



FEATURES

- Ultra compact SMD Package
- Wide 2:1 Input Range
- Fully regulated Outputs
- Low Ripple and Noise
- Operating Temp. Range -40°C to +85°C
- I/O-isolation Voltage 1500VDC
- Continuous Short-circuit Protection
- Remote On/Off Control
- Qualified for Lead-free Reflow Process
- UL/cUL/IEC/EN 60950-1 Safety Approval (pending)
- 3 Years Product Warranty



The SK01S/D series is a family of compact 1W dc/dc-converters with wide 2:1 input voltage ranges and tightly regulated output voltages.

They work with high efficiency over the full load range and come with a remote On/Off control input.

High efficiency to 82% allows operating temperatures up to +75°C without power derating. The very small footprint of these converters make them an ideal solution for many space critical applications in communication equipment, instrumentation and many other battery operated applications.

Model List

| Model Number | Input Voltage (Range) VDC | Output Voltage VDC | Output Current Max. mA | Input Current | | Max. capacitive Load µF | Reflected Ripple current mA (typ.) | Efficiency (typ.) @Max. Load % |
|--------------|------------------------------|-----------------------|------------------------------|------------------------|----------------------|----------------------------|---------------------------------------|--------------------------------------|
| | | | | @Max. Load mA(typ.) | @No Load mA(typ.) | | | |
| SK01S0505A | 5 (4.5 ~ 9) | 5 | 200 | 256 | 40 | 1680 | 80 | 78 |
| SK01S0512A | | 12 | 83 | 252 | | 820 | | 79 |
| SK01S0515A | | 15 | 67 | 248 | | 680 | | 81 |
| SK01D0512A | | ±12 | ±42 | 255 | | 470# | | 79 |
| SK01D0515A | | ±15 | ±33 | 248 | | 330# | | 80 |
| SK01S1205A | 12 (9 ~ 18) | 5 | 200 | 105 | 20 | 1680 | 40 | 79 |
| SK01S1212A | | 12 | 83 | 105 | | 820 | | 79 |
| SK01S1215A | | 15 | 67 | 102 | | 680 | | 82 |
| SK01D1212A | | ±12 | ±42 | 104 | | 470# | | 81 |
| SK01D1215A | | ±15 | ±33 | 103 | | 330# | | 80 |
| SK01S2405A | 24 (18 ~ 36) | 5 | 200 | 53 | 10 | 1680 | 30 | 79 |
| SK01S2412A | | 12 | 83 | 51 | | 820 | | 82 |
| SK01S2415A | | 15 | 67 | 51 | | 680 | | 82 |
| SK01D2412A | | ±12 | ±42 | 51 | | 470# | | 82 |
| SK01D2415A | | ±15 | ±33 | 50 | | 330# | | 82 |
| SK01S4805A | 48 (36 ~ 75) | 5 | 200 | 26 | 7 | 1680 | 20 | 79 |
| SK01S4812A | | 12 | 83 | 26 | | 820 | | 80 |
| SK01S4815A | | 15 | 67 | 26 | | 680 | | 80 |
| SK01D4812A | | ±12 | ±42 | 26 | | 470# | | 81 |
| SK01D4815A | | ±15 | ±33 | 25 | | 330# | | 81 |

For each output



Input Specifications

| Parameter | Model | Min. | Typ. | Max. | Unit |
|-----------------------------------|------------------|-----------|------|------|------|
| Input Surge Voltage (1 sec. max.) | 5V Input Models | -0.7 | --- | 15 | VDC |
| | 12V Input Models | -0.7 | --- | 25 | |
| | 24V Input Models | -0.7 | --- | 50 | |
| | 48V Input Models | -0.7 | --- | 100 | |
| Start-Up Threshold Voltage | 5V Input Models | --- | --- | 4.5 | |
| | 12V Input Models | --- | --- | 9 | |
| | 24V Input Models | --- | --- | 18 | |
| | 48V Input Models | --- | --- | 36 | |
| Internal Filter Type | All Models | Capacitor | | | |

Output Specifications

| Parameter | Conditions | Min. | Typ. | Max. | Unit | |
|---------------------------------|-----------------------------|---------------|------|-------|-------------------|---|
| Output Voltage Setting Accuracy | At 50% Load and Nominal Vin | --- | --- | ±1.0 | %Vnom. | |
| Output Voltage Balance | Dual Output, Balanced Loads | --- | --- | ±1.0 | % | |
| Line Regulation | Vin=Min. to Max. | --- | --- | ±0.2 | % | |
| Load Regulation | Min. Load to Full Load | Single Output | --- | --- | ±1.0 | % |
| | | Dual Output | --- | --- | ±1.0 | % |
| | Io=10% to 90% | Single Output | --- | --- | ±0.5 | % |
| | | Dual Output | --- | --- | ±0.8 | % |
| Min.Load | No minimum Load Requirement | | | | | |
| Ripple & Noise | 0-20 MHz Bandwidth | --- | --- | 75 | mV _{P-P} | |
| Transient Recovery Time | 25% Load Step Change | --- | 250 | --- | µsec | |
| Temperature Coefficient | | --- | --- | ±0.02 | %/°C | |
| Short Circuit Protection | Continuous | | | | | |

General Specifications

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|----------------------------------|--|-----------|------|------|-------|
| I/O Isolation Voltage (rated) | 60 Seconds | 1500 | --- | --- | VDC |
| I/O Isolation Resistance | 500 VDC | 1000 | --- | --- | MΩ |
| I/O Isolation Capacitance | 100KHz, 1V | --- | --- | 50 | pF |
| Switching Frequency | | --- | 220 | --- | KHz |
| MTBF(calculated) | MIL-HDBK-217F@25°C, Ground Benign | 2,800,000 | --- | --- | Hours |
| Moisture Sensitivity Level (MSL) | IPC/JEDEC J-STD-020D.1 | Level 2 | | | |
| Safety Approvals(pending) | CSA 60950-1 recognition, IEC/EN 60950-1(CB-scheme) | | | | |

Input Fuse (recommended)

| 5V Input Models | 12V Input Models | 24V Input Models | 48V Input Models |
|----------------------|----------------------|----------------------|---------------------|
| 500mA Slow-Blow Type | 250mA Slow-Blow Type | 120mA Slow-Blow Type | 60mA Slow-Blow Type |

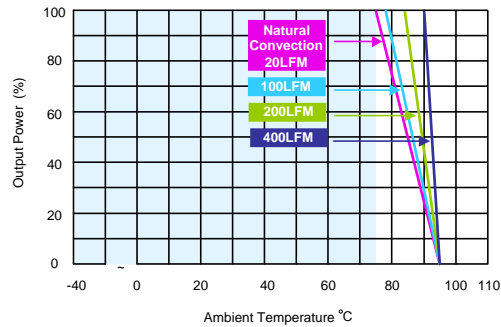
Remote On/Off Control

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------|--|------|------|------|------|
| Converter On | Open or high impedance | | | | |
| Converter Off | 2~4mA current applied via 1Kohm resistor | | | | |
| Standby Input Current | Supply Off & Nominal Vin | --- | 2.5 | --- | mA |

Environmental Specifications

| Parameter | Conditions | Min. | Max. | Unit |
|--|--------------------|------|------|----------|
| Operating Ambient Temperature Range (See Power Derating Curve) | Natural Convection | -40 | +85 | °C |
| Case Temperature | | --- | +95 | °C |
| Storage Temperature | | -55 | +125 | °C |
| Humidity (non condensing) | | --- | 95 | % rel. H |
| Lead Temperature (1.5mm from case for 10Sec.) | | --- | 260 | °C |

Power Derating Curve

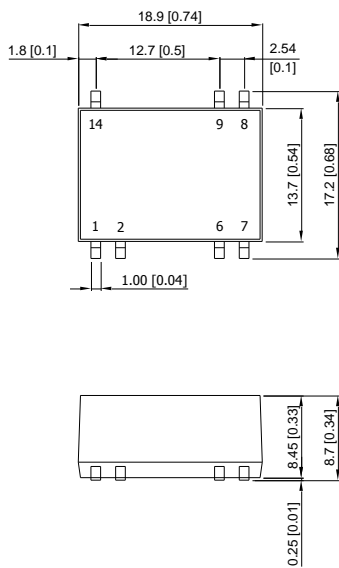


Notes

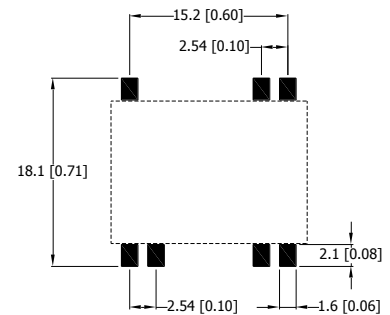
- 1 Specifications typical at $T_a=+25^{\circ}\text{C}$, resistive load, nominal input voltage, rated output current unless otherwise noted.
- 2 We recommend to protect the converter by a slow blow fuse in the input supply line.
- 3 Other input and output voltage may be available, please contact factory.
- 4 That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
- 5 Specifications are subject to change without notice.

Package Specifications

Mechanical Dimensions



Connecting Pin Patterns



- ▶ All dimensions in mm (inches)
- ▶ Tolerance: $X.X \pm 0.5$ ($X.XX \pm 0.02$)
 $X.XX \pm 0.25$ ($X.XXX \pm 0.01$)
- ▶ Pins ± 0.05 (± 0.002)

Pin Connections

| Pin | Single Output | Dual Output |
|-----|---------------|---------------|
| 1 | -Vin | -Vin |
| 2 | Remote On/Off | Remote On/Off |
| 6 | NC | Common |
| 7 | NC | -Vout |
| 8 | +Vout | +Vout |
| 9 | -Vout | Common |
| 14 | +Vin | +Vin |

NC: No Connection

Physical Characteristics

| | |
|---------------|---|
| Case Size | : 18.9x13.7x8.45mm (0.74x0.54x0.33 inches) |
| Case Material | : Non-Conductive Black Plastic (flammability to UL 94V-0 rated) |
| Pin Material | : Phosphor bronze |
| Weight | : 4.5g |



| Part Numbering System | | | | | | |
|-----------------------|---------------|-------|-------------------|---------------|----------------|--------------------|
| S | K | 01 | S | 05 | 03 | A |
| Form factor | Family series | Watt | Number of Outputs | Input Voltage | Output Voltage | Option Code |
| D-DIP | A-Z | 01:1W | S - Single | 03:3.3V | 03:3.3V | A - Std. Functions |
| P-SIP | | 02:2W | D- Dual | 05: 5V | 05: 5V | |
| S-SMD | | 03:3W | | 12:12V | 12:12V | |
| | | 04:4W | | 24: 24V | 15: 15V | |
| | | 06:6W | | 48:48V | 24: 24V | |

WARRANTY

Delta offers a three(3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.