

VA-DD1 Series

1W Unregulated Dual output



Features

- 8 Pin DIL Package
- 1000 VDC Isolation
- Up to 3000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 80%
- -40 ~ 85°C Operation Temperature Range
- Non-Conductive Black Plastic Case
- EMI Complies With EN55022 Class B



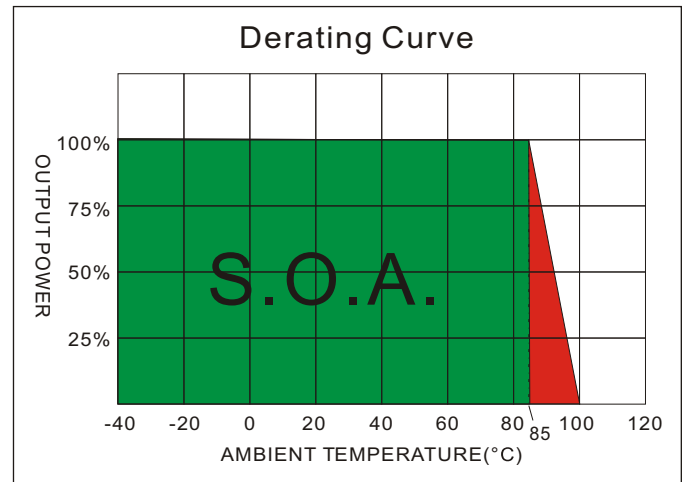
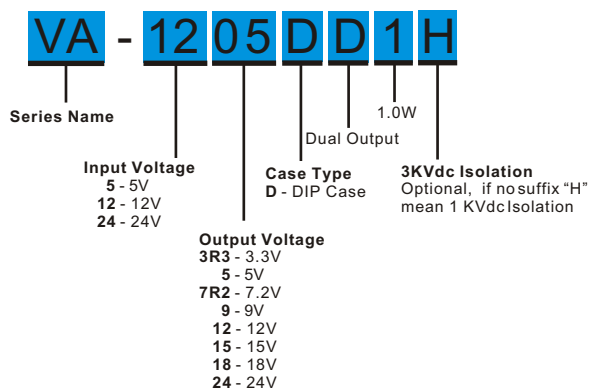
The VA series is a family of cost effective 1W dual output DC-DC converters. These converters achieve low cost and ultra-miniature DIP 8 pin size. Devices are encapsulated using flame retardant resin. The models operate from input voltage of 5, 12, 24Vdc with output voltage of ± 3.3 , ± 5 , ± 7.2 , ± 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 $T_a = 25^\circ\text{C}$, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS	
Voltage accuracy	$\pm 3\%$
Line regulation	$\pm 1.2\%$ / Per 1% V_{in} Change
Load regulation	(From 20% to 100% Load) $\pm 10\%$ (Output 3.3V Model) $\pm 20\%$
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
GENERAL SPECIFICATIONS	
Efficiency	See table
I/O Isolation Voltage(3 sec)	
Input/Output	1000~3000Vdc
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	$\varnothing 0.5\text{mm}$ Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	1.8g
Dimensions	0.50"x0.40"x0.27"
ENVIRONMENT SPECIFICATIONS	
Operating Temperature	$-40^\circ\text{C} \sim 85^\circ\text{C}$ (See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	$-40^\circ\text{C} \sim 125^\circ\text{C}$
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)	
5 Modes	0~7 Vdc
12 Modes	0~15 Vdc
24 Modes	0~28 Vdc
Lead Soldering Temperature (1.5mm from case 10sec.)	260°C

VA - 1W Unregulated Dual output

PARTNUMBER STRUCTURE



MODEL SELECTION GUIDE

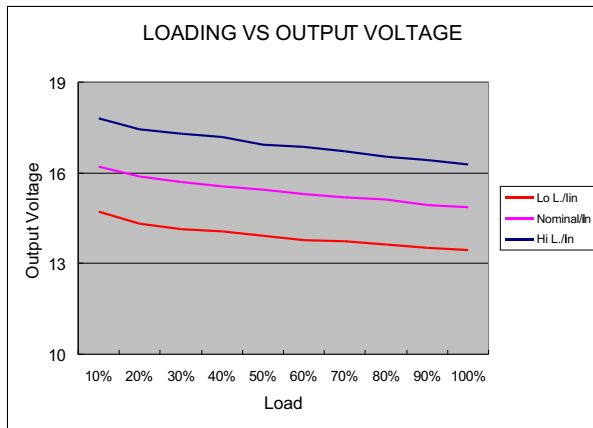
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)				
VA-053R3DD1	5	30	285	±3.3	±152	70	±100
VA-0505DD1	5	30	277	±5	±100	72	±100
VA-057R2DD1	5	30	277	±7.2	±69	72	±100
VA-0509DD1	5	30	263	±9	±56	76	±100
VA-0512DD1	5	30	300	±12	±50	80	±100
VA-0515DD1	5	30	263	±15	±33	76	±100
VA-0518DD1	5	30	263	±18	±28	76	±100
VA-0524DD1	5	30	300	±24	±25	80	±100
VA-123R3DD1	12	15	119	±3.3	±152	70	±100
VA-1205DD1	12	15	115	±5	±100	72	±100
VA-127R2DD1	12	15	115	±7.2	±69	72	±100
VA-1209DD1	12	15	109	±9	±56	76	±100
VA-1212DD1	12	15	125	±12	±50	80	±100
VA-1215DD1	12	15	109	±15	±33	76	±100
VA-1218DD1	12	15	109	±18	±28	76	±100
VA-1224DD1	12	25	128	±24	±25	78	±100
VA-243R3DD1	24	10	58	±3.3	±152	71	±100
VA-2405DD1	24	10	57	±5	±100	73	±100
VA-247R2DD1	24	10	57	±7.2	±69	73	±100
VA-2409DD1	24	10	55	±9	±56	75	±100
VA-2412DD1	24	10	62	±12	±50	80	±100
VA-2415DD1	24	10	54	±15	±33	77	±100
VA-2418DD1	24	10	54	±18	±28	77	±100
VA-2424DD1	24	10	62	±24	±25	80	±100

Suffix "H" means 3 KVdc isolation

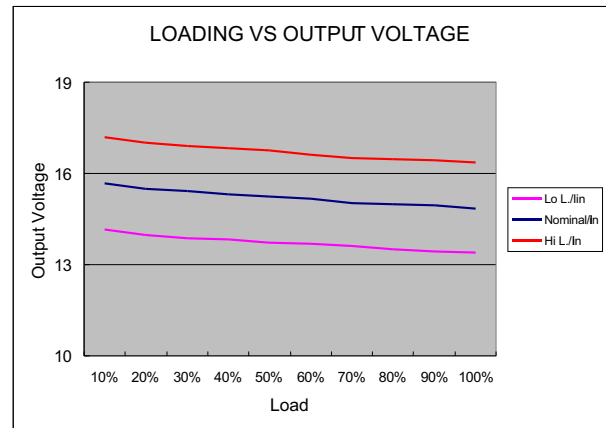
NOTE

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.

VA - 1W Unregulated Dual output

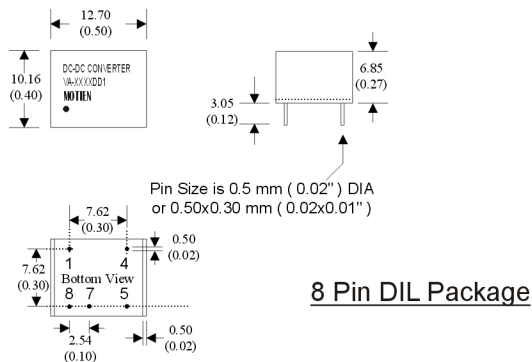


5 Models



12 Models

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
1	-V Input
4	+V Input
5	+V Output
7	Common
8	-V Output

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