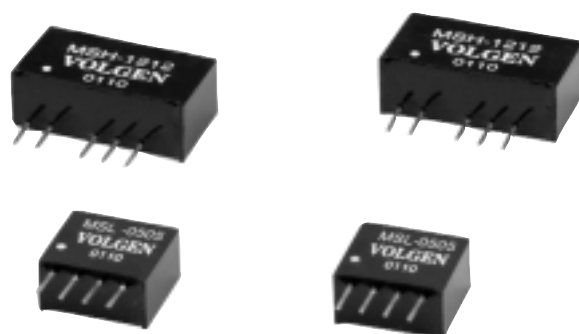


MSBH / MSH / MSL

2 WATT DC/DC CONVERTER, SIP PACKAGE



FEATURES

- ▶ **ECONOMY LINE**
- ▶ **7 PIN PACKAGE**
- ▶ **1000 VDC ISOLATION**
- ▶ **UNREGULATED OUTPUT**
- ▶ **UL 94V-0 PACKAGE MATERIAL**
- ▶ **5V ~ 24V INPUT MODELS**
- ▶ **ONE YEAR WARRANTY**

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 200 mVp-p Single
150 mVp-p Dual
Line Regulation..... 1.2%/1% of V in
Line Filter..... Built-in
Load Regulation..... 5V=15% max.
9V, 12V, 15V=10% max.

GENERAL SPECIFICATIONS

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

ENVIRONMENTAL SPECIFICATIONS

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

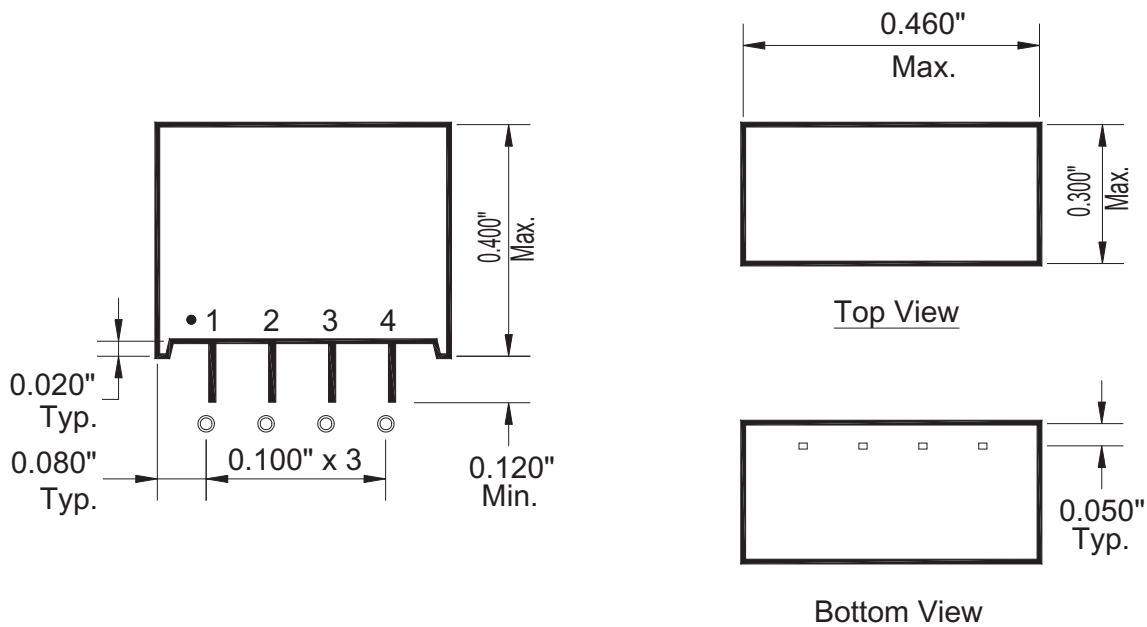
PHYSICAL SPECIFICATIONS

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

Series

| PART NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFFICIENCY |
|-------------|---------------|----------------|----------------|------------|
| MSL - 0505 | 5 VDC | 5 VDC | 400 mA | 70 % |
| MSL - 0509 | | 9 VDC | 222 mA | 75 % |
| MSL - 0512 | | 12 VDC | 167 mA | 78 % |
| MSL - 0515 | | 15 VDC | 133 mA | 80 % |
| MSL - 1205 | 12VDC | 5 VDC | 400 mA | 70 % |
| MSL - 1209 | | 9 VDC | 222 mA | 75 % |
| MSL - 1212 | | 12 VDC | 167 mA | 78 % |
| MSL - 1215 | | 15 VDC | 133 mA | 80 % |
| MSL - 1505 | 15 VDC | 5 VDC | 400 mA | 70 % |
| MSL - 1509 | | 9 VDC | 222 mA | 75 % |
| MSL - 1512 | | 12 VDC | 167 mA | 78 % |
| MSL - 1515 | | 15 VDC | 133 mA | 80 % |
| MSL - 2405 | 24 VDC | 5 VDC | 400 mA | 70 % |
| MSL - 2409 | | 9 VDC | 222 mA | 75 % |
| MSL - 2412 | | 12 VDC | 167 mA | 78 % |
| MSL - 2415 | | 15 VDC | 133 mA | 80 % |

MSL - Single Output



NOTE:

*TERMINAL 0.020" x 0.010" FLAT PIN

MSL SERIES

| Pin Connections | |
|-----------------|---------|
| Pin# | Single |
| 1 | -INPUT |
| 2 | +INPUT |
| 3 | -OUTPUT |
| 4 | +OUTPUT |

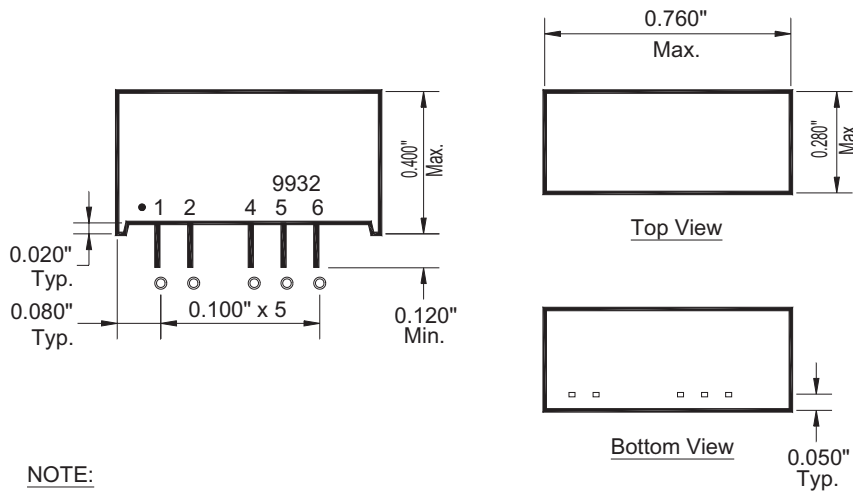
NOTE:

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.

Series

| PART NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFFICIENCY | |
|-------------|---------------|----------------|----------------|------------|------|
| MSBH - 0505 | 5 VDC | 5 VDC | 400 mA | 75 % | |
| MSBH - 0509 | | 9 VDC | 222 mA | 75 % | |
| MSBH - 0512 | | 12 VDC | 167 mA | 78 % | |
| MSBH - 0515 | | 15 VDC | 133 mA | 80 % | |
| MSH - 0505D | | ±5 VDC | ±200 mA | 70 % | |
| MSH - 0509D | | ±9 VDC | ±111 mA | 75 % | |
| MSH - 0512D | | ±12 VDC | ±84 mA | 78 % | |
| MSH - 0515D | | ±15 VDC | ±66 mA | 80 % | |
| MSBH - 1205 | | 12 VDC | 5 VDC | 400 mA | 82 % |
| MSBH - 1209 | | | 9 VDC | 222 mA | 78 % |
| MSBH - 1212 | 12 VDC | | 167 mA | 80 % | |
| MSBH - 1215 | 15 VDC | | 133 mA | 85 % | |
| MSH - 1205D | ±5 VDC | | ±200 mA | 74 % | |
| MSH - 1209D | ±9 VDC | | ±111 mA | 75 % | |
| MSH - 1212D | ±12 VDC | | ±84 mA | 80 % | |
| MSH - 1215D | ±15 VDC | | ±66 mA | 82 % | |
| MSBH - 1505 | 15 VDC | | 5 VDC | 400 mA | 78 % |
| MSBH - 1509 | | | 9 VDC | 222 mA | 78 % |
| MSBH - 1512 | | 12 VDC | 167 mA | 80 % | |
| MSBH - 1515 | | 15 VDC | 133 mA | 80 % | |
| MSH - 1505D | | ±5 VDC | ±200 mA | 70 % | |
| MSH - 1509D | | ±9 VDC | ±111 mA | 75 % | |
| MSH - 1512D | | ±12 VDC | ±84 mA | 80 % | |
| MSH - 1515D | | ±15 VDC | ±66 mA | 82 % | |
| MSBH - 2405 | | 24 VDC | 5 VDC | 400 mA | 80 % |
| MSBH - 2409 | | | 9 VDC | 222 mA | 80 % |
| MSBH - 2412 | 12 VDC | | 167 mA | 84 % | |
| MSBH - 2415 | 15 VDC | | 133 mA | 85 % | |
| MSH - 2405D | ±5 VDC | | ±200 mA | 75 % | |
| MSH - 2409D | ±9 VDC | | ±111 mA | 78 % | |
| MSH - 2412D | ±12 VDC | | ±84 mA | 80 % | |
| MSH - 2415D | ±15 VDC | | ±66 mA | 82 % | |

MSBH= Single Output
MSH= Dual Output



NOTE:
*TERMINAL 0.020" x 0.010" FLAT PIN

MSH SERIES

| Pin Connections | | |
|-----------------|----------|---------|
| PIN | SINGLE | DUAL |
| 1 | +INPUT | +INPUT |
| 2 | -INPUT | -INPUT |
| 4 | -OUTPUT- | -OUTPUT |
| 5 | NO PIN | COMMON |
| 6 | +OUTPUT | +OUTPUT |

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.