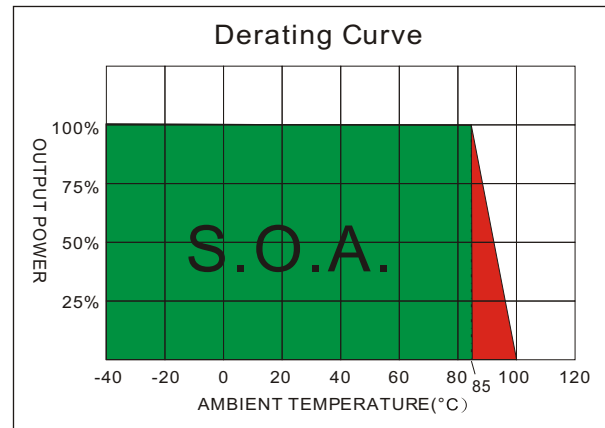
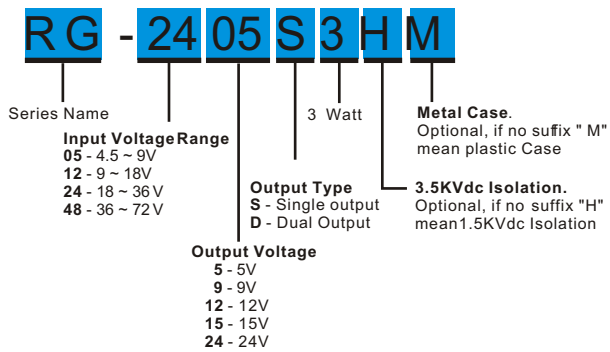
All specifications typical at $T_a = 25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

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"x0.8"x0.4"
INPUT SPECIFICATIONS		ENVIRONMENT SPECIFICATIONS	
Voltage Range	See table	Operating Temperature	$-40^\circ\text{C} \sim 85^\circ\text{C}$ (See Derating Curve)
Max. Input Current	See table	Maximum Case Temperature	100°C
No-Load Input Current	See table	Storage Temperature	$-40^\circ\text{C} \sim 125^\circ\text{C}$
Input Filter	PI Type	Cooling	Nature Convection
Input Reflected Ripple Current(3)	35mA pk-pk		
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	5 Modes	-0.7~15 Vdc
Metal Case/Input & Output	1000Vdc	12 Modes	-0.7~24 Vdc
I/O Isolation Capacitance	60 pF Typ.	24 Modes	-0.7~40 Vdc
I/O Isolation Resistance	1000M Ohm	48 Modes	-0.7~80 Vdc
Switching Frequency	100~400kHz	Soldering Temperature	260°C
Humidity	95% rel H	(1.5mm from case 10sec.)	
Reliability Calculated MTBF(MIL-HDBK-217 F)	>2,199 Mhrs		
Safety Standard : (designed to meet)	IEC 60950-1		

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RG - 3W 2:1 Regulated Single & Dual output

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-0505S3	4.5-9	40	857	5	150	600	70	2200
RG-0509S3	4.5-9	40	833	9	83.3	333	72	470
RG-0512S3	4.5-9	40	810	12	62.5	250	74	470
RG-0515S3	4.5-9	40	810	15	50	200	74	470
RG-0524S3	4.5-9	40	857	24	31.3	125	70	220
RG-0505D3	4.5-9	40	869	±5	±75	±300	69	±1000
RG-0509D3	4.5-9	40	857	±9	±41.8	±167	70	±220
RG-0512D3	4.5-9	40	833	±12	±31.3	±125	72	±220
RG-0515D3	4.5-9	40	810	±15	±25	±100	74	±220
RG-0524D3	4.5-9	40	857	±24	±15.8	±63	70	±100
RG-1205S3	9-18	20	328	5	150	600	76	2200
RG-1209S3	9-18	20	324	9	83.3	333	77	470
RG-1212S3	9-18	20	316	12	62.5	250	79	470
RG-1215S3	9-18	20	316	15	50	200	79	470
RG-1224S3	9-18	20	316	24	31.3	125	79	220
RG-1205D3	9-18	20	324	±5	±75	±300	77	±1000
RG-1209D3	9-18	20	320	±9	±41.8	±167	78	±220
RG-1212D3	9-18	20	320	±12	±31.3	±125	78	±220
RG-1215D3	9-18	20	320	±15	±25	±100	78	±220
RG-1224D3	9-18	20	320	±24	±15.8	±63	78	±100
RG-2405S3	18-36	12	156	5	150	600	80	2200
RG-2409S3	18-36	12	156	9	83.3	333	80	470
RG-2412S3	18-36	12	152	12	62.5	250	82	470
RG-2415S3	18-36	12	152	15	50	200	82	470
RG-2424S3	18-36	12	156	24	31.3	125	80	220
RG-2405D3	18-36	12	160	±5	±75	±300	78	±1000
RG-2409D3	18-36	12	158	±9	±41.8	±167	79	±220
RG-2412D3	18-36	12	156	±12	±31.3	±125	80	±220
RG-2415D3	18-36	12	156	±15	±25	±100	80	±220
RG-2424D3	18-36	12	156	±24	±15.8	±63	80	±100

Suffix "H" means 3.5KVdc isolation

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

RG - 3W 2:1 Regulated Single & Dual output

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-4805S3	36-72	8	81	5	150	600	77	2200
RG-4809S3	36-72	8	80	9	83.3	333	78	470
RG-4812S3	36-72	8	78	12	62.5	250	80	470
RG-4815S3	36-72	8	78	15	50	200	80	470
RG-4824S3	36-72	8	78	24	31.3	125	80	220
RG-4805D3	36-72	8	80	±5	±75	±300	78	±1000
RG-4809D3	36-72	8	79	±9	±41.8	±167	79	±220
RG-4812D3	36-72	8	78	±12	±31.3	±125	80	±220
RG-4815D3	36-72	8	78	±15	±25	±100	80	±220
RG-4824D3	36-72	8	78	±24	±15.8	±63	80	±100

Suffix "H" means 3.5KVdc isolation

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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

DC-DC CONVERTER
RG-XXXXXX
MOTIEN
d/c

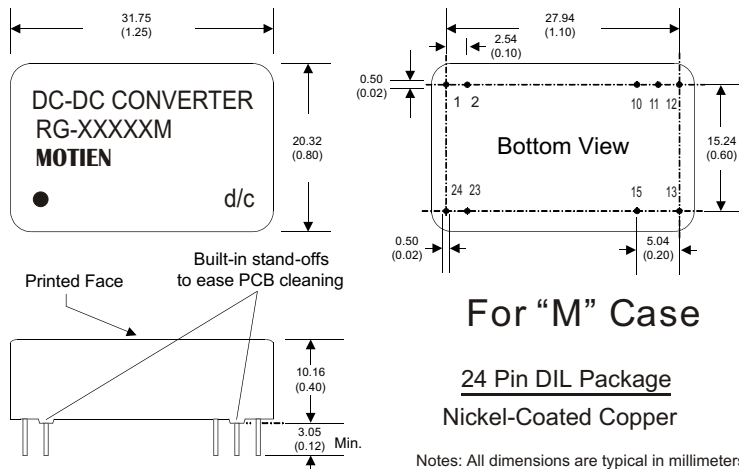
24 Pin DIL Package
Non-Conductive Plastic

Notes: All dimensions are typical in millimeters (inches).
1. Pin diameter: 1.0 ±0.05 (0.02 ±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

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



Notes: All dimensions are typical in millimeters (inches).
 1. Pin diameter: 1.0 ± 0.05 (0.02 ± 0.002)
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PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
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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.)