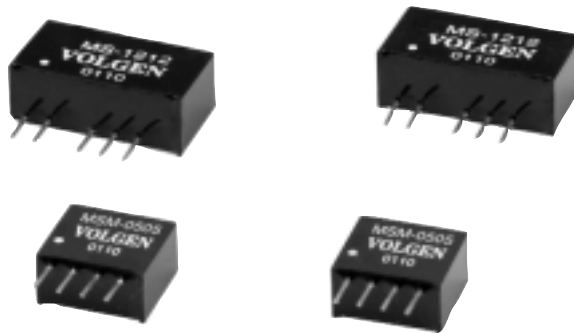


# MS / MSM / MSB

## 1 WATT DC/DC CONVERTER, SIP PACKAGE



### ELECTRICAL SPECIFICATIONS

All specifications are typical at nominal input, full load

### INPUT SPECIFICATIONS

Input Voltage Range.....  $\pm 10\%$   
Input Filter..... Capacitor

### OUTPUT SPECIFICATIONS

Output Voltage Accuracy.....  $\pm 5\%$   
Efficiency..... 75% typ.  
Ripple ..... 100 mV<sub>p-p</sub>  
Line Regulation..... 1.2%/1% of V<sub>in</sub>  
Line Filter..... Built-in  
Load Regulation..... 5V=15% max.  
9V, 12V, 15V=10% max.  
Spike Noise (DC to 100MHZ)..... Input 150 mV<sub>p-p</sub> max.  
Output 70 mV<sub>p-p</sub> max.

### FEATURES

- ▶ **ECONOMY LINE**
- ▶ **7 PIN PACKAGE**
- ▶ **1000 VDC ISOLATION**
- ▶ **UNREGULATED OUTPUT**
- ▶ **UL 94V-0 PACKAGE MATERIAL**
- ▶ **3.3V ~ 24V INPUT MODELS**
- ▶ **ONE YEAR WARRANTY**

### GENERAL SPECIFICATIONS

Isolation Voltage..... 1000 VDC  
MTBF..... >1,000,000 hours  
Isolation Resistance..... 1000M-ohms min. @ 500 VDC

### ENVIRONMENTAL SPECIFICATIONS

Operating Temperature ..... -25°C ~ +85°C  
Temperature Coefficient.....  $\pm 0.05\% / ^\circ\text{C}$   
Humidity..... 30%~95% RH  
Storage Temperature..... -55°C ~ +125°C

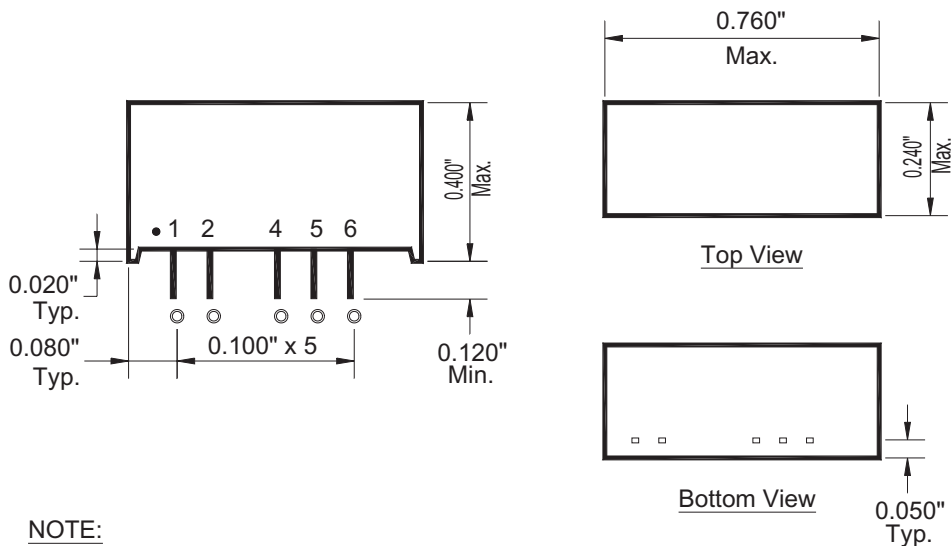
### PHYSICAL SPECIFICATIONS

Case Material..... UL 94V-0 Plastic  
Single In-Line Pin Configuration

# Series

PART NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFFICIENCY
MSB - 0505	5 VDC	5 VDC	200 mA	70 %
MSB - 0509		9 VDC	111 mA	75 %
MSB - 0512		12 VDC	84 mA	80 %
MSB - 0515		15 VDC	66 mA	82 %
MS - 0505D		±5 VDC	±100 mA	70 %
MS - 0509D		±9 VDC	±56 mA	75 %
MS - 0512D		±12 VDC	±42 mA	78 %
MS - 0515D		±15 VDC	±33 mA	80 %
MSB - 1205		12 VDC	5 VDC	200 mA
MSB - 1209	9 VDC		111 mA	75 %
MSB - 1212	12 VDC		84 mA	80 %
MSB - 1215	15 VDC		66 mA	82 %
MS - 1205D	±5 VDC		±100 mA	70 %
MS - 1209D	±9 VDC		±56 mA	75 %
MS - 1212D	±12 VDC		±42 mA	78 %
MS - 1215D	±15 VDC		±33 mA	80 %
MSB - 1505	15 VDC		5 VDC	200 mA
MSB - 1509		9 VDC	111 mA	75 %
MSB - 1512		12 VDC	84 mA	80 %
MSB - 1515		15 VDC	66 mA	82 %
MS - 1505D		±5 VDC	±100 mA	70 %
MS - 1509D		±9 VDC	±56 mA	75 %
MS - 1512D		±12 VDC	±42 mA	78 %
MS - 1515D		±15 VDC	±33 mA	80 %
MSB - 2405		24 VDC	5 VDC	200 mA
MSB - 2409	9 VDC		111 mA	75 %
MSB - 2412	12 VDC		84 mA	80 %
MSB - 2415	15 VDC		66 mA	82 %
MS - 2405D	±5 VDC		±100 mA	70 %
MS - 2409D	±9 VDC		±56 mA	75 %
MS - 2412D	±12 VDC		±42 mA	78 %
MS - 2415D	±15 VDC		±33 mA	80 %

**MSB= Single Output**  
**MS= Dual Output**



**NOTE:**

\*TERMINAL 0.020" x 0.010" FLAT PIN

**NOTE:**

All specifications typical and nominal / full load and 25°C unless otherwise noted.  
 Avoid sustained operation in overload or dead short conditions.  
 Specifications subject to changes without notice.

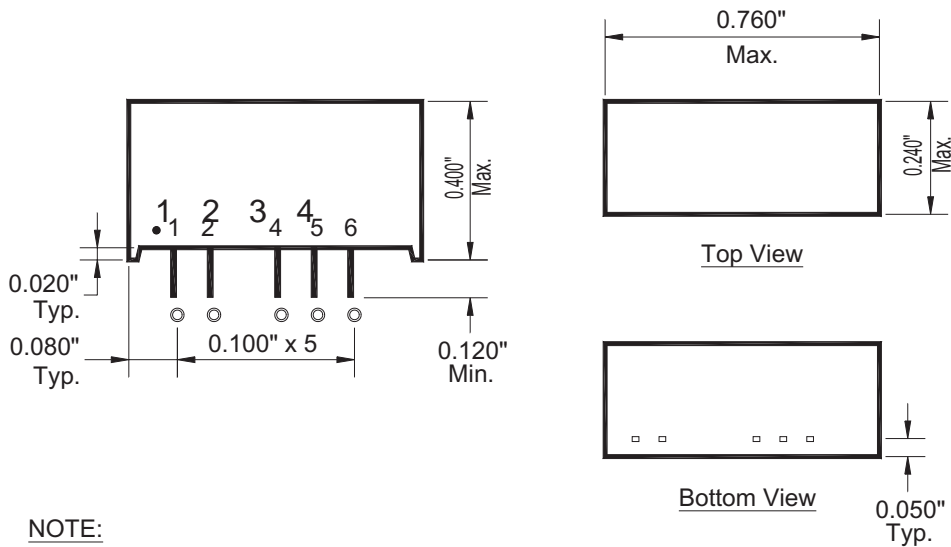
**MS / MSB SERIES**

Pin Connections		
PIN	MSB	MS
1	+INPUT	+INPUT
2	-INPUT	-INPUT
4	-OUTPUT	-OUTPUT
5	NO PIN	COMMON
6	+OUTPUT	+OUTPUT

# Series

PART NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFFICIENCY
MSM - 0305	3.3 VDC	5 VDC	100 mA	70 %
MSM - 0309		9 VDC	56 mA	70 %
MSM - 0312		12 VDC	42 mA	72 %
MSM - 0315		15 VDC	33 mA	75 %
MSM - 0503	5 VDC	3.3 VDC	152 mA	70 %
MSM - 0505		5 VDC	200 mA	70 %
MSM - 0509		9 VDC	111 mA	75 %
MSM - 0512		12 VDC	84 mA	78 %
MSM - 0515	12VDC	15 VDC	66 mA	80 %
MSM - 1205		5 VDC	200 mA	70 %
MSM - 1209		9 VDC	111 mA	75 %
MSM - 1212	15 VDC	12 VDC	84 mA	78 %
MSM - 1215		15 VDC	66 mA	80 %
MSM - 1505		5 VDC	200 mA	70 %
MSM - 1509	24 VDC	9 VDC	111 mA	75 %
MSM - 1512		12 VDC	84 mA	78 %
MSM - 1515		15 VDC	66 mA	80 %
MSM - 2405	24 VDC	5 VDC	200 mA	70 %
MSM - 2409		9 VDC	111 mA	75 %
MSM - 2412		12 VDC	84 mA	78 %
MSM - 2415		15 VDC	66 mA	80 %

## MSM - Single Output



### MSM SERIES

Pin Connections	
Pin#	Single
1	GND
2	VCC
3	OV
4	+V

#### NOTE:

\*TERMINAL 0.020" x 0.010" FLAT PIN

#### NOTE:

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