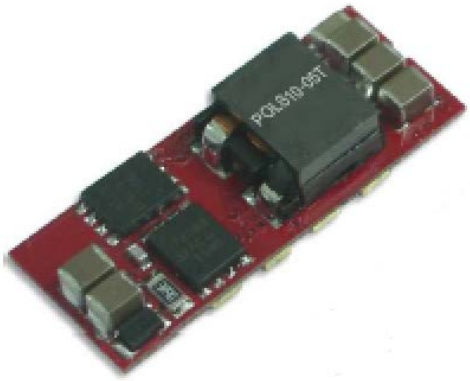
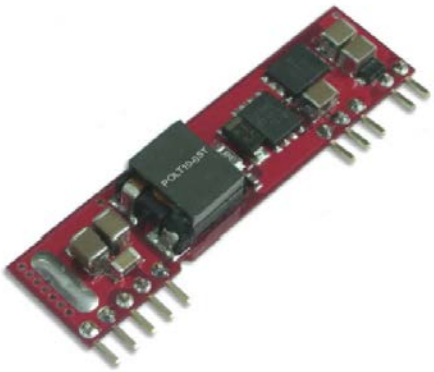
SMD Type



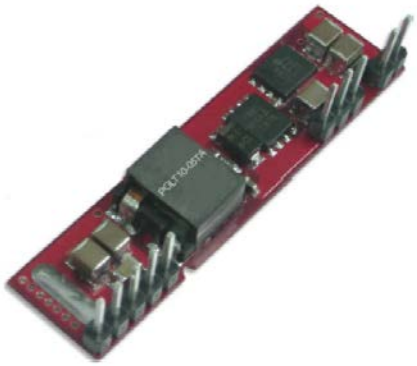
Size: 1.30in x 0.53in x 0.30in

SIP Vertical Mounting



Size: 2.00in x 0.50in x 0.28in

SIP Horizontal Mount



Size: 2.00in x 0.50in x 0.28in

OPTIONS

- SMD or SIP Package
- Vertical or Horizontal Mounting Available for SIP Models
- Negative or Positive Logic Remote Control Option

FEATURES

- High Efficiency of 95%
- SMD and SIP Packages Available
- Small Size and Low Profile
- No Minimum Load Required
- SMD Package Qualified for Lead Free Reflow Solder Process According to ICP J-STD-020
- Low Output Ripple & Noise
- Compliant to RoHS II & REACH
- CE Marked
- Over Load, Short Circuit, and Over Temperature Protection
- Remote ON/OFF
- UL60950-1, EN60950-1, and IEC60950-1 Safety Approvals

APPLICATIONS

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

DESCRIPTION

The POL10-05T series of DC/DC open frame power converters offers 10A output current rating in a small size and low profile package. This series consists of single output models with an operating input voltage range of 2.4~5.5VDC. Each model in this series is compliant to RoHS II & REACH, CE marked, has low ripple & noise, and is protected against over load, short circuit, and over temperature conditions. This series has UL60950-1, EN60950-1, and IEC60950-1 safety approvals. Please contact factory for order details.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current @Full Load	Package Type	No Load Input Current 0.75VDC/3.3VDC	Maximum Capacitive Load(1)	Efficiency(2)	Remote ON/OFF
POLS10-05T	5VDC (2.5~5.5VDC)	0.75~3.3VDC	10A	SMD	100/300mA	1000/5000µF	95%	Positive
POLS10-05T-P								Negative
POLT10-05T	5VDC (2.5~5.5VDC)	0.75~3.3VDC	10A	SIP Vertical	100/300mA	1000/5000µF	95%	Positive
POLT10-05T-P								Negative
POLT10-05TA	5VDC (2.5~5.5VDC)	0.75~3.3VDC	10A	SIP Horizontal	100/300mA	1000/5000µF	95%	Positive
POLT10-05TA-P								Negative

SPECIFICATIONS

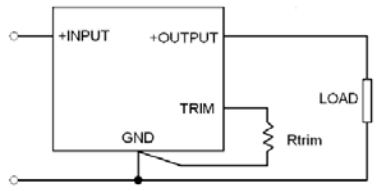
All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
INPUT SPECIFICATIONS					
Operating Input Voltage Range	Vout(set) , Vin-0.5VDC	2.5	5	5.5	VDC
Maximum Input Current	Vin=2.4 to 5.5VD, Io=Io(max.)		10		A
Input Reflected Ripple Current	5~20MHz, 1µH source impedance		100		mAp-p
Start-Up Voltage			2.2		VDC
Shutdown Voltage			2.0		VDC
Input Filter[3]		Capacitor Type			
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Voltage Accuracy	% of Vout(set)	-2.0		+2.0	%
Line Regulation	Vin=Vout(set) +0.5VDC to Vin(max.) at Full Load; % of Vout(set)	-0.3		+0.3	%
Load Regulation	No Load to Full Load; % of Vout(set)	-0.4		+0.4	%
Voltage Adjustability[4]		0.7525		3.63	VDC
Remote Sense				0.5	VDC
Output Current		See Table			
Maximum Capacitive Load		See Table			
Ripple & Noise	Measured by 20MHz BW, with a 1µF MLCC & a 10µF T/C			15	mVrms
				50	mVp-p
Dynamic Load Response	With a 1µF MLCC & a 10µF T/C				
	ΔIo/Δt=2.5A/µs, Vin(nom) Peak Deviation		200		mV
	50% load step change Setting Time(Vout<10%peak deviation)		25		µS
Dynamic Load Response	With 2pcs of 150µF polymer capacitors				
	ΔIo/Δt=2.5A/µs, Vin(nom) Peak Deviation		100		mV
	50% load step change Setting Time(Vout<10%peak deviation)		100		µS
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[5][6]					
Negative Logic (Option)	DC-DC ON	Open or 0~0.3VDC			
	DC-DC OFF	1.5VDC~Vin(max.)			
Positive Logic (Standard)	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			1.5		mA
Turn-On Delay Time[7]			1		ms
Over Voltage Overshoot-Startup	Vin=2.4~5.5VDC at Full Load; % of Vout(set)		1.0		%
PROTECTION					
Short Circuit Protection		Continuous, Automatic Recovery			
Over Load Protection	% of Iout rated		200		%
Over Temperature Protection			125		ºC
ENVIRONMENTAL SPECIFICATIONS					
Operating Case Temperature	With 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		3,239,000		Hours
GENERAL SPECIFICATIONS					
Efficiency		See Table			
Switching Frequency		270	300	330	kHz
PHYSICAL SPECIFICATIONS					
Weight		0.21 oz(6.0g)			
Dimensions (L x W x H)	SMD Type	1.30in x 0.53in x 0.30in (33mm x 13.5mm x 7.6mm)			
	SIP Type	2.00in x 0.50in x 0.28in (50.9mm x 12.7mm x 7.2mm)			
SAFETY CHARACTERISTICS					
Safety Approvals	UL60950-1, EN60950-1, IEC60950-1				
Lead-Free Reflow Solder Process		IPC J-STD-020D			
Moisture Sensitivity Level		IPC J-STD-033B, Level 2a			

NOTES

(1) ESR≥1mΩ / ESR≥10mΩ, Test by minimum input and constant resistive load.
(2) Vin(nom), 3.3VDC @ Full Load
(3) 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 ensuring module stability. The external Cin is 3pcs of 150μF low-ESR polymer capacitors // 2pcs of 47μF ceramic capacitors at least.
(4) Output voltage is 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

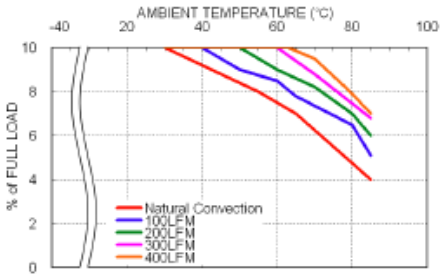
(5) Remote On/Off referred to –Vin pin
(6) Positive Logic: ON/OFF is open collector/drain logic input
Negative Logic: ON/OFF pin is open collector/drain logic input with external pull –up resistor.
(7) Case 1: ON/OFF input is set to logic low (module on) and then input power is applied (delay from instant at which Vin=Vin(min.) until Vout=10% of Vout(set))
Case 2: Input power is applied for at least one second and then the ON/OFF input is set to logic low (delay from instant at which Von/off=0.3VDC until Vout-10% of Vout(set))

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

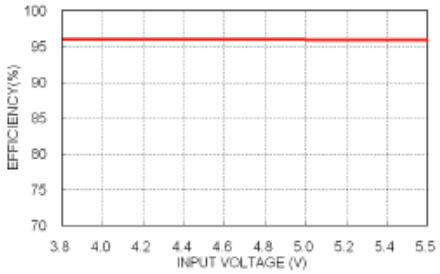
**Due to advances in technology, specifications subject to change without notice.*

CHARACTERISTIC CURVES

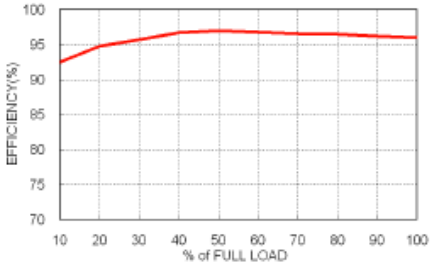
POLS10-05T, Vout=3.3V Derating Curve



POLS10-05T, Vout=3.3V
Efficiency vs. Input Voltage

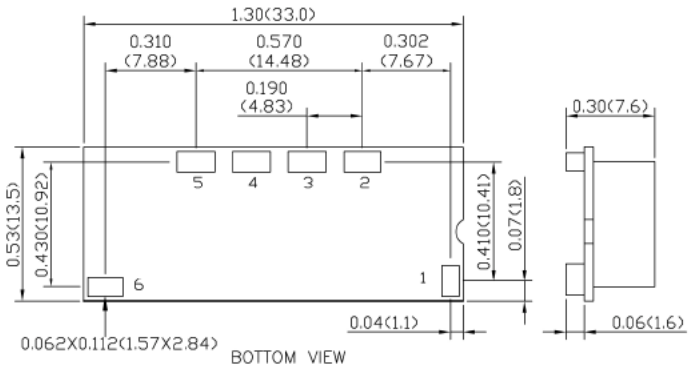


POLS10-05T, Vout=3.3V
Efficiency vs. Output Load



MECHANICAL DRAWINGS

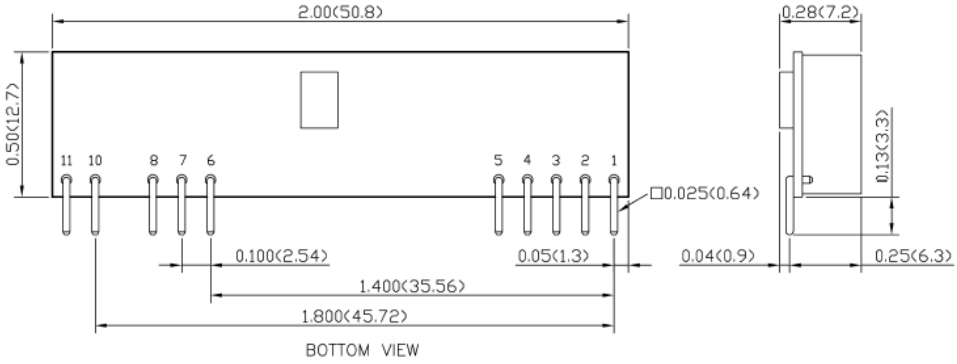
POLS10-05T



PIN CONNECTION

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

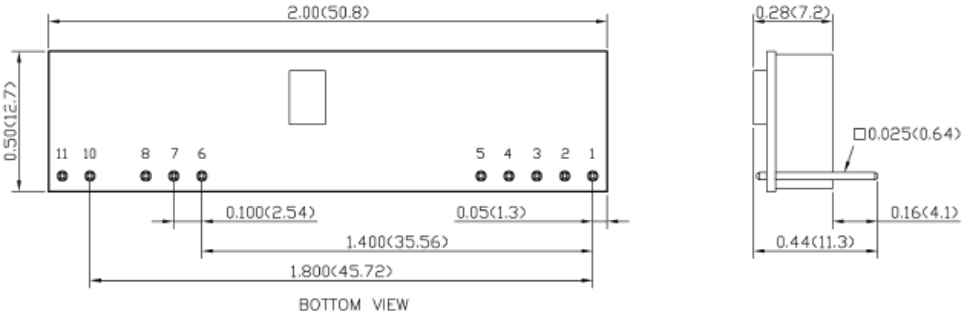
POLT10-05T



PIN CONNECTION

PIN	DEFINE
1	+Vout
2	+Vout
3	+Sense
4	+Vout
5	GND
6	GND
7	+Vin
8	+Vin
10	Trim
11	Ctrl

POLT10-05TA



PIN CONNECTION

PIN CONNECTION

PIN	DEFINE
1	+Vout
2	+Vout
3	+Sense
4	+Vout
5	GND
6	GND
7	+Vin
8	+Vin
10	Trim
11	Ctrl

Notes:
All dimensions in inch(mm)
Tolerance: x.xx±0.02 (x.x±0.5)
x.xxx±0.01 (x.xx±0.25)
Pin Pitch Tolerance: ±0.01 (0.25
Pin Dimension Tolerance ±0.004(0.1)

MODEL NUMBER SETUP

POLT	10	-	05	T	-	P
Series Name	Output Current		Input Voltage	Package		Remote Control Option
POLS: SMD Type POLT: SIP Type			**05:** 2.4~5.5VDC	**T:** No Assembly (SMD Type) **T:** Vertical Mounting (SIP Type) **TA:** Horizontal Mounting (SIP Type)		**None:** Positive Logic **P:** Negative 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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