

## MTS7D1-xxxx Series, 1W, Unregulated, Dual output

### Features:

- SIP7 Package
- Industry Standard Pin-Out
- I/O-Isolation 1000VDC
- -40...+85°C Operating Temperature Range
- Lead free Design, RoHS compliant
- Non-conductive Black Plastic Case (UL 94-V0)
- Available Inputs: 5, 12, 15, 24, 48VDC
- Available Outputs:  $\pm$ 3.3, 5, 7.2, 9, 12, 15, 18, 24VDC

### Electrical specifications

(All specifications are typical at Ta=25°C, nominal input voltage and full load unless otherwise specified)

#### Input Specifications:

|                                                                        |            |
|------------------------------------------------------------------------|------------|
| Voltage Range                                                          | $\pm$ 10%  |
| Filter                                                                 | Capacitors |
| Input Reflected Ripple<br>(rms thru 12 $\mu$ H inductor, 5Hz to 20MHz) | 20mA rms   |

#### Output Specifications:

|                                 |                                     |
|---------------------------------|-------------------------------------|
| Voltage Accuracy                | $\pm$ 3% max.                       |
| Ripple and Noise (at 20 MHz BW) | 60mV pk-pk max.                     |
| Line Voltage Regulation         | $\pm$ 1.2% / per 1.0% of Vin Change |
| Load Voltage Regulation         | $\pm$ 8%, load=20~100%              |
| Temperature Coefficient         | $\pm$ 0.02% / °C                    |
| Short Circuit Protection        | Indefinite 1sec, auto recovery      |
| Current Limiting                | 110% of max. Iout                   |
| Capacitor Load                  | 100 $\mu$ F                         |

#### General Specifications:

|                                                                      |                                  |
|----------------------------------------------------------------------|----------------------------------|
| Efficiency                                                           | See table                        |
| Switching Frequency                                                  | Variable 50KHz typ.              |
| Reliability Calculated MTBF                                          | > 2,010,000 hrs                  |
| Input/Output Isolation Voltage<br>I/O 1 min (flash tested for 1 sec) | 1000VDC                          |
| Input/Output Isolation Resistance                                    | 1000MOhm min.                    |
| Input/Output Isolation Capacitance                                   | 60 pF typ                        |
| Safety Standards                                                     | IEC 60950-1:2001/EN60950/UL60950 |

#### Environmental Specifications:

|                                 |                           |
|---------------------------------|---------------------------|
| Operating Temperature (Ambient) | -40...+85°C               |
| Case Temperature                | +100°C max.               |
| Storage Temperature             | -40...+125°C              |
| Humidity                        | Up to 95%, Non-condensing |
| Cooling                         | Nature Convection         |

#### EMI Specifications:

|                    |                 |
|--------------------|-----------------|
| Radiated Emissions | EN55022 Class B |
|--------------------|-----------------|

#### Physical Specifications:

|                                                      |                                              |
|------------------------------------------------------|----------------------------------------------|
| Case material                                        | Non-conductive Black Plastic (UL94V-0 rated) |
| Base material                                        | Epoxy encapsulated (UL94V-0 rated)           |
| Pin material                                         | Brass Solder-coated                          |
| Potting material                                     | Epoxy (UL94V-0 rated)                        |
| Lead Soldering Temperature (1.5 mm from case, 10sec) | +260°C                                       |
| Weight                                               | 2.7g                                         |
| Dimensions                                           | 19.5x10.0x6.00mm<br>0.76x0.38x0.24 inches    |

**Absolute maximum ratings of Input Voltage:**

|             |            |
|-------------|------------|
| 3.3V Models | -0.7~5VDC  |
| 5V Models   | -0.7~7VDC  |
| 12V Models  | -0.7~15VDC |
| 24V Models  | -0.7~28VDC |
| 48V Models  | -0.7~54VDC |

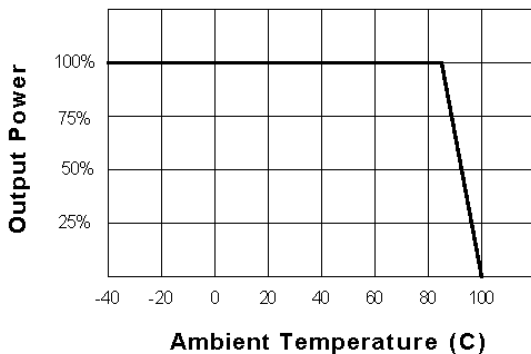
Specifications are subject to change without notice.

**Model Selection Guide**

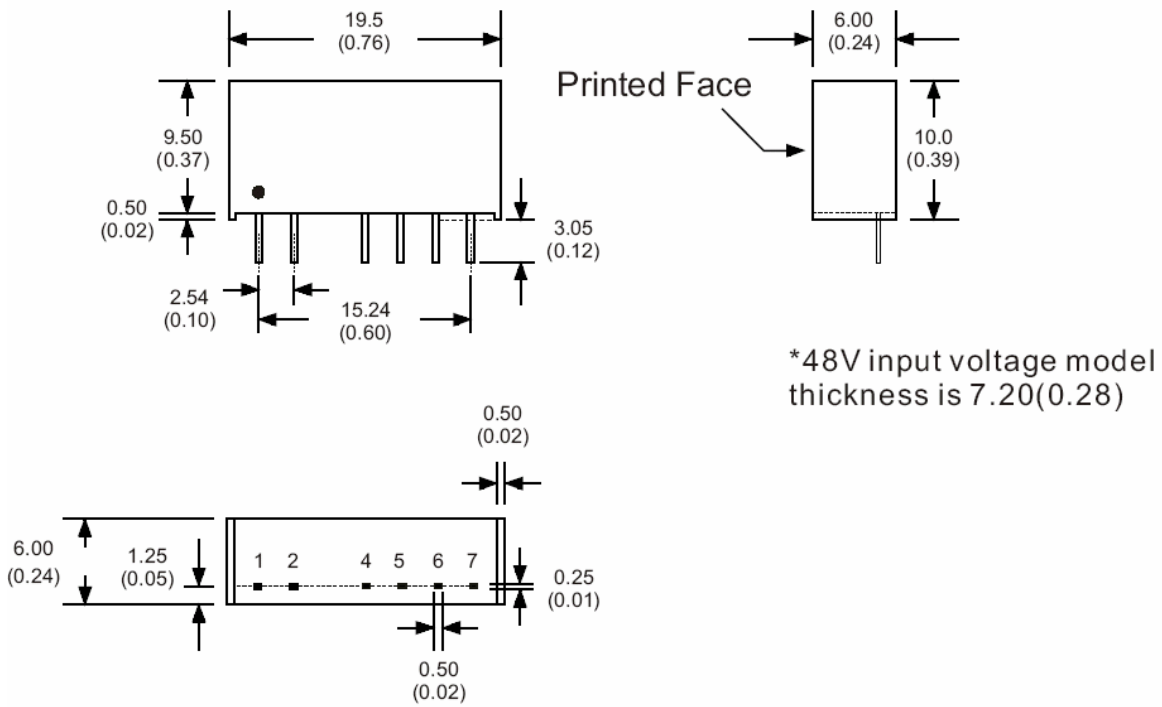
| Models       | Input Voltage, VDC | Input Current No-Load, mA | Input Current Full Load, mA | Output Voltage, VDC | Output Current, mA | Efficiency at Full Load, % |
|--------------|--------------------|---------------------------|-----------------------------|---------------------|--------------------|----------------------------|
| MTS7D1-053.3 | 5                  | 30                        | 307                         | ±3.3                | ±151.5             | 65                         |
| MTS7D1-0505  |                    | 30                        | 270                         | ±5                  | ±100               | 74                         |
| MTS7D1-057.2 |                    | 30                        | 259                         | ±7.2                | ±69.44             | 77                         |
| MTS7D1-0509  |                    | 30                        | 256                         | ±9                  | ±55.55             | 78                         |
| MTS7D1-0512  |                    | 30                        | 256                         | ±12                 | ±41.67             | 78                         |
| MTS7D1-0515  |                    | 30                        | 250                         | ±15                 | ±33.33             | 80                         |
| MTS7D1-0518  |                    | 30                        | 253                         | ±18                 | ±27.77             | 79                         |
| MTS7D1-0524  |                    | 30                        | 250                         | ±24                 | ±20.83             | 80                         |
| MTS7D1-123.3 | 12                 | 20                        | 126                         | ±3.3                | ±151.5             | 66                         |
| MTS7D1-1205  |                    | 20                        | 111                         | ±5                  | ±100               | 75                         |
| MTS7D1-127.2 |                    | 20                        | 109                         | ±7.2                | ±69.44             | 76                         |
| MTS7D1-1209  |                    | 20                        | 109                         | ±9                  | ±55.55             | 76                         |
| MTS7D1-1212  |                    | 20                        | 106                         | ±12                 | ±41.67             | 78                         |
| MTS7D1-1215  |                    | 20                        | 104                         | ±15                 | ±33.33             | 80                         |
| MTS7D1-1218  |                    | 20                        | 104                         | ±18                 | ±27.77             | 80                         |
| MTS7D1-1224  |                    | 20                        | 109                         | ±24                 | ±20.83             | 76                         |
| MTS7D1-243.3 | 24                 | 10                        | 61                          | ±3.3                | ±151.5             | 68                         |
| MTS7D1-2405  |                    | 10                        | 56                          | ±5                  | ±100               | 74                         |
| MTS7D1-247.2 |                    | 10                        | 54                          | ±7.2                | ±69.44             | 76                         |
| MTS7D1-2409  |                    | 10                        | 54                          | ±9                  | ±55.55             | 76                         |
| MTS7D1-2412  |                    | 10                        | 53                          | ±12                 | ±41.67             | 78                         |
| MTS7D1-2415  |                    | 10                        | 53                          | ±15                 | ±33.33             | 78                         |
| MTS7D1-2418  |                    | 10                        | 53                          | ±18                 | ±27.77             | 78                         |
| MTS7D1-2424  |                    | 10                        | 53                          | ±24                 | ±20.83             | 78                         |
| MTS7D1-483.3 | 48                 | 6                         | 34                          | ±3.3                | ±151.5             | 60                         |
| MTS7D1-4805  |                    | 6                         | 30                          | ±5                  | ±100               | 70                         |
| MTS7D1-487.2 |                    | 6                         | 30                          | ±7.2                | ±69.44             | 70                         |
| MTS7D1-4809  |                    | 6                         | 29                          | ±9                  | ±55.55             | 72                         |
| MTS7D1-4812  |                    | 6                         | 28                          | ±12                 | ±41.67             | 74                         |
| MTS7D1-4815  |                    | 6                         | 28                          | ±15                 | ±33.33             | 74                         |
| MTS7D1-4818  |                    | 6                         | 29                          | ±18                 | ±27.77             | 72                         |
| MTS7D1-4824  |                    | 6                         | 30                          | ±24                 | ±20.83             | 70                         |

Note: The models are listed above are just for standard type. If you need the special specifications product, please inquire.

**Derating Curve**



## Outline Dimensions and Pin Connections



Notes : All dimensions are typical in millimeters ( inches ).  
Tolerance x.xx =  $\pm 0.25$  (  $\pm 0.01$  )

| Pin Connections |        |
|-----------------|--------|
| Pin Number      | Dual   |
| 1               | +Vin   |
| 2               | -Vin   |
| 4               | -Vout  |
| 5               | Common |
| 6               | +Vout  |
| 7               | No pin |