

VE-2W Series

2W Unregulated Single output



Features

- 4 Pin SIL Package
- 1000 VDC Isolation
- Up to 3000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 88%
- -40 ~ 85°C Operation Temperature Range
- Non-Conductive Black Plastic Case
- EMI Complies With EN55022 Class B



The VE series is a family of cost effective 2W single output DC-DC converters. These converters achieve low cost and ultra-miniature SIP 4 pin size. Devices are encapsulated using flame retardant resin. The models operate from input voltage of 5, 12, 15, 24, 48 Vdc with output voltage of 3.3, 5, 7.2, 9, 12, 15, 24 Vdc. High performance features include 1000Vdc~3000Vdc input/output isolation, high efficiency operation and output voltage accuracy of $\pm 3\%$ maximum. Standard features include an input range of $\pm 10\%$ 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	$\pm 3\%$
Line regulation	$\pm 1.2\%$ / Per 1% Vin Change
Load regulation	(From 20% to 100% Load) $\pm 10\%$ (Output 3.3V Model) $\pm 20\%$ 150mV
Ripple & noise (20 MHz bandwidth)(1)	pk-pk
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$
Capacitor load(2)	See table

INPUT SPECIFICATIONS	
Voltage Range	$\pm 10\%$
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	Capacitors
Input Reflected Ripple Current(3)	20mA pk-pk

PHYSICAL SPECIFICATIONS	
Case Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	0.5mm Alloy42 Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	1.8g
Dimensions	0.46"x0.29"x0.40"

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	7 Vdc ,max.
12 Models	15 Vdc ,max.
15 Models	18 Vdc ,max.
24 Models	28 Vdc ,max.
48 Models	54 Vdc ,max.
Soldering Temperature (1.5mm from case 10 sec. max.)	260°C ,max.

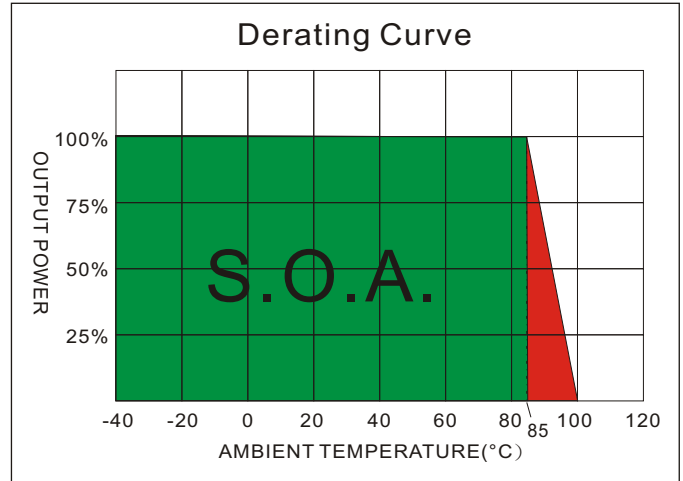
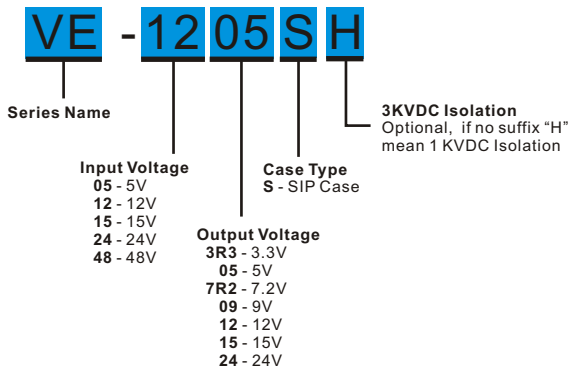
GENERAL SPECIFICATIONS	
Efficiency	See table
I/O Isolation Voltage(60 sec)	
Input/Output	1000~3000Vdc
I/O Isolation Capacitance	60 pF Typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Variable 70kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

EMC SPECIFICATIONS		
Radiated Emissions	EN55022	CLASS B
Conducted Emissions (6)	EN55022	CLASS B
ESD	IEC 61000-4-2	Perf. Criteria A
RS	IEC 61000-4-3	Perf. Criteria A
EFT (7)	IEC 61000-4-4	Perf. Criteria A
Surge (7)	IEC 61000-4-5	Perf. Criteria A
CS	IEC 61000-4-6	Perf. Criteria A
PFMF	IEC 61000-4-8	Perf. Criteria A

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PART NUMBER STRUCTURE



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
VE-053R3S	5	35	371	3.3	400	71	470
VE-0505S	5	35	519	5	400	77	470
VE-057R2S	5	35	519	7.2	278	77	470
VE-0509S	5	35	500	9	222	80	470
VE-0512S	5	35	487	12	167	82	470
VE-0515S	5	35	487	15	133	82	470
VE-0518S	5	35	487	18	111	82	470
VE-0524S	5	35	487	24	83	82	470
VE-123R3S	12	20	152	3.3	400	72	470
VE-1205S	12	20	213	5	400	78	470
VE-127R2S	12	20	208	7.2	278	80	470
VE-1209S	12	20	203	9	222	82	470
VE-1212S	12	20	198	12	167	84	470
VE-1215S	12	20	198	15	133	84	470
VE-1218S	12	20	198	18	111	84	470
VE-1224S	12	25	203	24	83	82	470
VE-153R3S	15	18	120	3.3	400	73	470
VE-1505S	15	18	170	5	400	78	470
VE-157R2S	15	18	166	7.2	278	80	470
VE-1509S	15	18	162	9	222	82	470
VE-1512S	15	18	158	12	167	84	470
VE-1515S	15	18	158	15	133	84	470
VE-1518S	15	18	158	18	111	84	470
VE-1524S	15	18	162	24	83	82	470
VE-243R3S	24	10	74	3.3	400	74	470
VE-2405S	24	10	104	5	400	80	470
VE-247R2S	24	10	104	7.2	278	80	470
VE-2409S	24	10	99	9	222	84	470
VE-2412S	24	10	99	12	167	84	470
VE-2415S	24	10	99	15	133	84	470
VE-2418S	24	10	99	18	111	84	470
VE-2424S	24	10	99	24	83	84	470

Suffix "H" means 3 KVdc isolation

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

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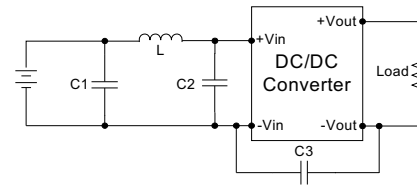
MODEL NUMBER	INPUT	INPUT Current		OUTPUT	OUTPUT Current	EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage (Vdc)	Full load (mA)		
VE-483R3S	48	7	38	3.3	400	72	470
VE-4805S	48	7	53	5	400	78	470
VE-487R2S	48	7	52	7.2	278	80	470
VE-4809S	48	7	51	9	222	82	470
VE-4812S	48	7	52	12	167	80	470
VE-4815S	48	7	51	15	133	82	470
VE-4818S	48	7	51	18	111	82	470
VE-4824S	48	7	51	24	83	82	470

Suffix "H" means 3 KVdc isolation

TEST CONFIGURATIONS

EMI Filter

Input filter components (C1, L, C2, C3) 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.

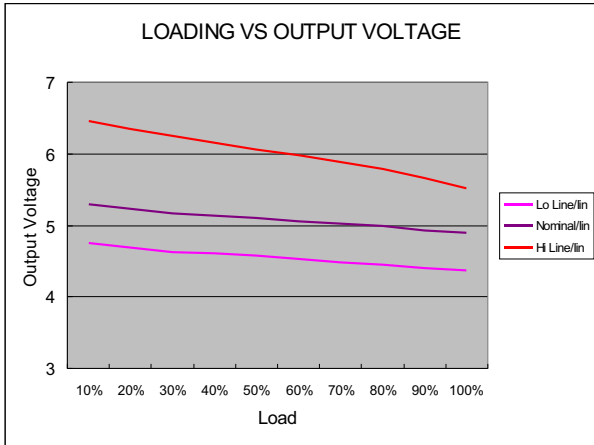


	C1	L	C2	C3
VE-05XXXX	1210, 2.2uF/100V	18uH		
VE-12XXXX	1210, 2.2uF/100V	18uH		
VE-15XXXX	1210, 2.2uF/100V	18uH		
VE-24XXXX	1210, 2.2uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV
VE-48XXXX	Electrolytic Capacitor, 10uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV

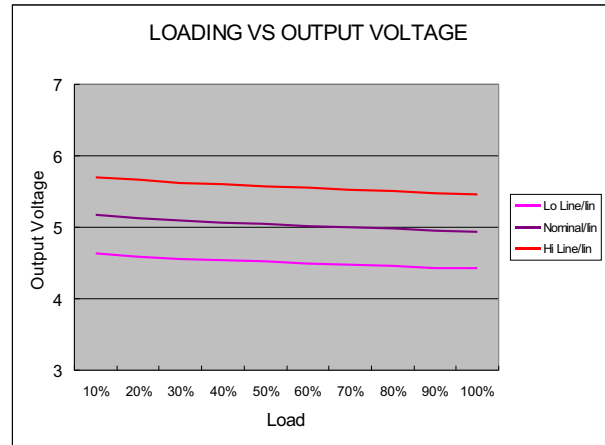
NOTE

1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal Vin and constant resistive 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. Input filter components are required to help meet conducted emission class B, which application refer to the EMI Filter of design & feature configuration.
7. An external filter capacitor is required if the module has to meet IEC61000-4-4.
The filter capacitor Motien suggest: Nippon - chemi - con KY series, 470uF/100V.

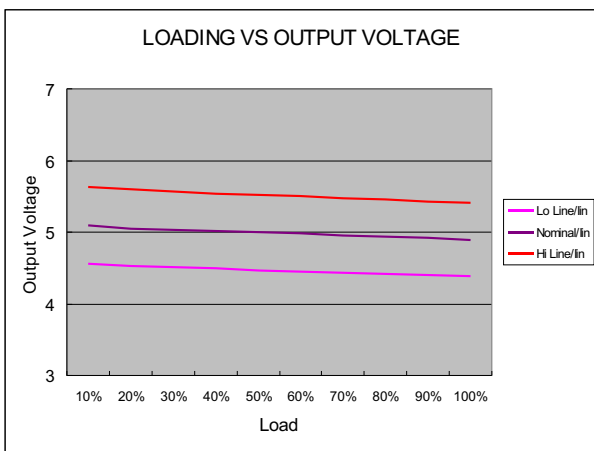
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5 Models

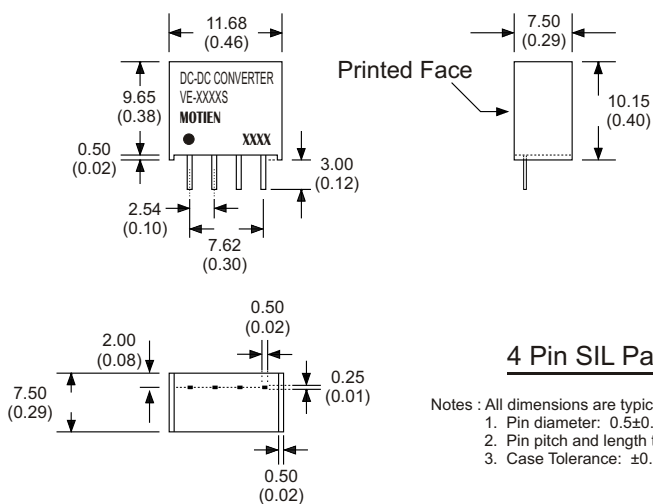


12 Models



48 Models

MECHANICAL SPECIFICATIONS



PIN CONNECTIONS	
PIN NUMBER	SINGLE
1	-V Input
2	+V Input
3	-V Output
4	+V Output

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