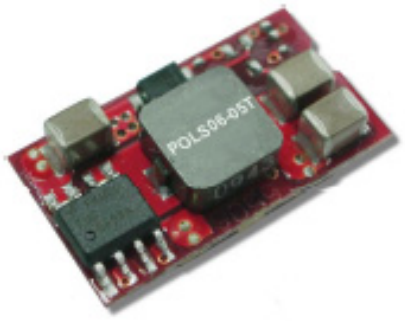
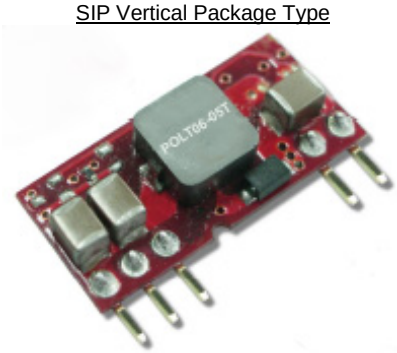
SMD Package Type



Size: 0.80in x 0.45in x 0.21in

SIP Vertical Package Type



Size:0.90in x 0.40in x 0.20in

SIP Horizontal Package Type

Size: 0.90in x 0.40in x 0.36in

OPTIONS

- SMD or SIP Packages
- Vertical or Horizontal Mounting for SIP Packages
- Remote Control Positive or Negative Logic

FEATURES

- Input Voltage Range of 2.4~5.5VDC
- High Efficiency of 94%
- Small Size and Low Profile
- Delivers up to 6A of Output Current
- No Minimum Load Required
- Remote ON/OFF
- Open Frame Design
- SMD & SIP Packages Available
- Fixed Switching Frequency
- Input Under-Voltage Lockout
- Over Load, Over Temperature, and Short Circuit Protection
- CE Marked
- RoHS II & REACH Compliant
- UL60950-1, EN60950-1, & IEC60950-1 Safety Approvals

APPLICATIONS

- Wireless Network
- Telecom/Datacom
- Industry Control System
- Distributed Power Architectures
- Semiconductor Equipment
- Microprocessor Power Applications

DESCRIPTION

The POL06-05T series of DC DC open frame converters delivers up to 6A of output current in a small size and low profile package. This series consists of output voltages ranging from 0.75 to 3.3VDC and an input voltage range of 2.4-5.5VDC. No minimum load is required for this series, and it has a fixed switching frequency and high efficiency of 94%. POL06-05T offers several different options such as surface mount or through hole package type, vertical or horizontal mounting on the SIP package type, and positive or negative logic. This series has over load, over temperature, and short circuit protection, as well as UL60950-1, EN60950-1, and IEC60950-1 safety approvals. It is RoHS II and REACH compliant. Please call factory for order details.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current @Full Load	Efficiency	Package	ON/OFF Logic
POLS06-05T	5VDC (2.4~5.5VDC)	0.75~3.3VDC	6A	94%	SMD	Negative
POLS06-05T-P						Positive
POLT06-05T	5VDC (2.4~5.5VDC)	0.75~3.3VDC	6A	94%	SIP Vertical	Negative
POLT06-05T-P						Positive
POLT06-05TA					SIP Horizontal	Negative
POLT60-05TA-P						Positive

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						
Operating Input Voltage Range	Vout(set) < Vin-0.5VDC		2.4	5	5.5	VDC
Maximum Input Current	Vin=Vin(min.) Vout(set)=3.3VDC, Io=Io(max.)			6		A
Shutdown Voltage				2.0		VDC
Start-Up Voltage				2.2		VDC
Input Reflected Ripple Current	5~20MHz, 1µH source impedance			35		mAp-p
Input Filter(1)				Capacitor Type		
Input No Load Current	Vo, set=0.75VDC			20		mA
	Vo, set=3.3VDC			45		
OUTPUT SPECIFICATIONS						
Output Voltage			0.75		3.3	VDC
Voltage Accuracy	% of Vout		-2.0		+2.0	%
Line Regulation	Vin=Vout(set)+0.5VDC to Vin(max.) at Full Load; % of Vout		-0.3		+0.3	%
Load Regulation	No Load to Full Load; % of Vout		-0.4		+0.4	%
Voltage Adjustability(2)			0.7525		3.63	VDC
Output Current					6	A
Minimum Load			0			%
Maximum Capacitor Load(3)	ESR≥1mΩ			1000		µF
	ESR≥10mΩ			3000		
Ripple & Noise (20MHz bandwidth)	Measured by 20MHz bandwidth, with a 1µF MLCC & a 10µF T/C				20	mVrms
					50	mVp-p
Dynamic Load Response(4)	ΔIo/Δt = 2.5A/uS, Vin, nom	Peak Deviation		130		mV
	Load change step (50% to 100% or 100% to 50% of Io, max)	Setting time (Vo<10% peak deviation)		60		uS
Dynamic Load Response(5)	ΔIo/Δt = 2.5A/uS, Vin, nom	Peak Deviation				
	Load change step (50% to 100% or 100% to 50% of Io, max)	Setting time (Vo<10% peak deviation)				
Output Voltage Overshoot-Startup	Vin=2.4~5.5VDC at Full Load; % of Vout(set)			1.0		%
Temperature Coefficient			-0.4		+0.4	%/ºC
Rise Time	Time for Vout to rise from 10% to 90% of Vout(set)				6	mS
REMOTE ON/OFF CONTROL(6)						
Negative Logic (Standard)	DC-DC ON		Open or 0~0.3VDC			
	DC-DC OFF		1.5VDC~Vin(max)			
Positive Logic (Option)	DC-DC ON		Open or Vin(max)			
	DC-DC OFF		0~0.3VDC			
Input Current of CTRL Pin			0.01		1.0	mA
Remote OFF Input Current				0.6		mA
Turn-on Delay Time	Case 1(7) Case 2(8)			1		mS
PROTECTION						
Short Circuit Protection			Continuous, Automatic Recovery			
Over Load Protection	% if Iout Rated			220		%
Over Temperature Protection				135		ºC
ENVIRONMENTAL SPECIFICATIONS						
Operating Ambient Temperature	With Derating		-40		+85	ºC
Storage Temperature			-55		+125	ºC
Thermal Shock			MIL-STD-810F			
Relative Humidity	Non-Condensing		5		95	%RH
Vibration			MIL-STD-810F			
Lead-Free Reflow Solder Process			IPC J-STD-020D			
Moisture Sensitivity Level (MSL)			IPC J-STD-033B Level 2a			
MTBF	MIL-HDBK-217F, Full Load		9,398,000			Hours

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.

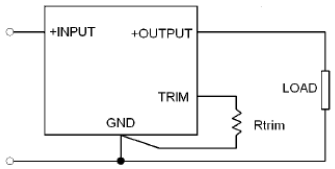
SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
GENERAL SPECIFICATIONS					
Efficiency	Vin(nom) 3.3VDC@Full Load		94		%
Switching Frequency		270	300	330	KHz
PHYSICAL SPECIFICATIONS					
Weight			0.1oz (2.8g)		
Dimensions (L x W x H)	SMD Package		0.80in x 0.45in x 0.21in (20.3mm x 11.4mm x 5.4mm)		
	SIP Vertical Package		0.90in x 0.40in x 0.20in (22.9mm x 10.2mm x 5.0mm)		
	SIP Horizontal Package		0.90in x 0.40in x 0.36in (22.9mm x 10.2mm x 9.1mm)		
SAFETY & EMC CHARACTERISTICS					
Safety Approvals	UL60950-1 EN60950-1 IEC60950-1				

NOTES

(1) It's necessary to equip the external input capacitors at the input of the module. The capacitors should connect as close as possible to the input terminals to ensure module stability. The external Ci_n is 2pcs of 150µF low-ESR polymer capacitors // 2pcs of 47µF ceramic capacitors at least.

(2) Output voltage programmable from 0.75V to 3.3V by connecting a single resistor (shown as Trim Table) between the Trim and GND pins of the module. To calculate the value of the resistor Rtrim for a particular output voltage Vout, use the following equation:

Trim Figure



Trim Table

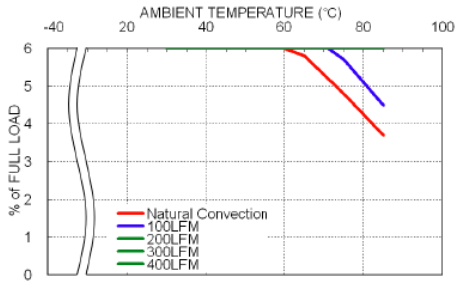
Vout(set) (VDC)	Rtrim (kΩ)
0.7525	Open
1.2	41.973
1.5	23.077
1.8	15.004
2.5	6.974
3.3	3.160

(3) Test by minimum input and constant resistive load.
(4) With a 1µF MLCC & a 10µF T/C
(5) With 2pcs of 150µF polymer capacitors.
(6) Remote ON/OFF referred to –Vin pin
Positive Logic: ON/OFF is open collector/drain logic input
Negative Logic: ON/OFF pin is open collector/drain logic input with external pull-up resistor
(7) Case 1: ON/OFF input is set to logic low (module on) and then input power is applied (delay from instant at which Vin=Vin(min) until Vout=10% of Vout(set))
(8) Case 2: Input power is applied for at least one second and then on the ON/OFF input is set to logic low (delay from instant at which Von/off=0.3VDC unit Vout=10% of Vout(set))

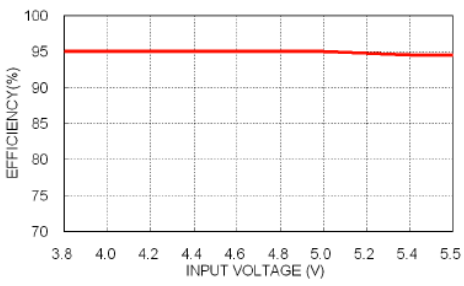
CAUTION: This power module is not internally fused. An input line fuse must be always be used.

CHARACTERISTIC CURVES

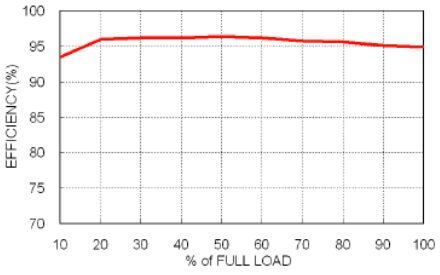
POLS06-05T, Vout=3.3V
Derating Curve



POLS06-05T, Vout=3.3V
Efficiency vs. Input Voltage

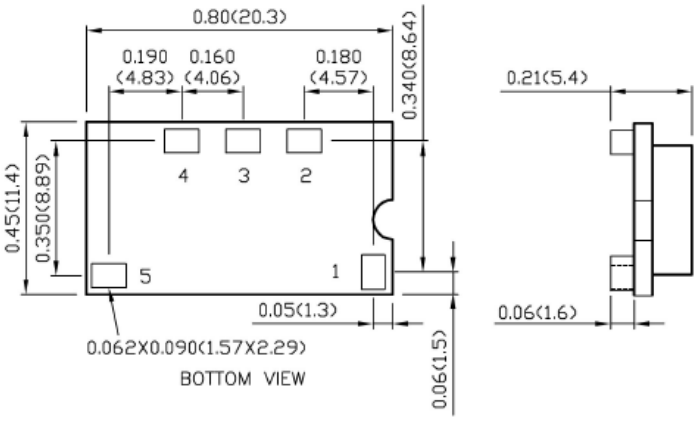


POLS06-05T, Vout=3.3V
Efficiency vs. Output Load



MECHANICAL DRAWINGS

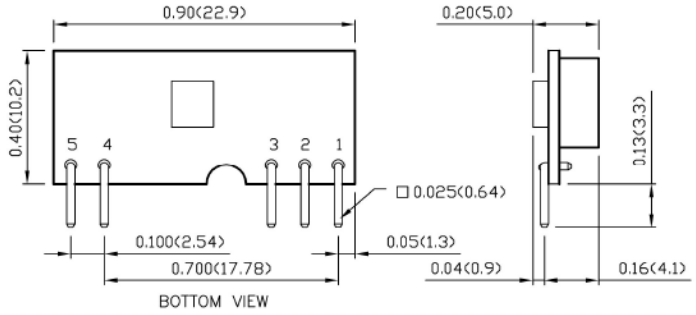
SMD Package



PIN Connection

PIN	DEFINE
1	Ctrl
2	+Vout
3	Trim
4	GND
5	+Vin

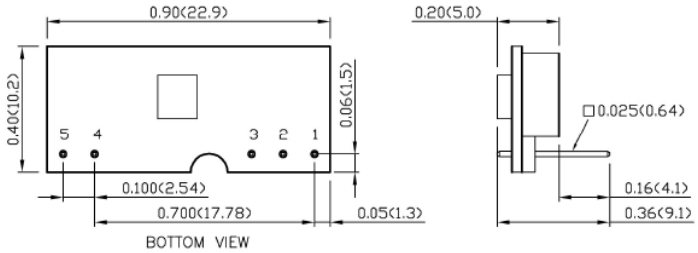
SIP Vertical Package



PIN Connection

PIN	DEFINE
1	+Vout
2	Trim
3	GND
4	+Vin
5	Ctrl

SIP Horizontal Package



PIN	DEFINE
1	+Vout
2	Trim
3	GND
4	+Vin
5	Ctrl

1. All dimensions in inch (mm)
2. Tolerance: x.xx±0.02 (x.x±0.5)
   x.xxx±0.01 (x.xx±0.25)
3. Pin pitch tolerance ±0.01 (0.25)
4. Pin dimension tolerance ±0.004(0.1)

MODEL NUMBER SETUP

POLT	06	-	05	TA	P
Series Name	Output Current		Input Voltage	Package	Remote Control Option
POLS: SMD Type **POLT:** SIP Type	**06:** 6A		**05:** 2.4~5.5VDC	**T:** No Assembly **T:** Vertical Mounting SIP **TA** Horizontal Mounting SIP	**None:** Negative Logic **P:** Positive Logic

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 ISO9001-2008 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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