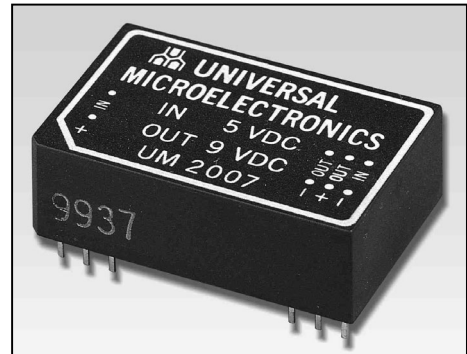


# UM2000 SERIES

## 2 Watt DC-DC Converters

- ◆ 24-Pin Dip Package
- ◆ High Efficiency (up to 80%)
- ◆ Regulated Outputs
- ◆ Pi Input Filter
- ◆ 500 VDC Isolation
- ◆ Continuous Short Circuit Protection



### SPECIFICATIONS

All specifications are typical at nominal line full load, and 25°C unless otherwise noted.

### INPUT SPECIFICATIONS

|                     |            |          |
|---------------------|------------|----------|
| Input Voltage Range | 5V         | 4.5-5.5V |
|                     | 12V        | 9-18V    |
|                     | 24V        | 18-36V   |
|                     | 48V        | 36-72V   |
| Input Filter        | Pi Network |          |

### OUTPUT SPECIFICATIONS

|                                     |               |
|-------------------------------------|---------------|
| Voltage Accuracy                    | ±2.0% max.    |
| Voltage Balance (Dual) <sup>1</sup> | ±2.0% max.    |
| Ripple and Noise, 20MHz BW          | 60mV P-P max. |
| Temperature Coefficient             | ±0.05%/°C     |
| Short Circuit Protection            | Continuous    |
| Line Regulation <sup>2</sup>        | ±0.5%         |
| Load Regulation <sup>3</sup>        | ±0.5%         |

### GENERAL SPECIFICATIONS

|                             |                                                    |
|-----------------------------|----------------------------------------------------|
| Efficiency                  | See Table                                          |
| Isolation Voltage           | 500 VDC min.                                       |
| Isolation Resistance        | 10 <sup>8</sup> ohms min.                          |
| Switching Frequency         | 150KHz-850KHz<br>(Depending on Loading)            |
| Operating Temperature Range |                                                    |
| Ambient, None Derating      | -25°C to +71°C                                     |
| Cooling                     | Free Air Convection                                |
| Storage Temperature Range   | -40°C to +100°C                                    |
| Humidity                    | 95% R.H. max.                                      |
| Dimensions CASE A           | 1.25 x 0.8 x 0.4 inches<br>(31.8 x 20.3 x 10.2 mm) |
| Case Material               |                                                    |
| Standard Models             | Non-Conductive Black Plastic<br>UL94V-0            |

### NOTES:

1. For common output models.
2. Measured from high line to low line.
3. Measured from full load to 10% load.

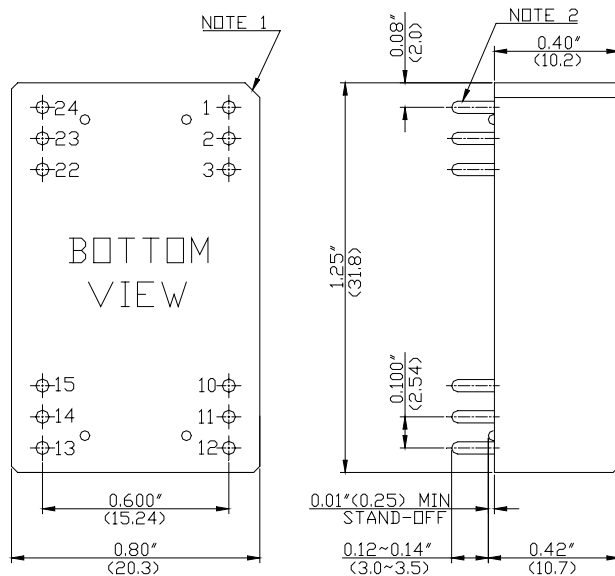


**UNIVERSAL  
MICROELECTRONICS**

3,27TH RD., TAICHUNG INDUSTRIAL PARK,  
TAICHUNG, TAIWAN, R.O.C.  
TEL: 886-4-23590096 FAX: 886-4-23590129

| MODEL NUMBER | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT |           | CASE | EFFICIENCY |
|--------------|---------------|----------------|----------------|---------------|-----------|------|------------|
|              |               |                |                | NO LOAD       | FULL LOAD |      |            |
| UM2001       | 5 VDC         | 5 VDC          | 400 mA         | 110 mA        | 620 mA    | A    | 65%        |
| UM2002       |               | 12 VDC         | 160 mA         | 100 mA        | 550 mA    |      | 70%        |
| UM2003       |               | 15 VDC         | 130 mA         | 110 mA        | 550 mA    |      | 70%        |
| UM2004A      |               | ±5 VDC         | ±150 mA        | 110 mA        | 600 mA    |      | 50%        |
| UM2005       |               | ±12 VDC        | ±80 mA         | 130 mA        | 640 mA    |      | 60%        |
| UM2006       |               | ±15 VDC        | ±65 mA         | 140 mA        | 640 mA    |      | 60%        |
| UM2007       |               | 9 VDC          | 250 mA         | 105 mA        | 680 mA    |      | 66%        |
| UM2011       | 12 VDC        | 5 VDC          | 400 mA         | 50 mA         | 230 mA    | A    | 73%        |
| UM2012       |               | 12 VDC         | 160 mA         | 50 mA         | 215 mA    |      | 75%        |
| UM2013       |               | 15 VDC         | 130 mA         | 50 mA         | 215 mA    |      | 75%        |
| UM2014       |               | ±5 VDC         | ±200 mA        | 50 mA         | 290 mA    |      | 57%        |
| UM2015       |               | ±12 VDC        | ±80 mA         | 70 mA         | 245 mA    |      | 65%        |
| UM2016       |               | ±15 VDC        | ±65 mA         | 80 mA         | 240 mA    |      | 67%        |
| UM2017       |               | 9 VDC          | 250 mA         | 50 mA         | 250 mA    |      | 75%        |
| UM2021       | 24 VDC        | 5 VDC          | 400 mA         | 30 mA         | 115 mA    | A    | 75%        |
| UM2022       |               | 12 VDC         | 160 mA         | 30 mA         | 105 mA    |      | 78%        |
| UM2023       |               | 15 VDC         | 130 mA         | 30 mA         | 105 mA    |      | 78%        |
| UM2024       |               | ±5 VDC         | ±200 mA        | 35 mA         | 135 mA    |      | 62%        |
| UM2025       |               | ±12 VDC        | ±80 mA         | 35 mA         | 115 mA    |      | 70%        |
| UM2026       |               | ±15 VDC        | ±65 mA         | 35 mA         | 115 mA    |      | 70%        |
| UM2027       |               | 9 VDC          | 250 mA         | 30 mA         | 120 mA    |      | 78%        |
| UM2031       | 48 VDC        | 5 VDC          | 400 mA         | 5 mA          | 55 mA     | A    | 75%        |
| UM2032       |               | 12 VDC         | 160 mA         | 10 mA         | 50 mA     |      | 80%        |
| UM2033       |               | 15 VDC         | 130 mA         | 10 mA         | 50 mA     |      | 80%        |
| UM2034       |               | ±5 VDC         | ±200 mA        | 10 mA         | 70 mA     |      | 60%        |
| UM2035       |               | ±12 VDC        | ±80 mA         | 15 mA         | 57 mA     |      | 70%        |
| UM2036       |               | ±15 VDC        | ±65 mA         | 15 mA         | 56 mA     |      | 72%        |
| UM2037       |               | 9 VDC          | 250 mA         | 10 mA         | 59 mA     |      | 80%        |

#### CASE A



All dimensions in inches(mm).

Note 1:Cut-corner marking for Pin No.1

Note 2:Pin size is 0.020±0.005 inches (0.5mm) dia.  
or 0.020\*0.012 inch

Note 3:Tolerance .xx=±0.04"  
.xxx=±0.010"

#### PIN CONNECTIONS

| Pin | Single Output | Dual Output            |                     |
|-----|---------------|------------------------|---------------------|
|     |               | Separated <sup>1</sup> | Common <sup>2</sup> |
| 1   | +V Input      | +V Input               | +V Input            |
| 2   | NC*           | -V2 Output             | -V Output           |
| 3   | NC*           | +V2 Output             | Common              |
| 10  | -V Output     | -V1 Output             | Common              |
| 11  | +V Output     | +V1 Output             | +V Output           |
| 12  | -V Input      | -V Input               | -V Input            |
| 13  | -V Input      | -V Input               | -V Input            |
| 14  | +V Output     | +V1 Output             | +V Output           |
| 15  | -V Output     | -V1 Output             | Common              |
| 22  | NC*           | +V2 Output             | Common              |
| 23  | NC*           | -V2 Output             | -V Output           |
| 24  | +V Input      | +V Input               | +V Input            |

\*NC (No Connection)

NOTES:1. Dual output models with separated output

2. Dual output models suffix a "C" to the mode number with common output.



**UNIVERSAL  
MICROELECTRONICS**

3,27TH RD., TAICHUNG INDUSTRIAL PARK,  
TAICHUNG, TAIWAN, R.O.C.  
TEL: 886-4-23590096 FAX: 886-4-23590129