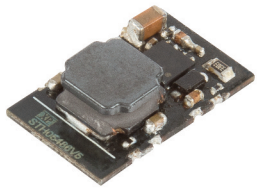
STH05 Series

Switching Regulator

XP Power

0.5 Amp

- Regulated single outputs from 3.3 to 15VDC
- Wide input range
- SMD-10 package
- Non-isolated
- Output voltage trim ±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°C operation
- Full load to +60°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.)		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	