VA-D01 Series

MOTIEN TECHNOLOGY

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 82%
- -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 ±3% 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	±3%
Line regulation	±1.2% / Per 1% Vin Change
Load regulation	(From 20% to 100% Load) ±10% (Output 3.3V Model) ±15%
Ripple & noise (20 MHz bandwidth)(1)	100mV pk-pk
Temperature coefficient	±0.02%/°C
Capacitor load(2)	See table

INPUT SPECIFICATIONS

Voltage Range	±10%
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	Capacitors
Input Reflected Ripple Current(3)	20mA pk-pk

GENERAL SPECIFICATIONS

Efficiency	See table
I/O Isolation Voltage(3 sec)	
Input/Output1&Output2	1000~3000Vdc
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

EMC SPECIFICATIONS

Radiated Emissions	EN55022	CLASS B
	FCC 47 CFR Part 15 Subpart B	CLASS B
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A

PHYSICAL SPECIFICATIONS

Case Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	Ø0.5mm 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

ABSOLUTE MAXIMUM RATINGS(4)

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

Input Voltage(100mS)	
3.3 Modes	0~5 Vdc
5 Modes	0~7 Vdc
12 Modes	0~15 Vdc
15 Modes	0~18 Vdc
24 Modes	0~28 Vdc
Lead Soldering Temperature (1.5mm from case 10sec.)	260°C

PART NUMBER STRUCTURE

VA - 12 05 D 01 H

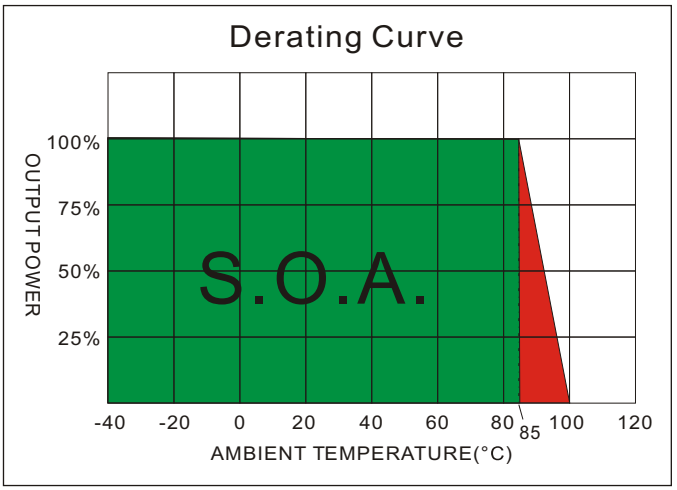
Series Name

Input Voltage
3R3 - 3.3V
5 - 5V
12 - 12V
15 - 15V
24 - 24V

Dual Separate Output Voltage(1W)
3R3D01 - 3.3V ,3.3V
5D01 - 5V , 5V
7R2D01 - 7.2V , 7.2V
9D01 - 9V , 9V
12D01 - 12V , 12V
15D01 - 15V , 15V
18D01 - 18V , 18V
24D01 - 24V , 24V

Case Type
D - DIP Case

3KVdc Isolation
Optional, if no suffix "H" mean 1 KVdc Isolation



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage(Vdc) Output1 Output2	OUTPUT Current Full load(mA) Output1 Output2	EFFICIENCY @FL(%)	Capacitor Load(uF)
VA-3R33R3D01	3.3	30	409	3.3 , 3.3	152 , 152	74	100
VA-3R305D01	3.3	30	404	5 , 5	100 , 100	75	100
VA-3R37R2D01	3.3	30	398	7.2 , 7.2	69 , 69	76	100
VA-3R309D01	3.3	30	398	9 , 9	56 , 56	76	100
VA-3R312D01	3.3	30	466	12 , 12	50 , 50	78	100
VA-3R315D01	3.3	30	388	15 , 15	33 , 33	78	100
VA-3R318D01	3.3	30	398	18 , 18	28 , 28	76	100
VA-3R324D01	3.3	30	472	24 , 24	25 , 25	77	100
VA-053R3D01	5	25	266	3.3 , 3.3	152 , 152	75	100
VA-0505D01	5	25	250	5 , 5	100 , 100	80	100
VA-057R2D01	5	25	256	7.2 , 7.2	69 , 69	78	100
VA-0509D01	5	25	256	9 , 9	56 , 56	78	100
VA-0512D01	5	25	300	12 , 12	50 , 50	80	100
VA-0515D01	5	25	250	15 , 15	33 , 33	80	100
VA-0518D01	5	25	256	18 , 18	28 , 28	78	100
VA-0524D01	5	25	307	24 , 24	25 , 25	78	100
VA-123R3D01	12	15	111	3.3 , 3.3	152 , 152	75	100
VA-1205D01	12	15	108	5 , 5	100 , 100	77	100
VA-127R2D01	12	15	108	7.2 , 7.2	69 , 69	77	100
VA-1209D01	12	15	106	9 , 9	56 , 56	78	100
VA-1212D01	12	15	121	12 , 12	50 , 50	82	100
VA-1215D01	12	15	104	15 , 15	33 , 33	80	100
VA-1218D01	12	15	104	18 , 18	28 , 28	80	100
VA-1224D01	12	15	125	24 , 24	25 , 25	80	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

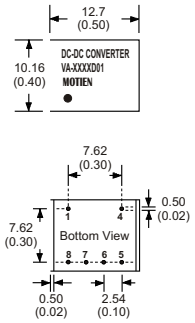
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage(Vdc) Output1 Output2	OUTPUT Current Full load(mA) Output1 Output2	EFFICIENCY @FL(%)	Capacitor Load(uF)
VA-153R3D01	15	15	88	3.3 , 3.3	152 , 152	75	100
VA-1505D01	15	15	86	5 , 5	100 , 100	77	100
VA-157R2D01	15	15	86	7.2 , 7.2	69 , 69	77	100
VA-1509D01	15	15	85	9 , 9	56 , 56	78	100
VA-1512D01	15	15	97	12 , 12	50 , 50	82	100
VA-1515D01	15	15	83	15 , 15	33 , 33	80	100
VA-1518D01	15	15	83	18 , 18	28 , 28	80	100
VA-1524D01	15	15	100	24 , 24	25 , 25	80	100
VA-243R3D01	24	10	54	3.3 , 3.3	152 , 152	76	100
VA-2405D01	24	10	52	5 , 5	100 , 100	80	100
VA-247R2D01	24	10	53	7.2 , 7.2	69 , 69	78	100
VA-2409D01	24	10	53	9 , 9	56 , 56	78	100
VA-2412D01	24	10	60	12 , 12	50 , 50	82	100
VA-2415D01	24	10	52	15 , 15	33 , 33	80	100
VA-2418D01	24	10	52	18 , 18	28 , 28	80	100
VA-2424D01	24	10	60	24 , 24	25 , 25	82	100

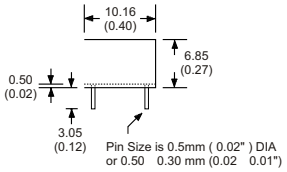
Suffix "H" means 3 KVdc isolation

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.

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

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

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

MOTIEN ISO 9001:2000 REGISTERED
No. 9, Keji 2nd Rd., Technology Industrial Park, Tainan City 70955, Taiwan
Tel: 886-6-384 2366 (Rep.) Fax: 886-6-384 2399
Website : www.motien.com.tw Email : sales@motien.com.tw

Last Update : Oct.31.2007