

RK-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 80%
- -40 ~ 85°C Operating Temperature
- Plastic Case Standard, Optional Metal Case



The RK 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 tightline / 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 80% and output voltage accuracy of $\pm 1\%$ maximum.

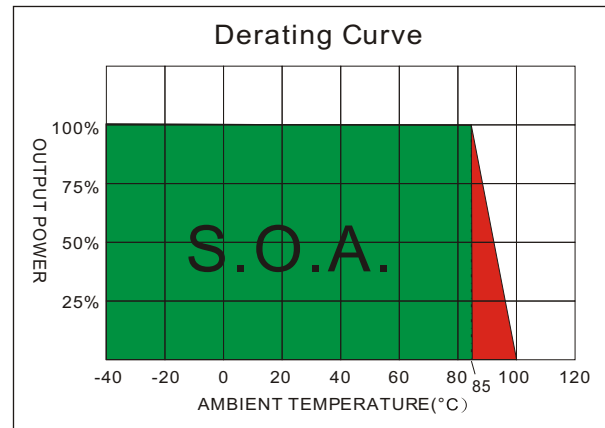
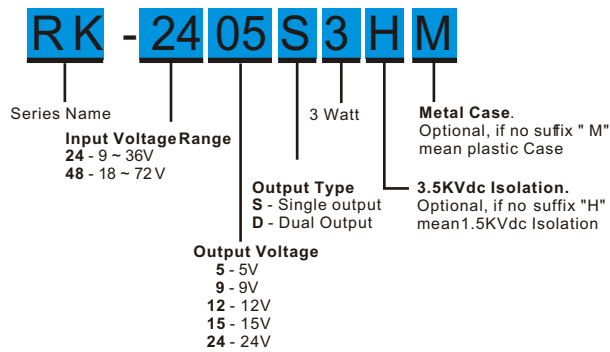
All specifications typical at $T_a=25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

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	24 Modes	-0.7~40 Vdc
Metal Case/Input & Output	1000Vdc	48 Modes	-0.7~80 Vdc
I/O Isolation Capacitance	60 pF Typ.	Soldering Temperature	
I/O Isolation Resistance	1000M Ohm	(1.5mm from case 10sec.)	
Switching Frequency	100~400kHz	260°C	
Humidity	95% rel H		
Reliability Calculated MTBF(MIL-HDBK-217 F)	>2.199 Mhrs		
Safety Standard : (designed to meet)	IEC 60950-1		

The information and specifications contained in this data sheet are believed to be correct at time of publication. However, MOTIEN Technologies accepts no responsibility for consequences arising from printing errors or inaccuracies. Specifications are subject to change without notice. No rights under any patent accompany the sale of any such product(s) or information contained herein.

RK - 3W 4:1 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)		
RK-2405S3	9-36	20	173	5	200	600	72	2200
RK-2409S3	9-36	20	168	9	111	333	74	470
RK-2412S3	9-36	20	164	12	83.3	250	76	470
RK-2415S3	9-36	20	164	15	66.7	200	76	470
RK-2424S3	9-36	30	166	24	41.7	125	75	220
RK-2405D3	9-36	20	178	±5	±100	±300	70	±1000
RK-2409D3	9-36	20	173	±9	±55.7	±167	72	±220
RK-2412D3	9-36	20	168	±12	±41.7	±125	74	±220
RK-2415D3	9-36	20	168	±15	±33.3	±100	74	±220
RK-2424D3	9-36	30	171	±24	±21	±63	73	±100
RK-4805S3	18-72	10	83	5	200	600	75	2200
RK-4809S3	18-72	10	81	9	111	333	77	470
RK-4812S3	18-72	10	78	12	83.3	250	80	470
RK-4815S3	18-72	10	78	15	66.7	200	80	470
RK-4824S3	18-72	10	80	24	41.7	125	78	220
RK-4805D3	18-72	10	85	±5	±100	±300	73	±1000
RK-4809D3	18-72	10	83	±9	±55.7	±167	75	±220
RK-4812D3	18-72	10	80	±12	±41.7	±125	78	±220
RK-4815D3	18-72	10	80	±15	±33.3	±100	78	±220
RK-4824D3	18-72	10	82	±24	±21	±63	76	±100

Suffix "H" means 3.5KVdc isolation

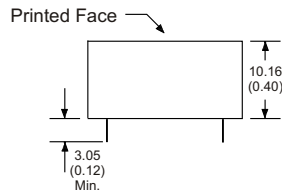
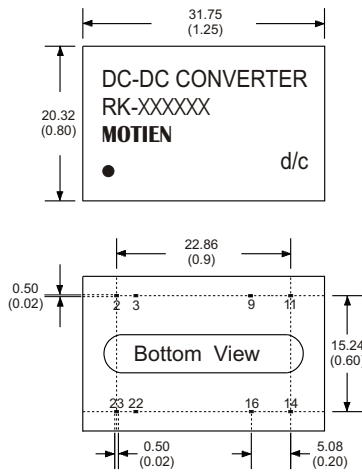
Suffix "M" means Metal Case instead of standard Plastic case

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 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.

RK - 3W 4:1 Regulated Single & Dual output

MECHANICAL SPECIFICATIONS



24 Pin DIL Package Non-Conductive Plastic

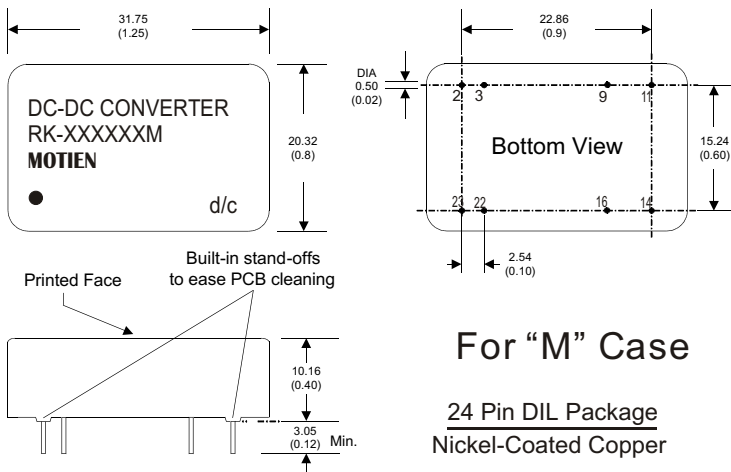
Notes: All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5 ± 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
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

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

MECHANICAL SPECIFICATIONS



For "M" Case

24 Pin DIL Package Nickel-Coated Copper

Notes: All dimensions are typical in millimeters (inches).

1. Pin diameter: 0.5 ± 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
2	-V Input	-V Input
3	-V Input	-V Input
9	N.P.	Common
11	N.C.	-V Output
14	+V Output	+V Output
16	-V Output	Common
22	+V Input	+V Input
23	+V Input	+V Input

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