SA-DD1 Series

1W Unregulated Dual output

Features

- 8 Pin DIL Package
- 1000 VDC Isolation
- Up to 3000 VDC Isolation
- Low Ripple and Noise
- Efficiency up to 80%
- -40 ~ 85°C Operation Temperature Range
- Non-Conductive Black Plastic Case
- EMI Complies With EN55022 Class B

The SA series is a family of cost effective 1W dual output DC-DC converters. These converters achieve low cost and ultra-miniature DIP 8 pin size. Devices are encapsulated using flame retardant resin. The models operate from input voltage of 5, 12, 24Vdc with output voltage of ±3.3, ±5,±7.2, ±9, ±12, ±15, ±18, ±24 Vdc. High performance features include 1000Vdc~3000Vdc input/output isolation, high efficiency operation and output voltage accuracy of ±3% maximum. Standard features include an input range of ±10% tolerance and low output noise and ripple.

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

OUTPUT SPECIFICATIONS

Voltage accuracy	±3%
Line regulation	±1.2% / Per 1% Vin Change
Load regulation	(From 20% to 100% Load) ±10% (Output 3.3V Model) ±20%
Ripple & noise (20 MHz bandwidth)(1)	100mV pk-pk
Temperature coefficient	±0.02%/°C
Capacitor load(2)	See table

INPUT SPECIFICATIONS

Voltage Range	±10%
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	Capacitors
Input Reflected Ripple Current(3)	20mA pk-pk

GENERAL SPECIFICATIONS

Efficiency	See table
I/O Isolation Voltage(3 sec)	
Input/Output	1000~3000Vdc
I/O Isolation Capacitance	60 pF Typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Variable 80kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

EMC SPECIFICATIONS

Radiated Emissions	EN55022	CLASS B
	FCC 47 CFR Part 15 Subpart B	CLASS B
ESD	IEC 61000-4-2	Perf. Criteria B
RS	IEC 61000-4-3	Perf. Criteria A

PHYSICAL SPECIFICATIONS

Case Material	Non-conductive Black Plastic(UL94V-0 rated)
Pin Material	Ø0.5mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	1.8g
Dimensions	0.50"x0.40"x0.27"

ENVIRONMENT SPECIFICATIONS

Operating Temperature	-40°C~85°C (See Derating Curve)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS(4)

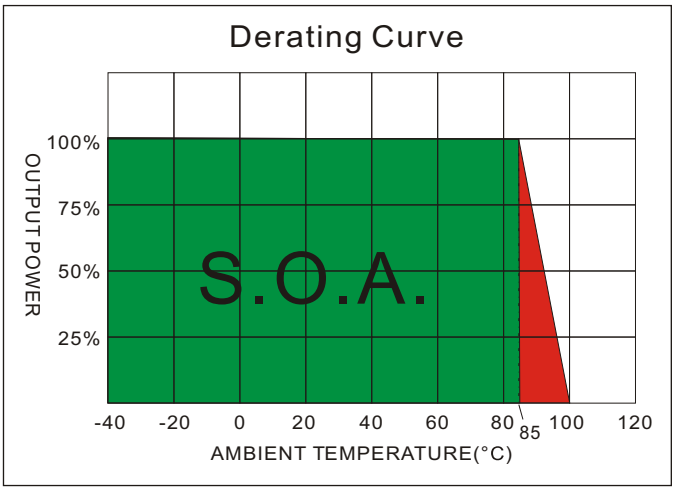
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.

Input Voltage(100mS)	
5 Modes	0~7 Vdc
12 Modes	0~15 Vdc
24 Modes	0~28 Vdc
Lead Soldering Temperature (1.5mm from case 10sec.)	260°C

PART NUMBER STRUCTURE

SA - 12 05 D D 1 H

- **Series Name**
- **Input Voltage**
  - **5** - 5V
  - **12** - 12V
  - **24** - 24V
- **Output Voltage**
  - **3R3** - 3.3V
  - **5** - 5V
  - **7R2** - 7.2V
  - **9** - 9V
  - **12** - 12V
  - **15** - 15V
  - **18** - 18V
  - **24** - 24V
- **Case Type**
  - **D** - DIP Case
- Dual Output
- 1.0W
- **3KVdc Isolation**
  - Optional, if no suffix "H" mean 1 KVdc Isolation



MODEL SELECTION GUIDE

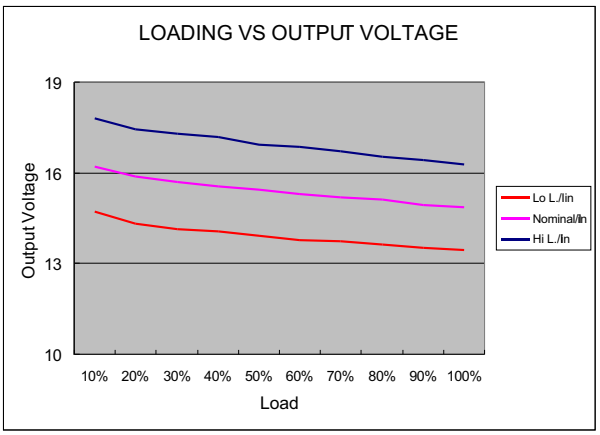
MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
SA-053R3DD1	5	30	285	±3.3	±152	70	±100
SA-0505DD1	5	30	277	±5	±100	72	±100
SA-057R2DD1	5	30	277	±7.2	±69	72	±100
SA-0509DD1	5	30	263	±9	±56	76	±100
SA-0512DD1	5	30	300	±12	±50	80	±100
SA-0515DD1	5	30	263	±15	±33	76	±100
SA-0518DD1	5	30	263	±18	±28	76	±100
SA-0524DD1	5	30	300	±24	±25	80	±100
SA-123R3DD1	12	15	119	±3.3	±152	70	±100
SA-1205DD1	12	15	115	±5	±100	72	±100
SA-127R2DD1	12	15	115	±7.2	±69	72	±100
SA-1209DD1	12	15	109	±9	±56	76	±100
SA-1212DD1	12	15	125	±12	±50	80	±100
SA-1215DD1	12	15	109	±15	±33	76	±100
SA-1218DD1	12	15	109	±18	±28	76	±100
SA-1224DD1	12	25	128	±24	±25	78	±100
SA-243R3DD1	24	10	58	±3.3	±152	71	±100
SA-2405DD1	24	10	57	±5	±100	73	±100
SA-247R2DD1	24	10	57	±7.2	±69	73	±100
SA-2409DD1	24	10	55	±9	±56	75	±100
SA-2412DD1	24	10	62	±12	±50	80	±100
SA-2415DD1	24	10	54	±15	±33	77	±100
SA-2418DD1	24	10	54	±18	±28	77	±100
SA-2424DD1	24	10	62	±24	±25	80	±100

Suffix "H" means 3 KVdc isolation

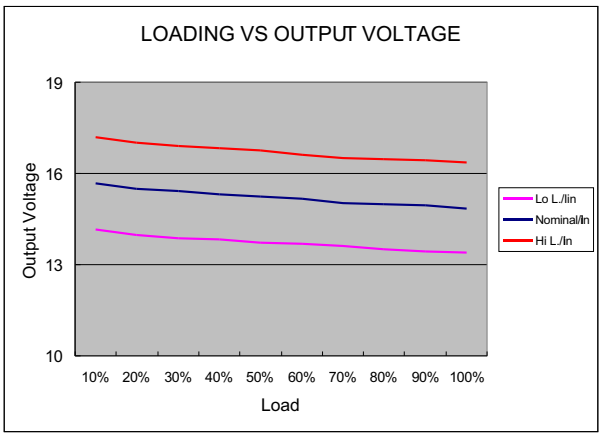
NOTE

1. Ripple/Noise measured with 20MHz bandwidth.
2. Tested by minimal Vin and constant resistive load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH.
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

SA - 1W Unregulated Dual output

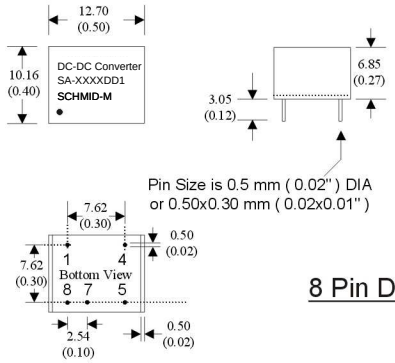


5 Models



12 Models

MECHANICAL SPECIFICATIONS



8 Pin DIL Package

Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5±0.05 (0.02±0.002)
2. Pin pitch tolerance: ±0.35 (±0.014)
3. Case Tolerance: ±0.5 (±0.02)

PIN CONNECTIONS	
PIN NUMBER	Dual
1	−V Input
4	+V Input
5	+V Output
7	Common
8	−V Output

(The Pin Connection of high isolation one is the same with normal one.)

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