

0.5 Amp

- Regulated single outputs from 3.3 to 15VDC
- Wide input range
- SMD-10 package
- Non-isolated
- Output voltage trim $\pm 10\%$
- High efficiency up to 92%
- Class B conducted & radiated emissions with external components
- Short-circuit protection
- No heatsink required
- Remote On/Off
- Tape & reel package available
- -40°C to $+100^{\circ}\text{C}$ operation
- Full load to $+60^{\circ}\text{C}$
- 3 year warranty



Dimensions:

STH05:

0.77 x 0.47 x 0.39" (19.5 x 11.8 x 5.0 mm)

The STH05 is a new series of innovative low cost DC-DC buck regulators. Based on SMD technology and high levels of automation the series offers many features including voltage trimming, remote on/off, continuous short circuit protection, regulation and high efficiency.

Models & Ratings

| Nominal Input Voltage (VDC) | Output voltage (VDC) | Output Current (A) | Input Current (mA) | | | Maximum Capacitive Load | Efficiency at Full Load % | | Model Number ⁽¹⁾ |
|-----------------------------|----------------------|--------------------|--------------------|-----------|-------|-------------------------|---------------------------|------------|-----------------------------|
| | | | No Load (max.) | Full Load | | | Vin (min.) | Vin (max.) | |
| 48 V (9-72 V) | 3.3 V | 0.5 A | 3.0 mA | 232 mA | 33 mA | 100 μF | 79.0% | 70.0% | STH0548S3V3 |
| 48 V (9-72 V) | 5.0 V | | | 323 mA | 47 mA | | 86.0% | 74.0% | STH0548S05 |
| 48 V (9-72 V) | 6.5 V | | | 406 mA | 58 mA | | 89.0% | 78.0% | STH0548S6V5 |
| 48 V (14-72 V) | 7.2 V | | | 289 mA | 62 mA | | 89.0% | 81.0% | STH0548S7V2 |
| 48 V (14-72 V) | 9.0 V | | | 357 mA | 74 mA | | 90.0% | 84.0% | STH0548S09 |
| 48 V (17-72 V) | 12.0 V | | | 384 mA | 97 mA | | 92.0% | 86.0% | STH0548S12 |
| 48 V (21-72 V) | 15.0 V | 0.4 A | | 311 mA | 99 mA | | 92.0% | 84.0% | STH0548S15 |

Notes

1. For tape & reel add "-TR", e.g. STH0548S05-TR. 500 pcs per reel.

Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|----------------------------|---|---------|---------|----------------|---------------------------------|
| Input Voltage Range | 9 | 48 | 72 | VDC | See Models and Ratings |
| Input Surge | | | 75 | VDC for 100 ms | |
| Input Current | | | 3 | mA | No load. See Models and Ratings |
| Inhibit Mode Input Current | | | 1 | mA | When module is in standby mode |
| Remote On/Off | Pin 10 open circuit, logic high, module is on. Connect pin 10 to ground, logic low, module is off. | | | | |

Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|--------------------------|---------|---------|---------|----------|---|
| Output Voltage | 3.3 | | 15 | VDC | See Models and Ratings table |
| Trim Range | | ±10 | | % | See Application Notes |
| Initial Set Accuracy | | | ±2.0 | % | |
| Minimum Load | | | | A | No minimum load required |
| Line Regulation | | | ±1.0 | % | |
| Load Regulation | | | ±1.0 | % | To 100% load from 10% |
| Transient Response | | | ±3 | % | Maximum deviation recovery within 250 µs at normal Vin for 25% step load change from 25% to 100% load |
| Ripple & Noise | | 75 | | mV pk-pk | 20 MHz bandwidth, measured with 0.1 µF ceramic and 10 µF electrolytic capacitors |
| Short Circuit Protection | | | | | Continuous, with auto recovery |
| Temperature Coefficient | | | ±0.02 | %/°C | |

General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|---------------------------------|--|--------------|---------|--------|------------------------------|
| Efficiency | | | 92 | % | See Models and Ratings table |
| Isolation: Input to Output | | | | | No isolation |
| Switching Frequency | 150 | | 550 | KHz | See application notes |
| Mean Time Between Failure | 4.8 | | | MHrs | MIL-HDBK-217F, +25 °C GB |
| Weight | | 0.0039 (1.8) | | lb (g) | |
| Moisture Sensitivity Level | Level 1 | | | | IPC/JEDEC J-STD-020D.1 |
| PCB Pad Material | Copper | | | | |
| PCB Pad Solder Coating | Lead-free HASL | | | | |
| Lead-Free Reflow Solder Process | 245 °C max, 1.5 mm from case, 10 s max. IPC/JEDEC J-STD-020D.1 | | | | |

Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & Conditions |
|-----------------------|---------|---------|---------|-------|------------------------------|
| Operating Temperature | -40 | | +105 | °C | See Derating Curve. |
| Storage Temperature | -55 | | +125 | °C | |
| Humidity | | | 95 | %RH | Non-condensing |
| Cooling | | | | | Natural convection (>30 LFM) |

EMC: Emissions

| Phenomenon | Standard | Test Level | Notes & Conditions |
|------------|----------|------------|--|
| Conducted | EN55032 | Class B | With external components, see application note |
| Radiated | EN55032 | Class B | With external components, see application note |

EMC: Immunity

| Phenomenon | Standard | Test Level | Criteria | Notes & Conditions |
|-----------------|-------------|---------------------|----------|----------------------|
| ESD | EN61000-4-2 | ±8 kV air discharge | A | |
| Radiated | EN61000-4-3 | 3 V/m | A | |
| EFT/Burst | EN61000-4-4 | ±0.5 kV | A | See application note |
| Surge | EN61000-4-5 | ±1 kV | A | See application note |
| Conducted | EN61000-4-6 | 3 V rms | A | |
| Magnetic Fields | EN61000-4-8 | 3 A/m | A | |