
Size: 0.45in x 0.24in x 0.40in
(11.5mm x 6.0mm x 10.2mm)

## FEATURES

- Output Current up to 303mA
- Internal Input & Output Filter
- UL94-V0 Non-Conductive Case
- 1 Watt Unregulated Output Power
- 4 Pin Single-In-Line Package (SIP)
- Input/Output Isolation up to 1000VDC
- High Efficiency for Low Power Application
- ISO9001 Certified Manufacturing Facilities
- Compliant to RoHS II & REACH
- Design meets UL60950-1, EN60950-1, & IEC60950-1
- CE Marked
- Multiple Input Voltage Ranges

## APPLICATIONS

- Wireless Network
- Telecom/Datacom
- Industry Control System
- Measurement
- Semiconductor Equipment

## DESCRIPTION

Wall's SU series offers 1 watt of output power in a four pin SIP (single inline) package. This series consists of single output models ranging from 3.3VDC to 15VDC and multiple input voltages ranging from 3.3VDC to 24VDC. Models are RoHS compliant and CE Marked, and have UL60950-1, EN60950-1, & IEC60950-1 safety approvals. These units are ideal for low power applications and are highly efficient. The UL94V-0 plastic case is non-conductive and includes both internal input and output filters.

## MODEL SELECTION TABLE

| Model Number | Input Voltage Range | Output Voltage | Output Current | | Ripple & Noise[1] | No Load Input Current[2] | Output Power | Maximum Capacitive Load[3] | Efficiency |
|---|---|---|---|---|---|---|---|---|---|
| | | | Min Load | Max Load | | | | | |
| SU33S33 | 3.3VDC (3.0-3.6VDC) | 3.3VDC | 30.3mA | 303mA | 100mVp-p | 42mA | 1W | 150µF | 68% |
| SU33S05 | | 5VDC | 20mA | 200mA | | 38mA | | 100µF | 70% |
| SU33S09 | | 9VDC | 11.1mA | 111mA | | 45mA | | 22µF | 71% |
| SU33S12 | | 12VDC | 8.4mA | 84mA | | 45mA | | 47µF | 72% |
| SU33S15 | | 15VDC | 6.6mA | 66mA | | 45mA | | 33µF | 75% |
| SU05S33 | 5VDC (4.5-5.5VDC) | 3.3VDC | 30.3mA | 303mA | 100mVp-p | 25mA | 1W | 150µF | 68% |
| SU05S05 | | 5VDC | 20mA | 200mA | | 25mA | | 100µF | 70% |
| SU05S09 | | 9VDC | 11.1mA | 111mA | | 25mA | | 22µF | 74% |
| SU05S12 | | 12VDC | 8.4mA | 84mA | | 25mA | | 47µF | 78% |
| SU05S15 | | 15VDC | 6.6mA | 66mA | | 24mA | | 33µF | 80% |
| SU09S09 | 9VDC (8.1~9.9VDC) | 9VDC | 11.1mA | 111mA | 100mVp-p | 20mA | 1W | 22µF | 74% |
| SU12S33 | 12VDC (10.8-13.2VDC) | 3.3VDC | 30.3mA | 303mA | 100mVp-p | 14mA | 1W | 150µF | 68% |
| SU12S05 | | 5VDC | 20mA | 200mA | | 10mA | | 100µF | 70% |
| SU12S09 | | 9VDC | 11.1mA | 111mA | | 13mA | | 22µF | 74% |
| SU12S12 | | 12VDC | 8.4mA | 84mA | | 14mA | | 47µF | 78% |
| SU12S15 | | 15VDC | 6.6mA | 66mA | | 13mA | | 33µF | 80% |
| SU15S33 | 15VDC (13.5-16.5VDC) | 3.3VDC | 30.3mA | 303mA | 100mVp-p | 9mA | 1W | 150µF | 68% |
| SU15S05 | | 5VDC | 20mA | 200mA | | 9mA | | 100µF | 70% |
| SU15S09 | | 9VDC | 11.1mA | 111mA | | 9mA | | 22µF | 74% |
| SU15S12 | | 12VDC | 8.4mA | 84mA | | 8mA | | 47µF | 78% |
| SU15S15 | | 15VDC | 6.6mA | 66mA | | 9mA | | 33µF | 80% |
| SU24S33 | 24VDC (21.6-26.4VDC) | 3.3VDC | 30.3mA | 303mA | 100mVp-p | 6mA | 1W | 150µF | 70% |
| SU24S05 | | 5VDC | 20mA | 200mA | | 6mA | | 100µF | 70% |
| SU24S09 | | 9VDC | 11.1mA | 111mA | | 6mA | | 22µF | 74% |
| SU24S12 | | 12VDC | 8.4mA | 84mA | | 5mA | | 47µF | 78% |
| SU24S15 | | 15VDC | 6.6mA | 66mA | | 6mA | | 33µF | 80% |

## SPECIFICATIONS

All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

| SPECIFICATION | TEST CONDITIONS | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **INPUT SPECIFICATIONS** | | | | | | |
| Input Voltage Range | 3.3V Nominal Input | | 3.0 | 3.3 | 3.6 | VDC |
| | 5V Nominal Input | | 4.5 | 5 | 5.5 | |
| | 9V Nominal Input | | 8.1 | 9 | 9.9 | |
| | 12V Nominal Input | | 10.8 | 12 | 13.2 | |
| | 15V Nominal Input | | 13.5 | 15 | 16.5 | |
| | 24V Nominal Input | | 21.6 | 24 | 26.4 | |
| Input Filter | | | Capacitor | | | |
| **OUTPUT SPECIFICATIONS** | | | | | | |
| Output Voltage | | | See Table | | | |
| Voltage Accuracy | | | -5.0 | | +5.0 | % |
| Line Regulation | Low Line to High Line at Full Load | 3.3V, 5V models | | 1 | 1.3 | % of Vin |
| | | All Others | | 1 | 1.2 | |
| Load Regulation | 10% to 100% Load | 3.3V, 5V models | -15 | | +15 | % |
| | | All Others | -10 | | +10 | |
| Output Power | | | See Table | | | |
| Output Current | | | See Table | | | |
| Maximum Capacitive Load | | | See Table | | | |
| Ripple & Noise | Measured by 20MHz bandwidth | | | 100 | | mVp-p |
| Temperature Coefficient | | | -0.1 | | +0.1 | %/ºC |
| **PROTECTION** | | | | | | |
| Short Circuit Protection | | | | | 1 | Sec. |
| **ENVIRONMENTAL SPECIFICATIONS** | | | | | | |
| Operating Ambient Temperature | Without Derating | | -40 | | +85 | ºC |
| Storage Temperature | | | -55 | | +125 | ºC |
| Relative Humidity | | | 5 | | 95 | % RH |
| Thermal Shock | | | MIL-STD-810F | | | |
| Vibration | | | MIL-STD-810F | | | |
| MTBF | MIL-HDBK-217F, Full Load | | | 985,000 | | hours |
| **GENERAL SPECIFICATIONS** | | | | | | |
| Efficiency | | | See Table | | | |
| Switching Frequency | | | | 90 | | KHz |
| Isolation Voltage (1 minute) | Input to Output | | 1000 | | | VDC |
| Isolation Resistance | 500VDC | | 1 | | | GΩ |
| Isolation Capacitance | | | | | 80 | pF |
| **PHYSICAL SPECIFICATIONS** | | | | | | |
| Weight | | | 0.053oz (1.5g) | | | |
| Dimensions (L x W x H) | | | 0.45in x 0.24in x 0.40in (11.5mm x 6.0mm x 10.2mm) | | | |
| Case Material | | | Non-Conductive Black Plastic | | | |
| Potting Material | | | Epoxy (UL94 V-0) | | | |
| **SAFETY** | | | | | | |
| Safety Approvals | IEC60950-1<br>UL60950-1(4)<br>EN60950-1 | | | | | |

**Due to advances in technology, specifications subject to change without notice.*

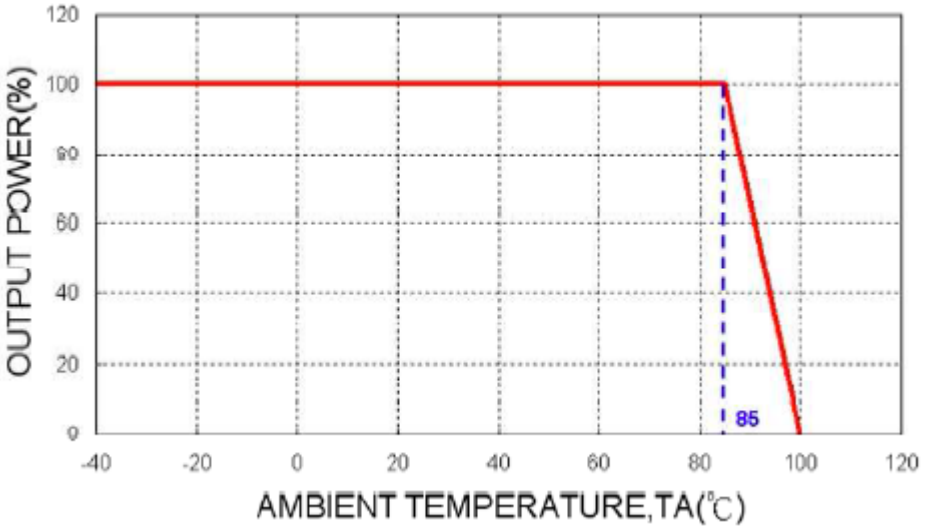
## NOTES

(1) Typical Value at Nominal Input Voltage and Full Load
(2) Typical Value at Nominal Input Voltage and No Load
(3) Test by minimum Vin and constant resistive load. The output requires a minimum loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
(4) This product is Listed to applicable standards and requirements by UL.

**CAUTION:** This power module is not internally fused. An input line fuse must always be used.

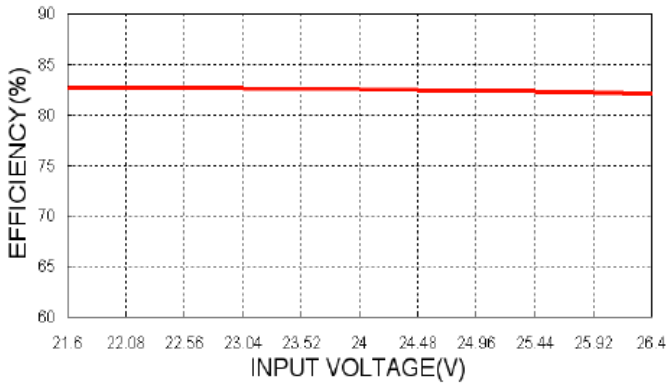
## DERATING CURVES

SU24S12 Derating Curve

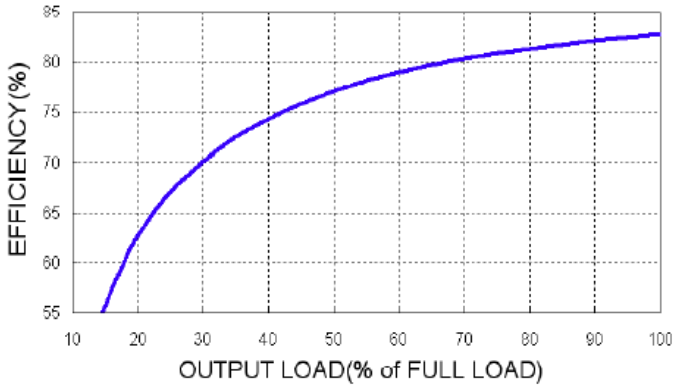



## EFFICIENCY GRAPHS

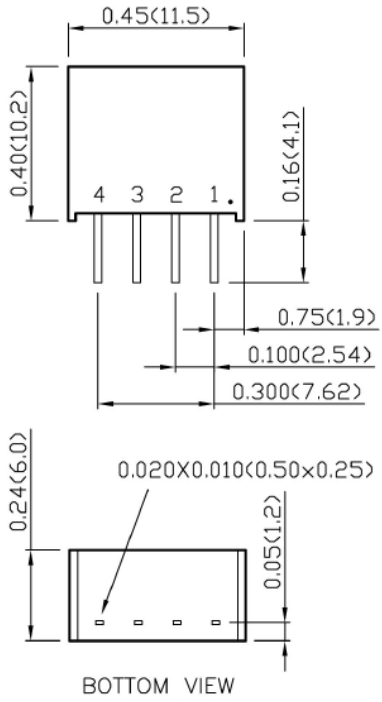
SU24S12 Efficiency vs Input Voltage




SU24S12 Efficiency vs Output Load



## MECHANICAL DRAWINGS




PIN CONNECTION

| PIN | SINGLE |
|---|---|
| 1 | -Vin |
| 2 | +Vin |
| 3 | -Vout |
| 4 | +Vout |

Notes:
1. Tolerance: X.XX±0.02 (X.X±0.5)
   X.XX±.0.01 (X.XX±0.25)
2. Pin Pitch Tolerance ±0.01 (0.25)

## COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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