

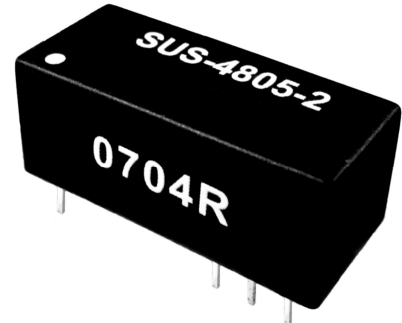
# SU SERIES

0.5W TO 2W UNREGULATED



## FEATURES

- DUAL IN LINE PACKAGE
- 0.5 TO 2W UNREGULATED OUTPUT POWER
- 100% BURNED IN
- HIGH EFFICIENCY
- INTERNAL SMD TECHNOLOGY
- LOW COST
- NO HEATSINK REQUIRED
- UL 94V-0 PACKAGE MATERIAL
- CUSTOM SOLUTIONS AVAILABLE



OUTPUT SPECIFICATIONS		INPUT SPECIFICATIONS	
Voltage Setpoint Accuracy	+/-2% max	Input Voltage Range	+/-10% max
Temperature Coefficient	+/-0.05%/°C	Input Filter	Capacitor Typ
Ripple & Noise(20MHz BW) <sup>1</sup>	100mVp-p max	Protection	Fuse Recommended
Line Regulation <sup>2</sup>	+/-1.2% max	<b>GENERAL SPECIFICATIONS</b>	
Load Regulation <sup>3</sup>	+/-8% max	Efficiency	70%-83%
	Output : 3.3V +/-12% max	Isolation Voltage <sup>4</sup>	1500VDC min
Minimum Load	10% of Full Load	Isolation Resistance	10 <sup>9</sup> ohms min
Short Circuit Protection	Momentary	Isolation Capacitance	80pF max
Transient Response <sup>5</sup>	200uS max	Switching Frequency	50KHz min
<b>ENVIRONMENTAL SPECIFICATIONS</b>		MTBF <sup>6</sup>	>2,000,000 Hours
Operating Temperature	-25 °C to +71 °C	Weight	3.1g Typ
Case Temperature	+90 °C max	Case Material	Non-Conductive Plastic
Storage Temperature	-55 °C to +125 °C	Case Size	22.6mm*9.9mm*8.4mm
Humidity	95% max	Conducted Emissions	EN55022 Class A
Cooling	Free-Air Convection	Radiated Emissions	EN55022 Class A

ALL SPECIFICATIONS TYPICAL AT NOMINAL LINE, FULL LOAD , AND 25 °C UNLESS OTHERWISE NOTED.

<sup>1</sup> Measured with 1uF ceramic capacitor connect to the output pins.

<sup>2</sup> Line Regulation is for a 1.0% change in input Voltage..

<sup>3</sup> Load Regulation is for output load current change from 20% to 100%.

<sup>4</sup> For 10 seconds.

<sup>5</sup> 25% Step Load Change.

<sup>6</sup> MIL-HDBK-217F @25 °C , Ground Benign.

● **SELECTION GUIDE(1)**  
**0.5W OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>7</sup>		EFF (%) <sup>8</sup>	ISOLATION (VDC)	OUTPUT POWER (Watt)
				CURRENT(mA)				
				FULL LOAD	NO LOAD			
SUS-0505-1	5	5	100	135	20	74	1500	0.5W
SUS-0509-1	5	9	56	137	22	73	1500	0.5W
SUS-0512-1	5	12	42	138	23	72	1500	0.5W
SUS-0515-1	5	15	34	140	25	71	1500	0.5W
SUS-1205-1	12	5	100	55	14	76	1500	0.5W
SUS-1209-1	12	9	56	56	15	74	1500	0.5W
SUS-1212-1	12	12	42	58	15	72	1500	0.5W
SUS-1215-1	12	15	34	58	15	72	1500	0.5W
SUS-2405-1	24	5	100	29	8	72	1500	0.5W
SUS-2409-1	24	9	56	28	6	74	1500	0.5W
SUS-2412-1	24	12	42	28	7	74	1500	0.5W
SUS-2415-1	24	15	34	29	7	72	1500	0.5W
SUS-4805-1	48	5	100	14	4	74	1500	0.5W
SUS-4809-1	48	9	56	14	5	74	1500	0.5W
SUS-4812-1	48	12	42	14	6	74	1500	0.5W
SUS-4815-1	48	15	34	14	6	74	1500	0.5W

*Note: Other input to output voltages may be available. Please contact factory.*

<sup>7</sup> NOMINAL INPUT VOLTAGE.

<sup>8</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(2)**  
**1W OUTPUT**

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>9</sup>		EFF (%) <sup>10</sup>	ISOLATION (VDC)	OUTPUT POWER (Watt)
				CURRENT(mA)				
				FULL LOAD	NO LOAD			
SUS-0503.3-2	5	3.3	300	270	35	74	1500	1W
SUS-0505-2	5	5	200	277	36	72	1500	1W
SUS-0509-2	5	9	111	268	35	75	1500	1W
SUS-0512-2	5	12	84	260	35	77	1500	1W
SUS-0515-2	5	15	67	255	32	78	1500	1W
SUS-0521-2	5	21	48	255	32	78	1500	1W
SUS-0524-2	5	24	42	255	40	78	1500	1W
SUS-1203.3-2	12	3.3	300	117	17	71	1500	1W
SUS-1205-2	12	5	200	115	16	72	1500	1W
SUS-1209-2	12	9	111	107	14	78	1500	1W
SUS-1212-2	12	12	84	105	14	79	1500	1W
SUS-1215-2	12	15	67	103	13	81	1500	1W
SUS-1224-2	12	24	42	103	10	81	1500	1W
SUS-2403.3-2	24	3.3	300	58	10	72	1500	1W
SUS-2405-2	24	5	200	58	10	72	1500	1W
SUS-2409-2	24	9	111	54	10	77	1500	1W
SUS-2412-2	24	12	84	54	10	77	1500	1W
SUS-2415-2	24	15	67	54	10	77	1500	1W
SUS-2424-2	24	24	42	53	10	79	1500	1W
SUS-4803.3-2	48	3.3	300	28	8	74	1500	1W
SUS-4805-2	48	5	200	28	8	74	1500	1W
SUS-4809-2	48	9	111	28	7	74	1500	1W
SUS-4812-2	48	12	84	29	8	72	1500	1W
SUS-4815-2	48	15	67	26	7	75	1500	1W

*Note: Other input to output voltages may be available. Please contact factory.*

<sup>9</sup> NOMINAL INPUT VOLTAGE.

<sup>10</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

● **SELECTION GUIDE(3)**  
**2W OUTPUT**

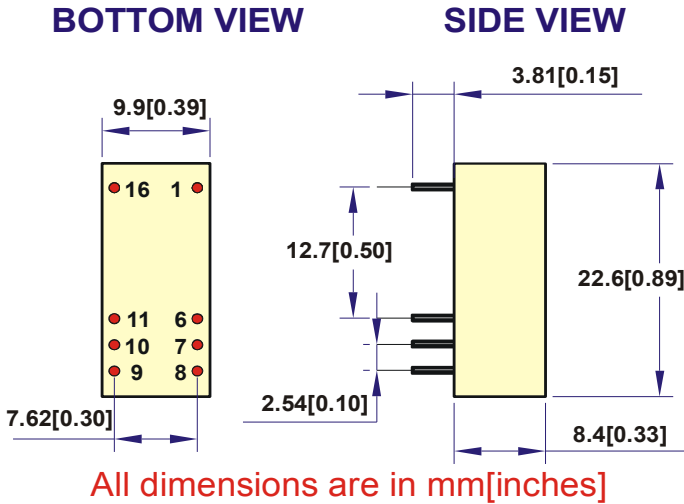
MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT <sup>11</sup>		EFF (%) <sup>12</sup>	ISOLATION (VDC)	OUTPUT POWER (Watt)
				CURRENT(mA)				
				FULL LOAD	NO LOAD			
SUS-0505-3	5	5	400	500	40	80	1500	2W
SUS-0509-3	5	9	222	506	40	79	1500	2W
SUS-0512-3	5	12	167	500	40	80	1500	2W
SUS-0515-3	5	15	133	488	40	82	1500	2W
SUS-1205-3	12	5	400	214	15	78	1500	2W
SUS-1209-3	12	9	222	214	15	78	1500	2W
SUS-1212-3	12	12	167	201	15	83	1500	2W
SUS-1215-3	12	15	133	196	15	85	1500	2W
SUS-2405-3	24	5	400	107	10	78	1500	2W
SUS-2409-3	24	9	222	107	10	78	1500	2W
SUS-2412-3	24	12	167	103	10	81	1500	2W
SUS-2415-3	24	15	133	100	10	83	1500	2W
SUS-4805-3	48	5	400	56	6	74	1500	2W
SUS-4809-3	48	9	222	54	6	77	1500	2W
SUS-4812-3	48	12	167	51	6	81	1500	2W
SUS-4815-3	48	15	133	51	6	81	1500	2W

*Note: Other input to output voltages may be available. Please contact factory.*

<sup>11</sup> NOMINAL INPUT VOLTAGE.

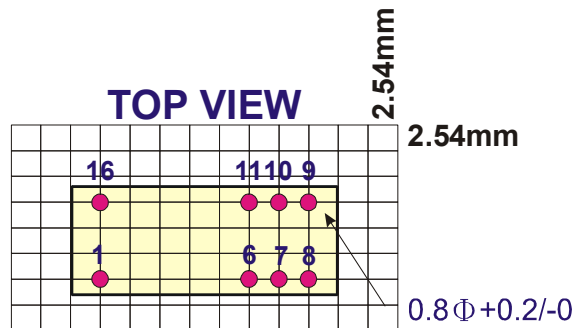
<sup>12</sup> NOMINAL INPUT VOLTAGE, FULL LOAD.

## MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS

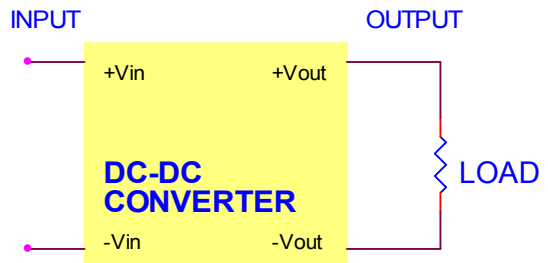
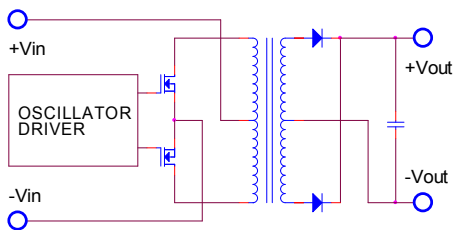


PIN	SINGLE
1 & 16	+Vin
6 & 11	-Vout
7 & 10	+Vout
8 & 9	-Vin

NOTE : All Dimensions In mm(Inches)  
 1. Pin Size is 0.50x0.30mm[0.02x0.01"]  
 2. Pin is Tolerance .XX= ±0.05mm  
 3. Tolerance .X or .XX= ±0.5mm



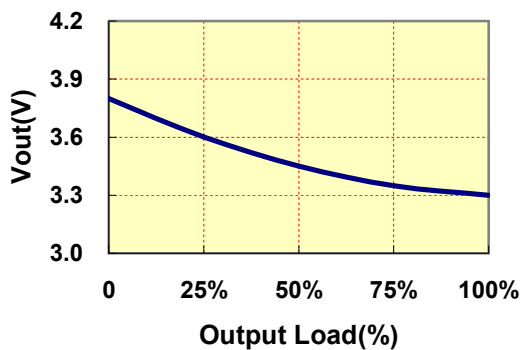
## SIMPLIFIED SCHEMATIC • TYPICAL APPLICATIONS



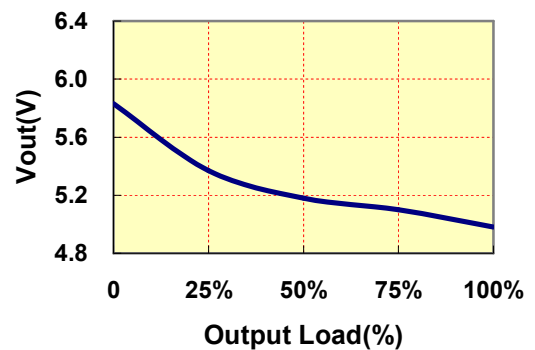
## TYPICAL PERFORMANCE CURVES

Specifications typical at TA=25°C, nominal input voltage , rated output current unless otherwise specified.

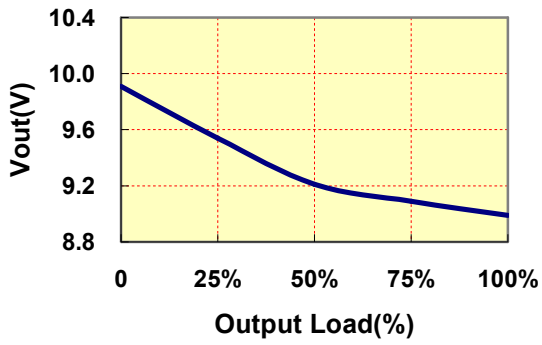
**VOUT VS LOAD(3.3Vout Models)**



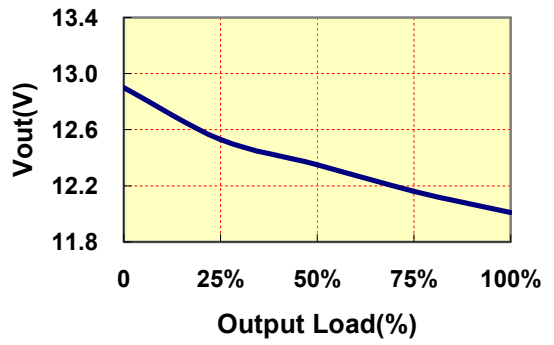
**VOUT VS LOAD(5Vout Models)**



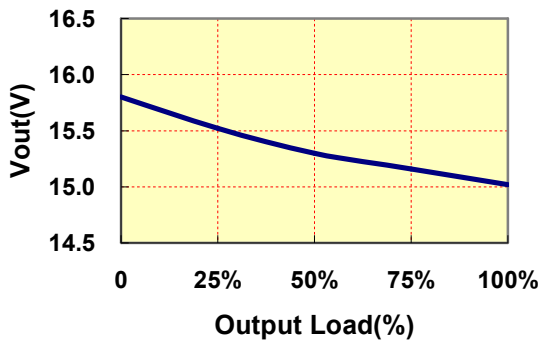
### VOUT VS LOAD(9Vout Models)



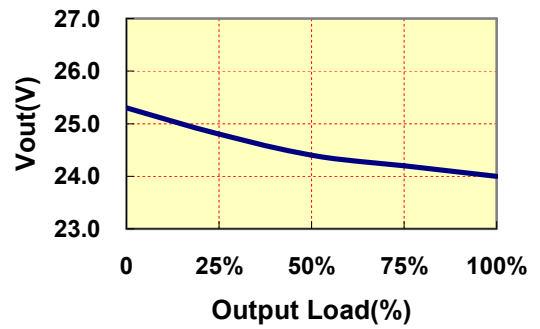
### VOUT VS LOAD(12Vout Models)



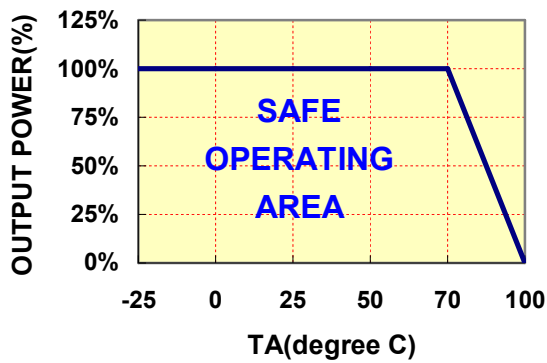
### VOUT VS LOAD(15Vout Models)



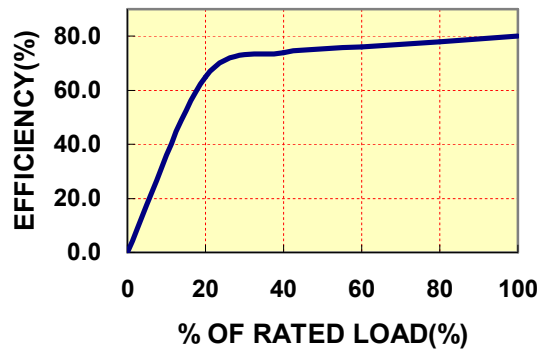
### VOUT VS LOAD(24Vout Models)



### DERATING CURVES



### EFFICIENCY VS LOAD



## ● INPUT FUSE SELECTION GUIDE

4.5-5.5V	10.8-13.2V	21.6-26.4V	43.2-52.8V
INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)	INPUT VOLTAGE(VDC)
800mA Slow-Blow Type	300mA Slow-Blow Type	160mA Slow-Blow Type	100mA Slow-Blow Type

**Note:** Certain applications may require the installation of external fuse in front of the input.

### **SU SERIES APPLICATION NOTES:**

#### **EXTERNAL CAPACITANCE REQUIREMENTS:**

Output filtering is required for operation. A minimum of 10 $\mu$ F is needed. Output capacitance may be increased for additional filtering, not to exceed 220 $\mu$ F.

To meet the reflected ripple requirements of the converter, an input impedance of less than 0.5ohm from DC to 250KHz is required.

We Can Offer EMC-Filter According To EN55011/22 Class B.

#### **Negative Outputs:**

A negative output voltage may be obtained by connecting the +OUT to circuit ground and connecting -OUT as the negative output.