



#### ■ Features :

- 1000VDC I/O isolation
- Internal SMD technology
- Built-in EMI filter
- Cooling by free air convection
- Non-conductive plastic case
- Dual in line package
- SIP packge is available
- 100% burn-in test
- Low cost / High reliability
- 2 years warranty

#### SELECTION GUIDE

| ORDER NO.            | SUS01L-05 | SUS01M-05 | SUS01N-05 | SUS01O-05 | SUS01L-09 | SUS01M-09 | SUS01N-09 | SUS01O-09 |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| DC OUTPUT VOLTAGE    | 5V        |           |           |           | 9V        |           |           |           |
| OUTPUT CURRENT RANGE | 0 ~ 200mA |           |           |           | 0 ~ 111mA |           |           |           |
| EFFICIENCY           | 73%       | 74%       | 72%       | 74%       | 75%       | 79%       | 80%       | 77%       |

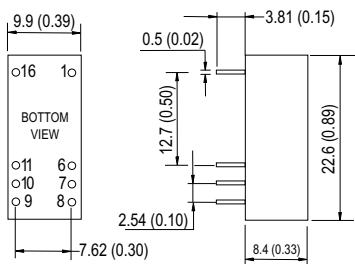
| ORDER NO.            | SUS01L-12 | SUS01M-12 | SUS01N-12 | SUS01O-12 | SUS01L-15 | SUS01M-15 | SUS01N-15 | SUS01O-15 |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| DC OUTPUT VOLTAGE    | 12V       |           |           |           | 15V       |           |           |           |
| OUTPUT CURRENT RANGE | 0 ~ 84mA  |           |           |           | 0 ~ 67mA  |           |           |           |
| EFFICIENCY           | 78%       | 82%       | 83%       | 83%       | 79%       | 82%       | 83%       | 83%       |

#### SPECIFICATION

|              |                              |                                                                          |              |              |              |            |              |              |              |
|--------------|------------------------------|--------------------------------------------------------------------------|--------------|--------------|--------------|------------|--------------|--------------|--------------|
| OUTPUT       | RATED POWER                  | 1W                                                                       |              |              |              |            |              |              |              |
|              | RIPPLE & NOISE (max.) Note.2 | 100mVp-p                                                                 |              |              |              |            |              |              |              |
|              | LINE REGULATION Note.3       | ±1.2% for 1% input variation                                             |              |              |              |            |              |              |              |
|              | LOAD REGULATION Note.4       | ±8.0%                                                                    |              |              |              |            |              |              |              |
|              | VOLTAGE ACCURACY             | ±2.0%                                                                    |              |              |              |            |              |              |              |
|              | SWITCHING FREQUENCY          | 50KHz min.                                                               |              |              |              |            |              |              |              |
| INPUT        | VOLTAGE RANGE                | 4.5 ~ 5.5V                                                               | 10.8 ~ 13.2V | 21.6 ~ 26.4V | 43.2 ~ 52.8V | 4.5 ~ 5.5V | 10.8 ~ 13.2V | 21.6 ~ 26.4V | 43.2 ~ 52.8V |
|              | NORMAL VOLTAGE               | 5V                                                                       | 12V          | 24V          | 48V          | 5V         | 12V          | 24V          | 48V          |
|              | INPUT CURRENT                | Full load                                                                | 280mA        | 112mA        | 55mA         | 28mA       | 280mA        | 112mA        | 55mA         |
|              |                              | No load                                                                  | 21mA         | 11mA         | 10mA         | 3mA        | 21mA         | 11mA         | 10mA         |
|              | FILTER                       | Capacitor type                                                           |              |              |              |            |              |              |              |
|              | PROTECTION                   | Fuse recommended                                                         |              |              |              |            |              |              |              |
| PROTECTION   | OVERLOAD                     | Momentary                                                                |              |              |              |            |              |              |              |
|              |                              | Protection type : Broken                                                 |              |              |              |            |              |              |              |
|              | SHORT CIRCUIT                | Momentary                                                                |              |              |              |            |              |              |              |
| ENVIRONMENT  |                              | Protection type : Broken                                                 |              |              |              |            |              |              |              |
|              | WORKING TEMP.                | -25 ~ +71°C (Refer to output load derating curve)                        |              |              |              |            |              |              |              |
|              | WORKING HUMIDITY             | 20% ~ 90% RH non-condensing                                              |              |              |              |            |              |              |              |
|              | STORAGE TEMP., HUMIDITY      | -25 ~ +105°C, 10 ~ 95% RH                                                |              |              |              |            |              |              |              |
|              | TEMP. COEFFICIENT            | ±0.03% / °C (0 ~ 50°C)                                                   |              |              |              |            |              |              |              |
|              | VIBRATION                    | 10 ~ 500Hz, 2G 10min./1 cycle, period for 60min. each along X, Y, Z axes |              |              |              |            |              |              |              |
| SAFETY & EMC | WITHSTAND VOLTAGE            | I/P-O/P:1KVDC                                                            |              |              |              |            |              |              |              |
|              | ISOLATION RESISTANCE         | I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH                              |              |              |              |            |              |              |              |
|              | ISOLATION CAPACITANCE        | 80pF max.                                                                |              |              |              |            |              |              |              |
| OTHERS       | MTBF                         | 700khrs min. MIL-HDBK-217F(25°C)                                         |              |              |              |            |              |              |              |
|              | DIMENSION                    | 22.6*9.9*8.4mm or 0.89**0.39**0.33" inch (L*W*H)                         |              |              |              |            |              |              |              |
|              | WEIGHT                       | 3.1g                                                                     |              |              |              |            |              |              |              |

#### ■ Mechanical Specification

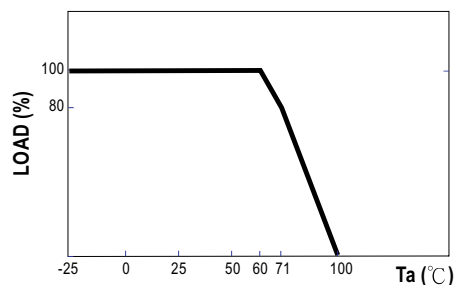
Unit: mm (inch)



#### ■ Pin Configuration

| Pin No. | Output |
|---------|--------|
| 1 & 16  | +Vin   |
| 6 & 11  | -Vout  |
| 7 & 10  | +Vout  |
| 8 & 9   | -Vin   |

#### ■ Derating Curve



#### NOTE

- 1.All parameters are specified at normal input, rated load, 25°C 70% RH ambient.
- 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uF & 47uF capacitor.
- 3.Line regulation is measured from low line to high line at rated load.
- 4.Load regulation is measured from 20% to 100% rated load.

Model : SUS01N-09      1W      DC-DC      Unregulated Single Output Converter  
V1 : 9V / 0~111mA

## OUTPUT FUNCTION TEST

| NO | TEST ITEM        | SPECICATION     | TEST CONDITION                                  | RESULT        | VERDICT |
|----|------------------|-----------------|-------------------------------------------------|---------------|---------|
| 1  | VOLTAGE ACCURACY | -2%~+2% (Max)   | I/P:24VDC<br>O/P:FULL LOAD<br>Ta:25°C           | -0.9%         | P       |
| 2  | RIPPLE & NOISE   | 100mVp-p (Max)  | I/P:24VDC<br>O/P:FULL LOAD<br>Ta:25°C           | 25mV          | P       |
| 3  | LINE REGULATION  | -12%~+12% (Typ) | I/P:21.6VDC~26.4VDC<br>O/P:FULL LOAD<br>Ta:25°C | -11.3%~+11.1% | P       |
| 4  | LOAD REGULATION  | -8%~+8% (Typ)   | I/P:24VDC<br>O/P:20%~FULL LOAD<br>Ta:25°C       | -1.3%~+1.6%   | P       |

## INPUT FUNCTION TEST

| NO | TEST ITEM  | SPECICATION | TEST CONDITION                        | RESULT | VERDICT |
|----|------------|-------------|---------------------------------------|--------|---------|
| 1  | EFFICIENCY | 80% (Typ)   | I/P:24VDC<br>O/P:FULL LOAD<br>Ta:25°C | 81.2%  | P       |
| 2  | DC CURRENT | 57mA (Max)  | I/P:5VDC<br>O/P:FULL LOAD<br>Ta:25°C  | 52mA   | P       |

## ENVIRONMENT TEST

| NO | TEST ITEM             | SPECIFICATION                                                      | TEST CONDITION | RESULT | VERDICT |
|----|-----------------------|--------------------------------------------------------------------|----------------|--------|---------|
| 1  | TEMPERATURE RISE TEST | 1. ROOM AMBIENT BURN-IN : 12HRS<br>I/P:24VDC O/P:FULL LOAD Ta=25°C |                |        | P       |
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## SAFETY TEST

| NO | TEST ITEM            | SPECICATION          | TEST CONDITION               | RESULT                      | VERDICT |
|----|----------------------|----------------------|------------------------------|-----------------------------|---------|
| 1  | WITHSTAND VOLTAGE    | I/P-O/P:1KVDC/min    | I/P-O/P:1KVDC/min<br>Ta:25°C | I/P-O/P:0.02mA<br>NO DAMAGE | P       |
| 2  | ISOLATION RESISTANCE | I/P-O/P:500VDC>100MΩ | I/P-O/P:500VDC<br>Ta:25°C    | I/P-O/P:18GΩ<br>NO DAMAGE   | P       |

| DATE      | SAMPLE    | TEST RESULT | TESTER     | APPROVAL |
|-----------|-----------|-------------|------------|----------|
| 2003.7.23 | SUS01N-09 | PASS        | FRANK.CHEN | MAX LIN  |