ESD01/02S-SU SERIES

1W TO 2W UNREGULATED

FEATURES

- DUAL IN LINE PACKAGE
- 1 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

RoHS COMPLIANT

OUTPUT SPECIFICATIONS

Voltage Setpoint Accuracy	+/-2% max
Temperature Coefficient	+/-0.05%/°C
Ripple & Noise(20MHz BW)[1]	100mVp-p max
Line Regulation[2]	+/-1.2% max
Load Regulation[3]	+/-8% max
Output：3.3V	+/-12% max
Minimum Load	10% of Full Load
Short Circuit Protection	Momentary
Transient Response[5]	200uS max

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-25 °C to +71 °C
Case Temperature	+90°C max
Storage Temperature	-55 °C to +125 °C
Humidity	95% max
Cooling	Free-Air Convection

INPUT SPECIFICATIONS

Input Voltage Range	+/-10% max
Input Filter	Capacitor Typ
Protection	Fuse Recommended

GENERAL SPECIFICATIONS

Efficiency	70%-83%
Isolation Voltage[4]	1500VDC min
Isolation Resistance	10^9 ohms min
Isolation Capacitance	80pF max
Switching Frequency	50KHz min
MTBF[6]	>2,000,000 Hours
Weight	3.1g Typ
Case Material	Non-Conductive Plastic
Case Size	22.6mm*9.9mm*8.4mm
Conducted Emissions	EN55022 Class A
Radiated Emissions	EN55022 Class A

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

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[1] *Measured with 1uF ceramic capacitor connect to the output pins.*
[2] *Line Regulation is for a 1.0% change in input Voltage..*
[3] *Load Regulation is for output load current change from 20% to 100%.*
[4] *For 10 seconds.*
[5] *25% Step Load Change.*
[6] *MIL-HDBK-217F @25 °C , Ground Benign.*

SELECTION GUIDE(1)
1W OUTPUT

MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[7] CURRENT(mA)		EFF (%)[8]	ISOLATION (VDC)	OUTPUT POWER (Watt)
				FULL LOAD	NO LOAD			
ESD01S-SU0503.3-2	5	3.3	300	270	35	74	1500	1W
ESD01S-SU0505-2	5	5	200	277	36	72	1500	1W
ESD01S-SU0509-2	5	9	111	268	35	75	1500	1W
ESD01S-SU0512-2	5	12	84	260	35	77	1500	1W
ESD01S-SU0515-2	5	15	67	255	32	78	1500	1W
ESD01S-SU0521-2	5	21	48	255	32	78	1500	1W
ESD01S-SU0524-2	5	24	42	255	40	78	1500	1W
ESD01S-SU1203.3-2	12	3.3	300	117	17	71	1500	1W
ESD01S-SU1205-2	12	5	200	115	16	72	1500	1W
ESD01S-SU1209-2	12	9	111	107	14	78	1500	1W
ESD01S-SU1212-2	12	12	84	105	14	79	1500	1W
ESD01S-SU1215-2	12	15	67	103	13	81	1500	1W
ESD01S-SU1224-2	12	24	42	103	10	81	1500	1W
ESD01S-SU2403.3-2	24	3.3	300	58	10	72	1500	1W
ESD01S-SU2405-2	24	5	200	58	10	72	1500	1W
ESD01S-SU2409-2	24	9	111	54	10	77	1500	1W
ESD01S-SU2412-2	24	12	84	54	10	77	1500	1W
ESD01S-SU2415-2	24	15	67	54	10	77	1500	1W
ESD01S-SU2424-2	24	24	42	53	10	79	1500	1W
ESD01S-SU4803.3-2	48	3.3	300	28	8	74	1500	1W
ESD01S-SU4805-2	48	5	200	28	8	74	1500	1W
ESD01S-SU4809-2	48	9	111	28	7	74	1500	1W
ESD01S-SU4812-2	48	12	84	29	8	72	1500	1W
ESD01S-SU4815-2	48	15	67	26	7	75	1500	1W

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

[7] *NOMINAL INPUT VOLTAGE.*
[8] *NOMINAL INPUT VOLTAGE, FULL LOAD.*

SELECTION GUIDE(2)
2W OUTPUT

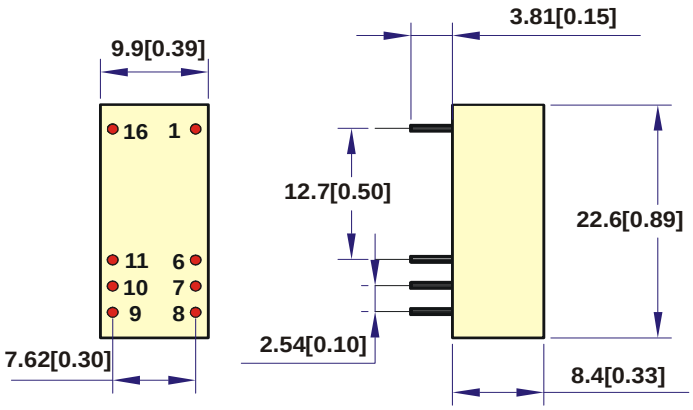
MODEL NUMBER	INPUT VOLTAGE (VDC)	OUTPUT VOLTAGE (VDC)	OUTPUT CURRENT (mA)	INPUT[9] CURRENT(mA)		EFF (%)[10]	ISOLATION (VDC)	OUTPUT POWER (Watt)
				FULL LOAD	NO LOAD			
ESD02S-SU0505-3	5	5	400	500	40	80	1500	2W
ESD02S-SU0509-3	5	9	222	506	40	79	1500	2W
ESD02S-SU0512-3	5	12	167	500	40	80	1500	2W
ESD02S-SU0515-3	5	15	133	488	40	82	1500	2W
ESD02S-SU1205-3	12	5	400	214	15	78	1500	2W
ESD02S-SU1209-3	12	9	222	214	15	78	1500	2W
ESD02S-SU1212-3	12	12	167	201	15	83	1500	2W
ESD02S-SU1215-3	12	15	133	196	15	85	1500	2W
ESD02S-SU2405-3	24	5	400	107	10	78	1500	2W
ESD02S-SU2409-3	24	9	222	107	10	78	1500	2W
ESD02S-SU2412-3	24	12	167	103	10	81	1500	2W
ESD02S-SU2415-3	24	15	133	100	10	83	1500	2W
ESD02S-SU4805-3	48	5	400	56	6	74	1500	2W
ESD02S-SU4809-3	48	9	222	54	6	77	1500	2W
ESD02S-SU4812-3	48	12	167	51	6	81	1500	2W
ESD02S-SU4815-3	48	15	133	51	6	81	1500	2W

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

[9] *NOMINAL INPUT VOLTAGE.*
[10] *NOMINAL INPUT VOLTAGE, FULL LOAD.*

MECHANICAL DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS

BOTTOM VIEW SIDE VIEW



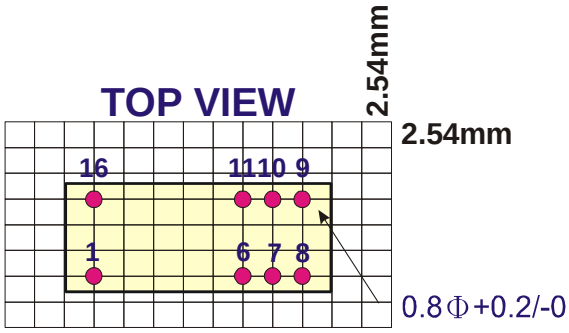
All dimensions are in mm[inches]

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

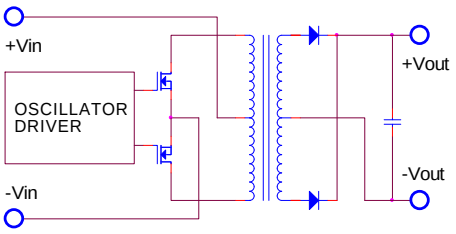
NOTE : All Dimensions In mm(Inches)

1. Pin Size is 0.50x0.30mm[0.02x0.01"]
2. Pin is Tolerance .XX= ±0.05mm
3. Tolerance .X or .XX= ±0.5mm

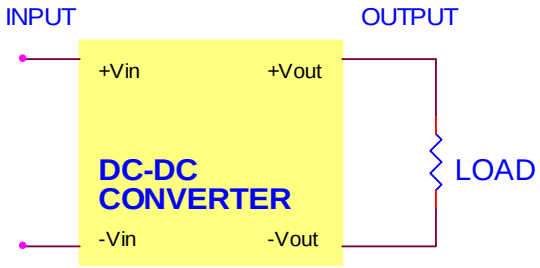
TOP VIEW



SIMPLIFIED SCHEMATIC



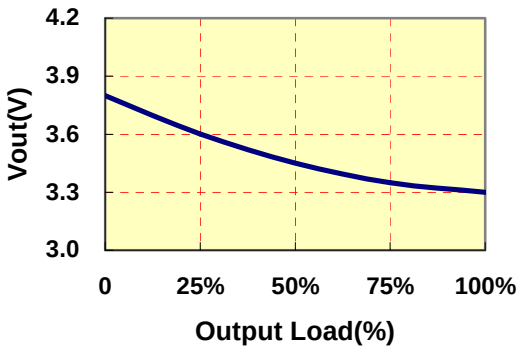
TYPICAL APPLICATIONS



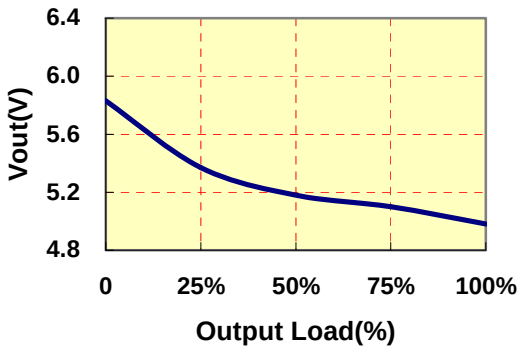
TYPICAL PERFORMANCE CURVES

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

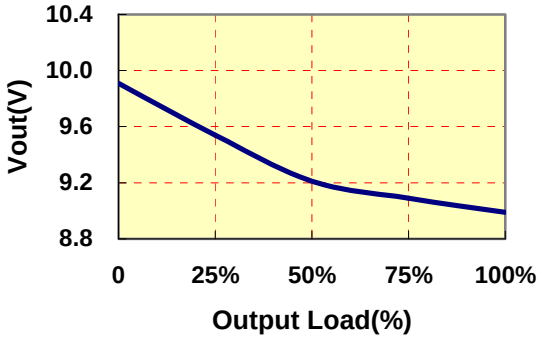
VOUT VS LOAD(3.3Vout Models)



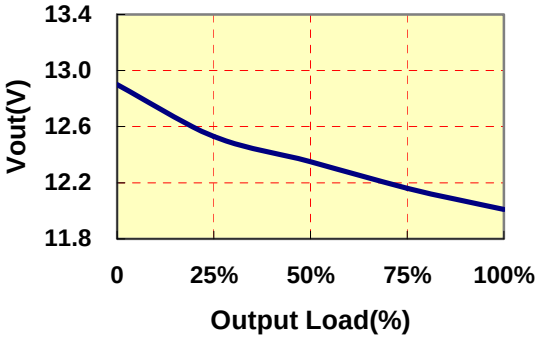
VOUT VS LOAD(5Vout Models)



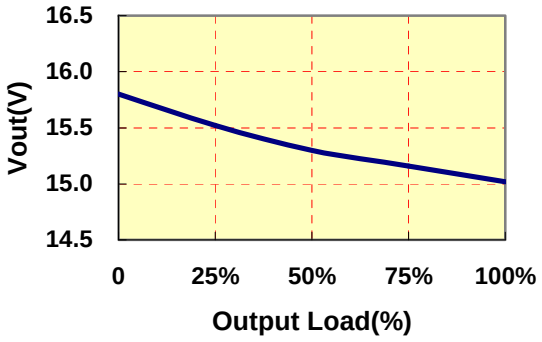
VOUT VS LOAD(9Vout Models)



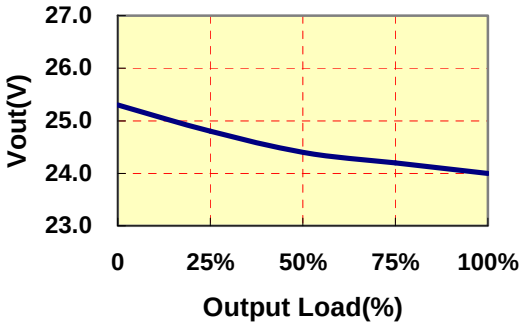
VOUT VS LOAD(12Vout Models)



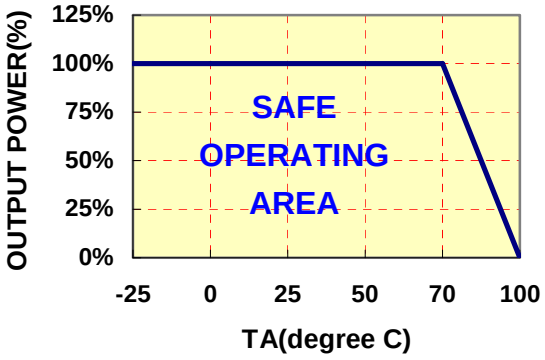
VOUT VS LOAD(15Vout Models)



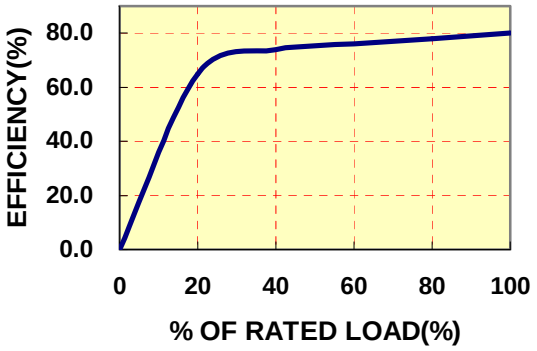
VOUT VS LOAD(24Vout Models)



DERATING CURVES

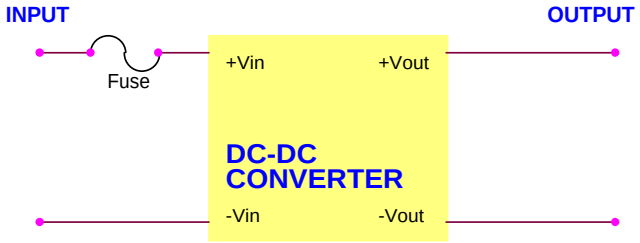


EFFICIENCY VS LOAD



● INPUT FUSE SELECTION GUIDE

4.5-5.5V INPUT VOLTAGE(VDC)	10.8-13.2V INPUT VOLTAGE(VDC)	21.6-26.4V INPUT VOLTAGE(VDC)	43.2-52.8V 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.

ESD01/02S-SU SERIES APPLICATION NOTES:

EXTERNAL CAPACITANCE REQUIREMENTS:

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

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.

FOR MORE INFORMATION CALL:

E-STAR POWER DEVELOPMENT CO., LTD.

Tel: 886-2-2957 5580 Fax: 886-2-2957 7473 E-mail: service@power-supply.tw

Home Page http://www.power-supply.tw