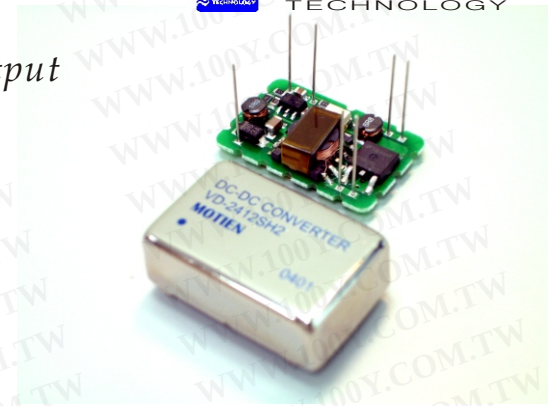
VD 3W Series

3W 2:1 Regulated Single & Dual output

MOTIEN TECHNOLOGY



Features

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation, Up to 3500 VDC
- Continuous Short Circuit Protection
- Efficiency up to 85%
- -40 ~ 85°C Operation Temperature Range

The VD series is a family of cost effective 1.5~6W single & dual output DC-DC converters. These converters combine nickle-coated copper package in a 24-pin DIL compatible case with high performance features such as 1500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Wide range devices operate over 2:1 input voltage range providing stable output voltage. Devices are encapsulated using flame retardant resin. Input voltages of 12,24 and 48 with output voltage of 3.3,5,12,15,18,±3.3,±12, ±15 or ±18 Vdc. High performance features include high efficiency operation up to 85% and output voltage accuracy of ±1% maximum. Standard features include an input range of ±10% tolerance and low output noise and ripple.

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

OUTPUT SPECIFICATIONS

Voltage Accuracy	±1%
Line Regulation	±0.5%
Load Regulation	±0.5%
Ripple & Noise (20 Mhz bandwidth)	60mV pk-pk
Current Limiting	120% of max. Iout
Short Circuit Protection	Indefinite(Automatic Recovery)
Temperature Coefficient	±0.02%/°C
Capacitor Load	See table

INPUT SPECIFICATIONS

Voltage Range	See table
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	π type
Input Reflected Ripple rms thru 12uH inductor,5Hz to20MHz	35mA rms

PHYSICAL SPECIFICATIONS

Case Material	Nickel-coated Copper
Base Material	Epoxy encapsulayed(UL94V-0 rated)
Pin Material	Ø0.5mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	17.0g
Dimensions	1.28"x0.84"x0.41"
	1.25"x0.8"x0.4"(Plastic Case)

EMI SPECIFICATIONS

Radiated Emissions

GENERAL SPECIFICATIONS

Efficiency	See table
I/O Isolation Voltage	
I/O 1 min(flash tested for 1 sec)	1500Vdc
Case/Input&Output	1000Vdc
I/O Isolation Capacity	470 pF
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Fixed 266KHz
Humidity	95% rel H
Reliability Calculated MTBF	>1.121 Mhrs
Safety Standard	IEC 60950-1:2001
Safety Approvals	

ENVIRONMENT SPECIFICATIONS

Operating Temperature	-40°C~85°C
Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

ABSOLUTE MAXIMUM RATINGS

Input Voltage	
12 Modes	-0.7~24 Vdc
24 Modes	-0.7~40 Vdc
48 Modes	-0.7~75 Vdc
Operating Amb. Temperature	-40°C~85°C
Case Temperature	100°C
Storage Temperature	-40°C~125°C
Lead Soldering Temperature 1.5mm from case 10 sec.	260°C

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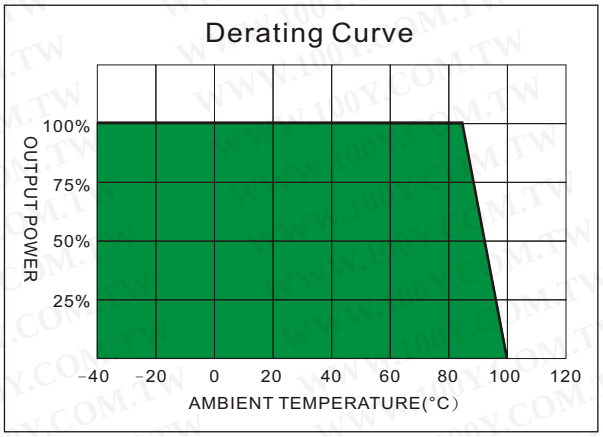
PART NUMBER STRUCTURE

VD - 24 05 S 3 H P

- **Series Name**
- **Input Voltage Range**
  - **12** - 9 ~ 18V
  - **24** - 18 ~ 36V
  - **48** - 36 ~ 72V
- **Nominal Output Voltage**
  - **3R3** - 3.3V
  - **5** - 5V
  - **9** - 9V
  - **12** - 12V
  - **15** - 15V
  - **24** - 24V
- **Output Type**
  - **S** - Single output
  - **D** - Dual Output
- **Watt**
- **3.5KVdc Isolation.** Optional, if no "H" suffix mean1.5KVdc Isolation
- **Plastic Case.** Optional, if no "P" suffix mean metal Case

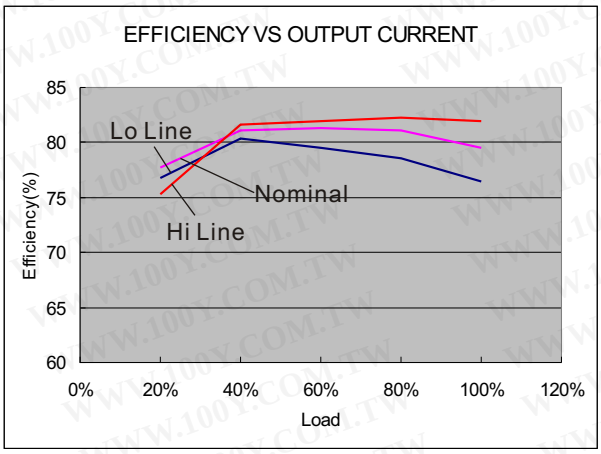


MODEL SELECTION GUIDE

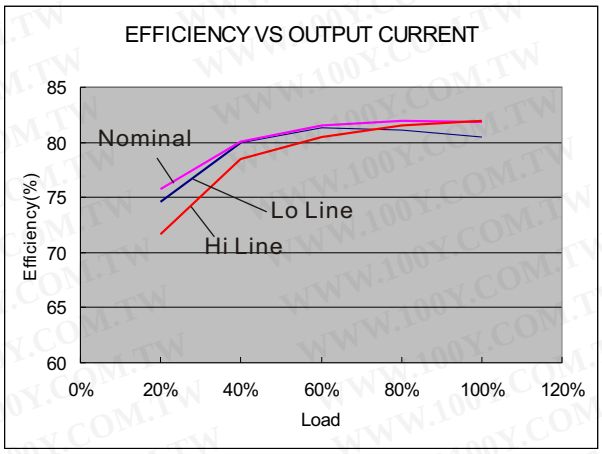
MODEL NUMBER	INPUT			OUTPUT		EFFICIENCY @FL(%)	Capacitor Load(μF)
	Voltage Range	No-Load Current	Full Load Current	Voltage(Vdc)	Current(mA)		
VD-123R3S3	9-18	22	343	3.3	900	72	470
VD-1205S3	9-18	22	328	5.0	600	76	470
VD-1209S3	9-18	22	320	9.0	333	78	68
VD-1212S3	9-18	22	312	12.0	250	80	47
VD-1215S3	9-18	22	312	15.0	200	80	47
VD-1224S3	9-18	22	313	24.0	125	80	22
VD-123R3D3	9-18	22	343	±3.3	±450	72	±220
VD-1205D3	9-18	22	328	±5.0	±300	76	±220
VD-1209D3	9-18	22	312	±9.0	±167	80	±33
VD-1212D3	9-18	22	312	±12.0	±125	80	±22
VD-1215D3	9-18	22	312	±15.0	±100	80	±22
VD-1224D3	9-18	22	313	±24.0	±63	80	±10
VD-243R3S3	18-36	12	171	3.3	900	72	470
VD-2405S3	18-36	12	164	5.0	600	76	470
VD-2409S3	18-36	12	160	9.0	333	78	68
VD-2412S3	18-36	12	156	12.0	250	80	47
VD-2415S3	18-36	12	152	15.0	200	82	47
VD-2424S3	18-36	12	153	24.0	125	82	22
VD-243R3D3	18-36	12	171	±3.3	±450	72	±220
VD-2405D3	18-36	12	160	±5.0	±300	78	±220
VD-2409D3	18-36	12	156	±9.0	±167	80	±33
VD-2412D3	18-36	12	152	±12.0	±125	82	±22
VD-2415D3	18-36	12	152	±15.0	±100	82	±22
VD-2424D3	18-36	12	153	±24.0	±63	82	±10
VD-483R3S3	36-72	8	86	3.3	900	72	470
VD-4805S3	36-72	8	82	5.0	600	76	470
VD-4809S3	36-72	8	80	9.0	333	78	68
VD-4812S3	36-72	8	78	12.0	250	80	47
VD-4815S3	36-72	8	78	15.0	200	80	47
VD-4824S3	36-72	8	78	24.0	125	80	22
VD-483R3D3	36-72	8	86	±3.3	±450	72	±220
VD-4805D3	36-72	8	82	±5.0	±300	76	±220
VD-4809D3	36-72	8	80	±9.0	±167	78	±33
VD-4812D3	36-72	8	78	±12.0	±125	80	±22
VD-4815D3	36-72	8	78	±15.0	±100	80	±22
VD-4824D3	36-72	8	78	±24.0	±63	80	±10

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

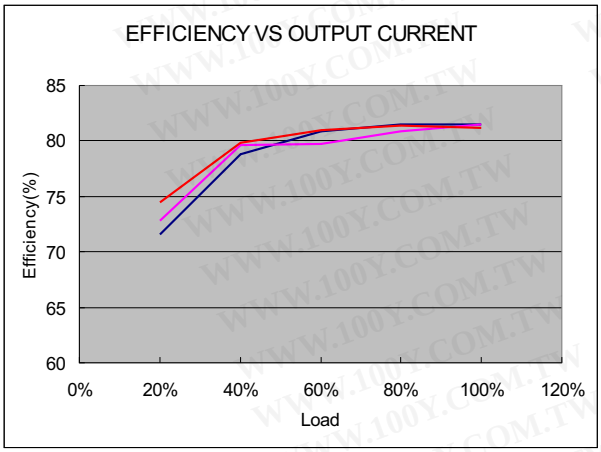
The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to : sales@motien.com.tw



12 Models



24 Models

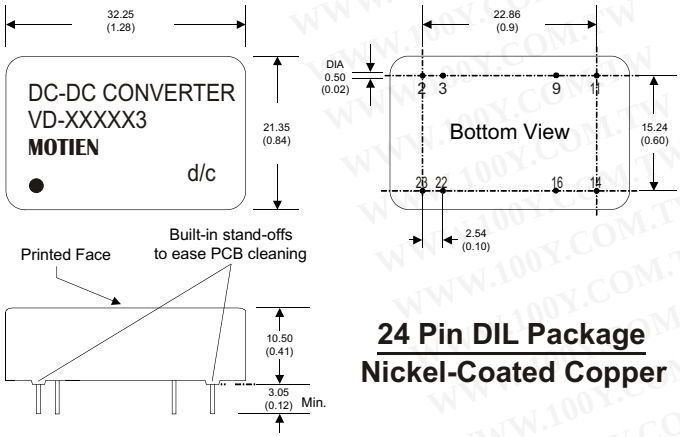


48 Models

NOTE

1. Maximum value at nominal input voltage and full load.
2. Typical value at nominal input voltage and full load.
3. Test by normal input voltage and constant resistor load.
4. Ripple/Noise measured over a 20MHz bandwidth.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

MECHANICAL SPECIFICATIONS



24 Pin DIL Package
Nickel-Coated Copper

Notes : All dimensions are typical in millimeters (inches).
Tolerance x.xx = ±0.25 (±0.01)

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

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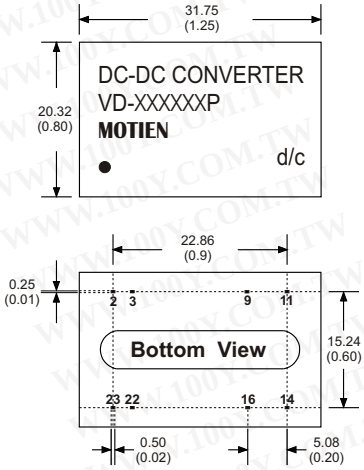

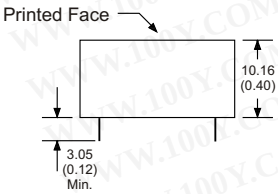

For "P" Case

24 Pin DIL Package

Non-Conductive Plastic

Notes : All dimensions are typical in millimeters (inches).
Tolerance x.xx = ±0.25 (±0.01)

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

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