

VA-D01 Series



1W Unregulated Dual Separate output

Features

- 8 Pin DIL Package
- 1000 VDC Isolation
- Up to 3000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 83%
- -40 ~ 85°C Operation Temperature Range
- Non-Conductive Black Plastic Case
- EMI Complies With EN55022 Class B



The VA series is a family of cost effective 1W dual separate output DC-DC converters. These converters achieve low cost and ultra-miniature DIP 8 pin size. Devices are encapsulated using flame retardant resin. The models operate from input voltage of 3.3, 5, 12, 15, 24 Vdc with output voltage of 3.3, 5, 7.2, 9, 12, 15, 18, 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) $\pm 15\%$
Ripple & noise (20 MHz bandwidth)(1)	100mV 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	$\Phi 0.5\text{mm}$ Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	1.8g
Dimensions	0.50"x0.40"x0.27"

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

GENERAL SPECIFICATIONS	
Efficiency	See table
I/O Isolation Voltage(60 sec)	1000~3000Vdc
Input/Output1&Output2	1000Vdc
Output1/Output2	1000Vdc
I/O Isolation Capacitance	60 pF Typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Variable 80kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

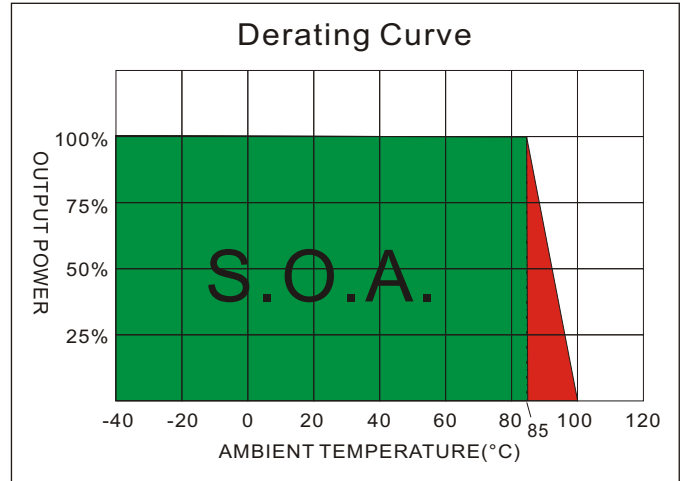
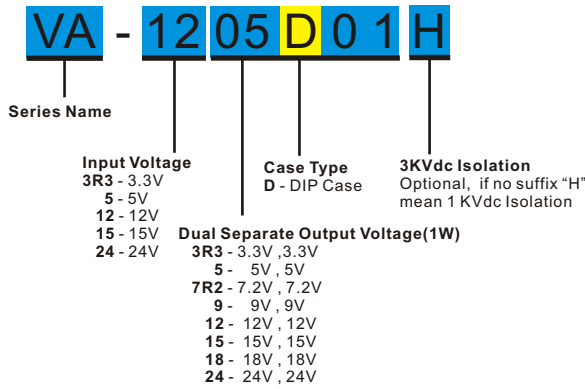
ABSOLUTE MAXIMUM RATINGS(4)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Surge Voltage(100mS)	
3.3 Models	5 Vdc ,max.
5 Models	7 Vdc ,max.
12 Models	15 Vdc ,max.
15 Models	18 Vdc ,max.
24 Models	28 Vdc ,max.
Soldering Temperature	260°C ,max.
(1.5mm from case 10 sec. max.)	

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		EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range (Vdc)	No-Load (mA)	Full Load (mA)	Voltage(Vdc) Output1 Output2	Full load(mA) Output1 Output2		
VA-3R33R3D01	3.3	20	399	3.3, 3.3	152, 152	76	100
VA-3R305D01	3.3	25	433	5, 5	100, 100	70	100
VA-3R37R2D01	3.3	25	433	7.2, 7.2	69, 69	70	100
VA-3R309D01	3.3	30	410	9, 9	56, 56	74	100
VA-3R312D01	3.3	38	478	12, 12	50, 50	76	100
VA-3R315D01	3.3	30	404	15, 15	33, 33	75	100
VA-3R318D01	3.3	30	399	18, 18	28, 28	76	100
VA-3R324D01	3.3	30	472	24, 24	25, 25	77	100
VA-053R3D01	5	15	299	3.3, 3.3	152, 152	67	100
VA-0505D01	5	20	247	5, 5	100, 100	81	100
VA-057R2D01	5	16	260	7.2, 7.2	69, 69	77	100
VA-0509D01	5	15	253	9, 9	56, 56	79	100
VA-0512D01	5	20	300	12, 12	50, 50	80	100
VA-0515D01	5	20	247	15, 15	33, 33	81	100
VA-0518D01	5	20	247	18, 18	28, 28	81	100
VA-0524D01	5	25	320	24, 24	25, 25	75	100
VA-123R3D01	12	15	111	3.3, 3.3	152, 152	75	100
VA-1205D01	12	10	111	5, 5	100, 100	75	100
VA-127R2D01	12	10	107	7.2, 7.2	69, 69	78	100
VA-1209D01	12	10	105	9, 9	56, 56	79	100
VA-1212D01	12	15	125	12, 12	50, 50	80	100
VA-1215D01	12	13	104	15, 15	33, 33	80	100
VA-1218D01	12	20	107	18, 18	28, 28	78	100
VA-1224D01	12	20	128	24, 24	25, 25	78	100
VA-153R3D01	15	20	89	3.3, 3.3	152, 152	75	100
VA-1505D01	15	20	88	5, 5	100, 100	76	100
VA-157R2D01	15	20	88	7.2, 7.2	69, 69	76	100
VA-1509D01	15	15	88	9, 9	56, 56	76	100
VA-1512D01	15	15	107	12, 12	50, 50	75	100
VA-1515D01	15	15	89	15, 15	33, 33	75	100
VA-1518D01	15	20	87	18, 18	28, 28	77	100
VA-1524D01	15	20	104	24, 24	25, 25	77	100

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

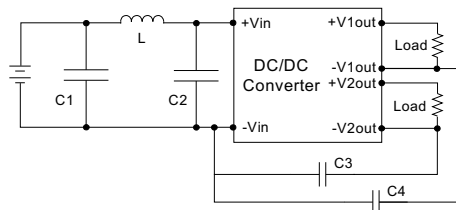
VA - 1W Unregulated Dual Separate output

MODEL NUMBER	INPUT	INPUT Current		OUTPUT		OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
	Voltage Range	No-Load	Full Load	Voltage(Vdc)		Full load(mA)			
	(Vdc)	(mA)	(mA)	Output1	Output2	Output1	Output2		
VA-243R3D01	24	5	53	3.3	3.3	152	152	79	100
VA-2405D01	24	8	50	5	5	100	100	83	100
VA-247R2D01	24	5	53	7.2	7.2	69	69	78	100
VA-2409D01	24	8	54	9	9	56	56	77	100
VA-2412D01	24	6	63	12	12	50	50	80	100
VA-2415D01	24	6	54	15	15	33	33	77	100
VA-2418D01	24	13	56	18	18	28	28	74	100
VA-2424D01	24	5	65	24	24	25	25	77	100

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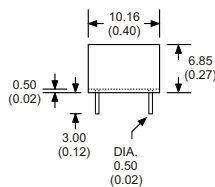
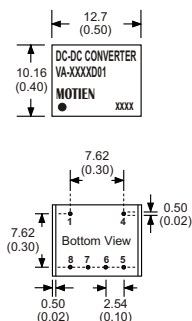
NOTE

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 and IEC61000-4-5. The filter capacitor Motien suggest: Nippon - chemi - con KY series, 470uF/100V.



	C1	L	C2	C3	C4
VA-3R3XXXXX	1210, 2.2uF/100V	18uH			
VA-05XXXXXX	1210, 2.2uF/100V	18uH			
VA-12XXXXXX	1210, 2.2uF/100V	18uH			
VA-15XXXXXX	1210, 2.2uF/100V	18uH			
VA-24XXXXXX	1210, 2.2uF/100V	18uH	1210, 2.2uF/100V	1206, 470pF/2KV	1206, 470pF/2KV

MECHANICAL SPECIFICATIONS



8 Pin DIL Package

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

PIN CONNECTIONS	
PIN NUMBER	Dual Separate
1	-V Input
4	+V Input
5	+V1 Output
6	-V1 Output
7	+V2 Output
8	-V2 Output