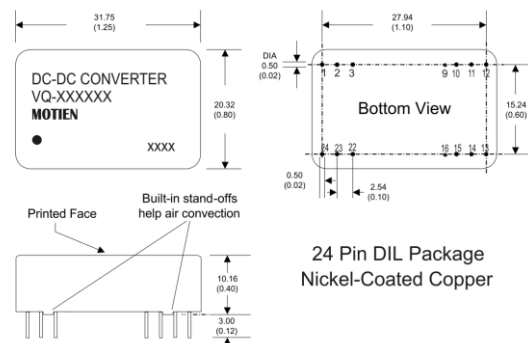


Benennung	DC-DC-Wandler
Typ / Modell	VQ-2418D4
Artikel Nummer	7133005
Hersteller	Motien
Eingangsspannung	9...36VDC
Ausgangsspannung	2 x 18VDC
Ausgangsstrom	112mA
Leistung	4W
Wirkungsgrad	80%
Anschlussbelegung	DIP24
Maße	31,75 x 20,32 x 10,16mm
Gewicht	17g
Farbe	Metallisch glänzend
Date code	1136

Bilder



Datenblatt

VQ-4W Series

4W 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 82%
- -40 ~ 85°C Operation Temperature Range
- Metal Case Standard, Optional Plastic Case



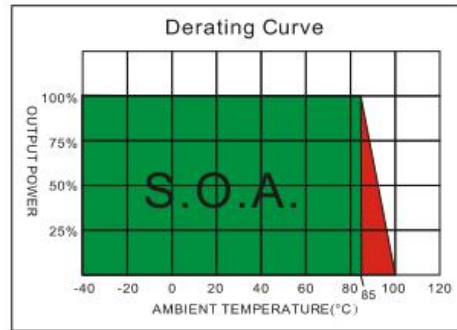
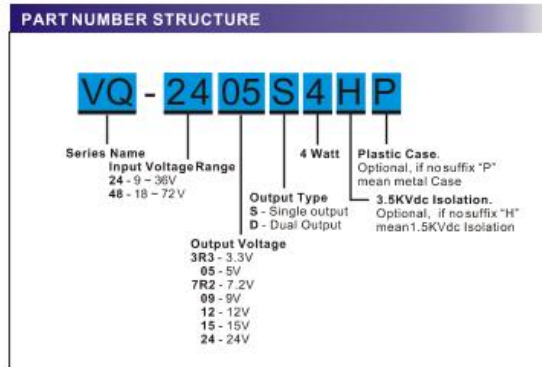
The VQ series is a family of cost effective 4W single & dual output DC-DC converters. These converters are consisted with Nickel-coated copper in a 24-pin DIL package with high performance features such as 1500 VDC ~ 3500VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Devices are encapsulated using flame retardant resin. Input voltages of 24 and 48 with output voltage of 3.3, 5, 7, 2, 9, 12, 15, 24, ±3.3, ±5, ±7.2, ±9, ±12, ±15 and ±24 Vdc. High performance features include high efficiency operation up to 82% and output voltage accuracy of ±1% maximum.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS		PHYSICAL SPECIFICATIONS	
Voltage accuracy	±1%	Case Material	Nickel-coated Copper
Line regulation	±0.5%	Base Material	Non-conductive Black Plastic(UL94V-0 rated)
Load regulation(Io=0% to 100%)	±0.5%	Pin Material	Ø0.5mm Brass Solder-coated
	(Output 3.3V / ±3.3V Model) ±1.5%	Potting Material	Epoxy (UL94V-0 rated)
Ripple & noise(20 MHz bandwidth)(1)	60mV pk-pk	Weight	17.0g(Metal Case)/13.5g(Plastic Case)
Short circuit protection	Indefinite(Automatic Recovery)	Dimensions	1.25"x0.8"x0.4"
Temperature coefficient	±0.02%/°C		
Capacitor load(2)	See table		
INPUT SPECIFICATIONS		ENVIRONMENT SPECIFICATIONS	
Voltage Range	See table	Operating Temperature	-40°C~85°C(See Derating Curve)
Max. Input Current	See table	Maximum Case Temperature	100°C
No-Load Input Current	See table	Storage Temperature	-40°C~125°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 Surge Voltage(100mS)	
Input/Output	1500~3500Vdc	24 Models	40 Vdc max.
Metal Case/Input & Output	1000Vdc	48 Models	80 Vdc max.
I/O Isolation Capacitance	470 pF typ.	Soldering Temperature	260°C ,max.
I/O Isolation Resistance	1000M Ohm	(1.5mm from case 10sec. max.)	
Switching Frequency	Typical 266kHz	EMC SPECIFICATIONS	
Humidity	95% rel H	Radiated Emissions	EN55022 CLASS A
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1,121 Mhrs	Conducted Emissions (5)	EN55022 CLASS A
Safety Standard (designed to meet)	IEC 60950-1	ESD	IEC 61000-4-2 Perf. Criteria A
		RS	IEC 61000-4-3 Perf. Criteria A
		EFT	IEC 61000-4-4 Perf. Criteria A
		Surge (6)	IEC 61000-4-5 Perf. Criteria A
		CS	IEC 61000-4-6 Perf. Criteria A
		PfMF	IEC 61000-4-8 Perf. Criteria A

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.

VQ - 4W 4:1 Regulated Single & Dual output



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)		
VQ-243 R3S4	9-36	18	222.0	3.3	0	1200	75	1000
VQ-24 05S4	9-36	18	210.9	5	0	800	79	680
VQ-247 R2S4	9-36	18	208.3	7.2	0	555	80	100
VQ-24 09S4	9-36	18	208.3	9	0	444	80	100
VQ-24 12S4	9-36	18	203.3	12	0	333	82	100
VQ-24 15S4	9-36	18	203.3	15	0	266	82	100
VQ-24 24S4	9-36	18	205.8	24	0	166	81	100
VQ-243 R3D4	9-36	18	222.0	±3.3	0	±606	75	±470
VQ-240 5D4	9-36	18	210.9	±5	0	±400	79	±330
VQ-247 R2D4	9-36	18	210.9	±7.2	0	±277	79	±47
VQ-240 9D4	9-36	18	205.8	±9	0	±222	81	±47
VQ-241 2D4	9-36	20	203.3	±12	0	±166	82	±47
VQ-241 5D4	9-36	20	205.8	±15	0	±133	81	±22
VQ-242 4D4	9-36	25	210.9	±24	0	±83	79	±10
VQ-483 R3S4	18-72	15	110.0	3.3	0	1200	75	1000
VQ-48 05S4	18-72	15	105.5	5	0	800	79	680
VQ-487 R2S4	18-72	15	102.8	7.2	0	555	81	680
VQ-48 09S4	18-72	15	104.2	9	0	444	80	220
VQ-48 12S4	18-72	15	101.6	12	0	333	82	220
VQ-48 15S4	18-72	15	101.6	15	0	266	82	68
VQ-48 24S4	18-72	15	104.2	24	0	166	80	47
VQ-483 R3D4	18-72	15	108.2	±3.3	0	±606	77	±680
VQ-480 5D4	18-72	15	105.5	±5	0	±400	79	±330
VQ-487 R2D4	18-72	15	107.0	±7.2	0	±277	78	±47
VQ-480 9D4	18-72	15	104.2	±9	0	±222	80	±47
VQ-481 2D4	18-72	15	102.8	±12	0	±166	81	±47
VQ-481 5D4	18-72	15	101.6	±15	0	±133	82	±33
VQ-482 4D4	18-72	15	104.2	±24	0	±83	80	±22

Suffix "H" means 3.5KVdc isolation
Suffix "P" means Plastic case instead of standard Metal Case

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@molten.com.tw



VQ - 4W 4:1 Regulated Single & Dual output

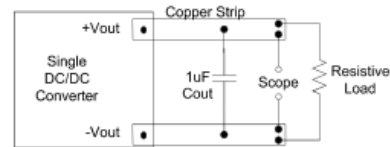
NOTE

1. Ripple/Noise measured with a 1uF ceramic capacitor.
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. It's recommended to add C1(220 uF), C3(1000PF,2KV), L(12uH) in input end to achieve EN55022 conducted Class A.
6. An external filter capacitor is required if the module has to meet IEC 61000-4-5. The filter capacitor Motien suggest: Nippon - chemi - con KY series, 220uF/100V.

TEST CONFIGURATIONS

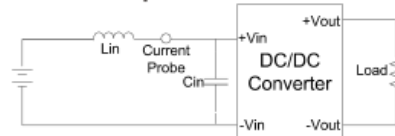
Output Ripple & Noise Measurement Test

Use a capacitor Cout(1.0uF) measurement.
The Scope measurement bandwidth is 0-20MHz.



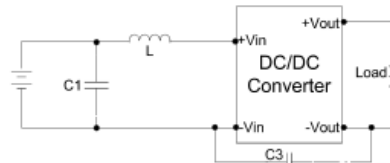
Input Reflected Ripple Current Test Step

Input reflected ripple current is measured through a source inductor Lin(12uH) and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



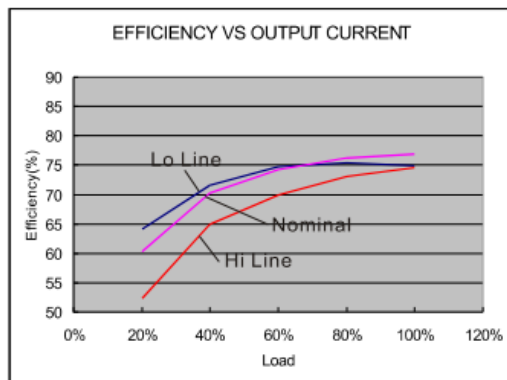
EMI Filter

Input filter components (C1,C3, L) are used to help meet conducted emissions requirement for the module. These components should be mounted as close as possible to the module; and all leads should be minimized to decrease radiated noise.

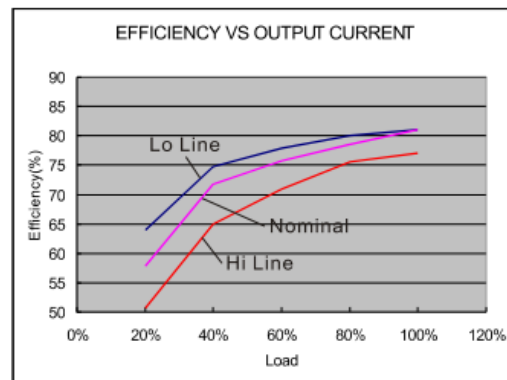


C1	L	C3
220uF, 100V	12uH	1000PF,2KV

ELECTRICAL CHARACTERISTIC CURVES



24 Models



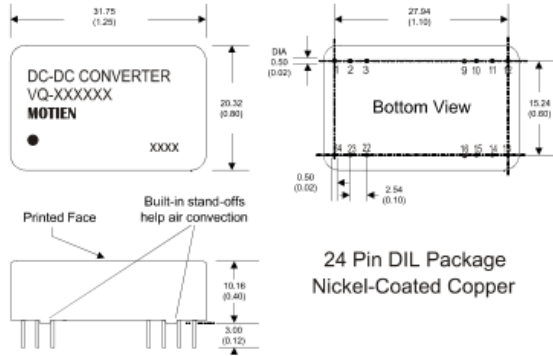
48 Models

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@motien.com.tw



VQ - 4W 4:1 Regulated Single & Dual output

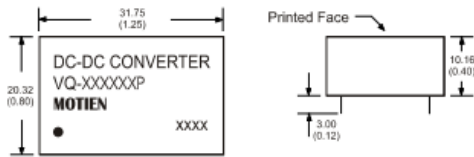
MECHANICAL SPECIFICATIONS



24 Pin DIL Package
Nickel-Coated Copper

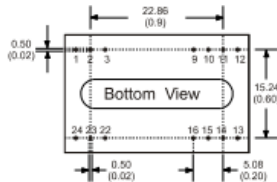
Notes: All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)

PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	N.P.	N.P.
2	N.C.	-V Output	-V Input	-V Input
3	N.C.	Common	-V Input	-V Input
9	N.P.	N.P.	N.P.	Common
10	-V Output	Common	N.P.	N.P.
11	+V Output	+V Output	N.C.	-V Output
12	-V Input	-V Input	N.P.	N.P.
13	-V Input	-V Input	N.P.	N.P.
14	+V Output	+V Output	+V Output	+V Output
15	-V Output	Common	N.P.	N.P.
16	N.P.	N.P.	-V Output	Common
22	N.C.	Common	+V Input	+V Input
23	N.C.	-V Output	+V Input	+V Input
24	+V Input	+V Input	N.P.	N.P.



For "P" Case

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 and length tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)

PIN CONNECTIONS				
PIN NUMBER	SINGLE	DUAL	SINGLE-H	DUAL-H
1	+V Input	+V Input	N.P.	N.P.
2	N.C.	-V Output	-V Input	-V Input
3	N.C.	Common	-V Input	-V Input
9	N.P.	N.P.	N.P.	Common
10	-V Output	Common	N.P.	N.P.
11	+V Output	+V Output	N.C.	-V Output
12	-V Input	-V Input	N.P.	N.P.
13	-V Input	-V Input	N.P.	N.P.
14	+V Output	+V Output	+V Output	+V Output
15	-V Output	Common	N.P.	N.P.
16	N.P.	N.P.	-V Output	Common
22	N.C.	Common	+V Input	+V Input
23	N.C.	-V Output	+V Input	+V Input
24	+V Input	+V Input	N.P.	N.P.



ISO 9001 . ISO 14001 . IECQ QC080000

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