Victor Power Technologies

Global DC/DC Converter Manufacturer

VMD01(H) Series

1 Watts

1W SINGLE OUTPUT
FIXED INPUT
ISOLATED & UNREGULATED
UTRALMINATURE SMD PACKAGE
LOW COST
SHORT LEAD TIME

- 1.5KVDC & 3KVDC Isolation
- High Power Density
- Temperature Range: -40°C~+85°C
- No External Component Required
- Custom Service Available
- RoHS Compliance
- High Efficiency up to 81%
- Single Voltage Output
- SMD Package Style
- Industry Standard Pin Configuration
- UL94-V0 Package

APPLICATIONS

The VMD01-1W Series are specially designed for applications where a single power supply is isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:
1) Where the voltage of the input power supply is fixed (voltage variation ≤±10%);
2) Where isolation is necessary between input and output (isolation voltage =1000VDC);
3) Where the regulation of the output voltage and the output ripple noise are not demanding. Such as: purely digital circuits, ordinary low frequency analog circuits, and IGBT power device driving circuits.

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Product Program

Part Number	Input Voltage (VDC)		Output Voltage (VDC)	Output Current (mA)		Efficiency (%, Typ)	Package Style
	Nominal	Range		Max	Min		
VMD01-03S03(H)	3.3	2.97~3.63	3.3	303	30	69	SMD
VMD01-03S05(H)	3.3	2.97~3.63	5	200	20	74	SMD
VMD01-03S12	3.3	2.97~3.63	12	84	9	80	SMD
VMD01-03S15	3.3	2.97~3.63	15	67	7	80	SMD
VMD01-03S24	3.3	2.97~3.63	24	42	4	80	SMD
VMD01-05S03(H)	5	4.5~5.5	3.3	303	30	72	SMD
VMD01-05S05(H)	5	4.5~5.5	5	200	20	80	SMD
VMD01-05S09(H)	5	4.5~5.5	9	111	12	80	SMD
VMD01-05S12(H)	5	4.5~5.5	12	84	8	80	SMD
VMD01-05S15(H)	5	4.5~5.5	15	67	6	80	SMD
VMD01-05S24(H)	5	4.5~5.5	24	42	4	80	SMD
VMD01-12S03(H)	12	10.8~13.2	12	303	30	74	SMD
VMD01-12S05(H)	12	10.8~13.2	5	200	20	80	SMD
VMD01-12S09(H)	12	10.8~13.2	9	111	11	80	SMD
VMD01-12S12(H)	12	10.8~13.2	12	84	8	81	SMD
VMD01-12S15(H)	12	10.8~13.2	15	67	6	81	SMD
VMA01-15S05	15	13.5~16.5	15	67	7	81	SMD
VMD01-15S15(H)	15	13.5~16.5	15	67	7	81	SMD
VMD01-24S05(H)	24	21.6-26.4	5	200	20	80	SMD
VMD01-24S09(H)	24	21.6-26.4	9	111	11	80	SMD
VMD01-24S12	24	21.6-26.4	12	84	9	80	SMD
VMD01-24S15(H)	24	21.6-26.4	15	67	7	81	SMD
VMD01-24S24(H)	24	21.6-26.4	24	42	4	81	SMD

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	1500			VDC
		(H)3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

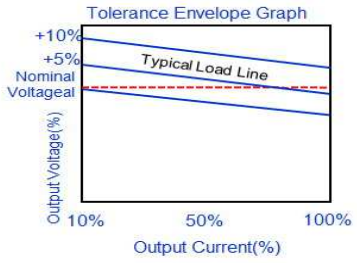
COMMON SPECIFICATION

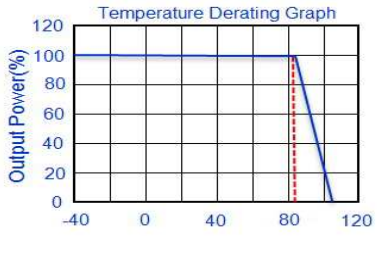
Short circuit protection	1second
Temperature rise at full load	25℃ MAX, 15℃ TYP
Cooling	Free air convection
Operating temperature range	-40℃~+105℃
Storage temperature range	-55℃ ~+125℃
Lead temperature	300℃ (1.5mm from case for 10 seconds)
Storage humidity range	≤ 95%
Case material	Plastic (UL94-V0)
MTBF	>3,500,000 hours
Wight	1.6g
Dimesions	12.7*11.2*7.25mm

OUTPUT SPECIFICATION

Item	Test conditions	MIN	TYP	MAX	Units
Output power		0.1		1	W
Line regulation	For Vin change of 1% (3.3V output)			±1.5	%
	(Others output)			±1.2	
Load regulation	10% to 100% load (3.3V output)		18		%
	10% to 100% load (5V output)		12		
	10% to 100% load (9V output)		8.		
	10% to 100% load (12V output)		7		
	10% to 100% load (15V output)		6		
	10% to 100% load (24V output)		5		
Output voltage accuracy	See tolerance envelope graph				
Temperature drift	100% full load			±0.03	%℃
Output ripple	20MHz Bandwidth (Output Voltage ≤12V)		30		mVp-p
	(Output Voltage ≥12V)		60		
Switching frequency	Full load, nominal input		100	300	KHz

TYPICAL CHARECTERISTICS





FOOTPRINT DETAILS

PIN	1	2	3.6.7	4	5	8
SINGLE	-Vin	+Vin	No Pin	-Vout	+Vout	NC

RECOMMENDED CIRCUIT

Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

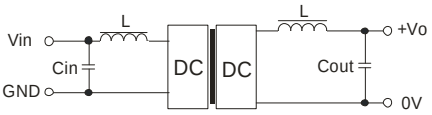


Figure 1

Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series (see Figure 2).

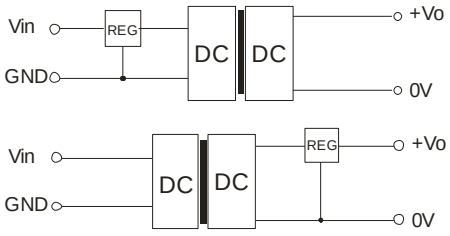
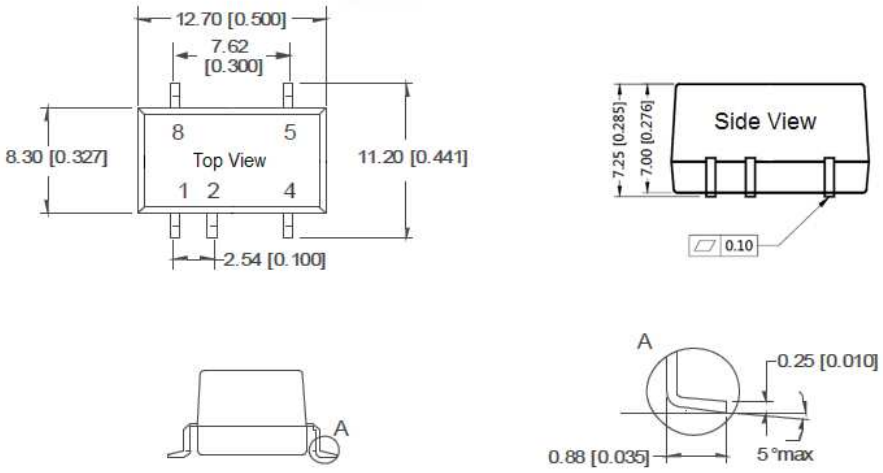


Figure 2

External Capacitor Table

V_{in}	C1	V_{out}	C2
3.3/5VDC	4.7uF	3.3/5VDC	10uF
12VDC	2.2uF	9VDC	4.7uF
15VDC	2.2	12VDC	2.2
24VDC	1uF	15VDC	1uF
-- --	--	24VDC	0.47uF

OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT



Dimensions: mm (Inch)
Pin tolerance: ±0.10 (±0.004)
Pin pitch tolerance: ±0.25(±0.01)