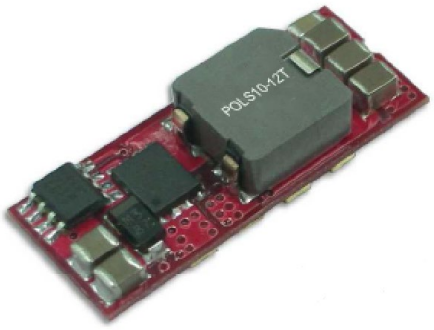
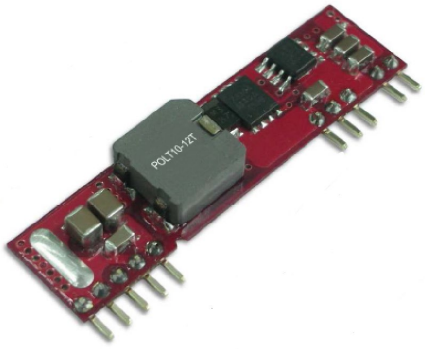
SMT Package



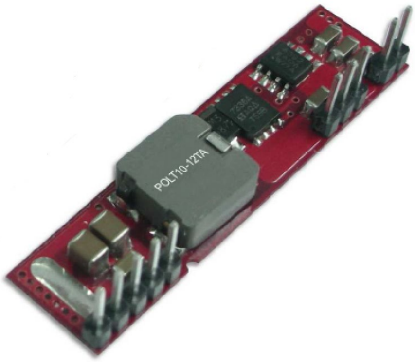
Size: 1.30in x 0.53in x 0.30in

Vertical SIP Package



Size: 2.00in x 0.50in x 0.28in

Horizontal SIP Package



Size: 2.00in x 0.50in x 0.28in

OPTIONS

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

FEATURES

- High Efficiency of 93%
- SMD and SIP Packages Available
- Small Size and Low Profile
- No Minimum Load Required
- SMD Package Qualified for Lead Free Reflow Solder Process According IPC J-STD-020D
- RoHS II & REACH Compliant
- CE Marked
- Over Load, Over Temperature, and Short Circuit Protection
- 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 POL10-12T series of DC/DC point of load power supplies offers a 10A output current rating and 7.5~50 watts in a small size and low profile package. This series consists of single output models with and input voltage range of 8.3~14VDC or 8.3~13.2VDC. Several options are available for this series including remote control positive or negative logic and SMD or SIP package. Each model is RoHS II & REACH compliant, CE marked, and has over load, over temperature, and short circuit protection. This series has UL60950-1, EN60950-1, and IEC60950-1 safety approvals.

MODEL SELECTION TABLE

Model Number	Input Voltage Range	Output Voltage	Output Current @Full Load	No Load Input Current 0.75VDC/5.0VDC	Package Type	Maximum Capacitive Load[1]	Efficiency[2]	Remote ON/OFF
POLS10-12T	Vout≤3.63 Vin=8.3~14VDC Vout>3.63 Vin=8.3~13.2	0.75~5VDC	10A	40/100	SMD	1000/5000μF	93%	Positive
POLS10-12T-P								Negative
POLT10-12T		0.75~5VDC	10A	40/100	Vertical SIP	1000/5000μF	93%	Positive
POLT10-12T-P								Negative
POLT10-12TA		0.75~5VDC	10A	40/100	Horizontal SIP	1000/5000μF	93%	Positive
POLT10-12TA-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.

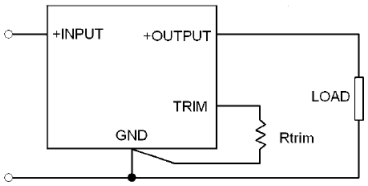
SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
INPUT SPECIFICATIONS					
Input Voltage Range	Vout(set) ≤ 3.63VDc	8.3	12	14	VDC
	Vout(set) > 3.63VDC	8.3	12	13.2	
Maximum Input Current	Vin=8.3 to 14VDC, Io=Io(max.)		7		A
Input Reflected Ripple Current	5~20MHz, 1µH Source Impedance		20		mAp-p
Start-Up Voltage			7.9		VDC
Shutdown Voltage			7.8		VDC
Input Filter(3)		Capacitor Type			
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Voltage Accuracy	% of Vout(set)	-2.0		+2.0	%
Line Regulation	Vin=Vin(min.) to Vin(max.) at Full Load; % of Vout(set)	-3.0		+3.0	%
Load Regulation	No Load to Full Load; % of Vout	-0.4		+0.4	%
Voltage Adjustability(4)		0.7525		5	VDC
Remote Sense				0.5	VDC
Output Current		See Table			
Maximum Capacitive Load		See Table			
Ripple & Noise (20MHz bandwidth)	Measured by 20MHz BW, with a 1µF MLCC & a 10µF T/C		200		mV
			25		µs
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)		25		µs
Temperature Coefficient		-0.4		+0.4	%/ºC
Rise Time	Time for Vout to rise from 10% to 90% of Vout(set)			6	ms
Output Voltage Overshoot-Startup	Vin=Vin(min.) to Vin(max.) at Full Load; % of Vout(set)		1.0		%
REMOTE ON/OFF CONTROL(5)(6)					
Negative Logic (Option)	DC-DC ON	Open or 0~0.3VDC			
	DC-DC OFF	2.5VDC~Vin(max.)			
Positive Logic (Standard)	DC-DC ON	Open or (Vin-4)~Vin(max.)			
	DC-DC OFF	0~0.3VDC			
Input Current of CTRL Pin		0.01		1.0	mA
Remote OFF Input Current			2.0		mA
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	3,355,000			Hours
GENERAL SPECIFICATIONS					
Efficiency		See Table			
Switching Frequency		270	300	330	kHz
PHYSICAL SPECIFICATIONS					
Weight		0.21oz (6.0g)			
Dimensions (L x W x H)	SMT Package	1.30in x 0.53in x 0.30in (33mm x 13.5mm x 7.6mm)			
	SIP Package	2.00in x 0.50in x 0.28in (50.8mm x 12.7mm x 7.2mm)			
SAFETY CHARACTERISTICS					
Safety Approvals	UL60950-1(7), EN60950-1, IEC60950-1				
Lead-Free Reflow Solder Process		IPC J-STD-020D			
Moisture Sensitivity Level (MSL)		IPC J-STD-033B, Level 2a			

NOTES

1. Efficiency Vin(nom), 3.3VDC
2. Test by minimum input and constant resistive load. ESR≥1mΩ / ESR≥10mΩ
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 that ensure module stability. The external Cin is 4pcs of 47μF ceramic capacitors at least.
4. Output voltage is programmable from 0.7525V to 5V 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.

$$Rtrim = \left[\frac{10500}{Vout - 0.7525} - 1000\right]\Omega$$

Trim Figure



Trim Table

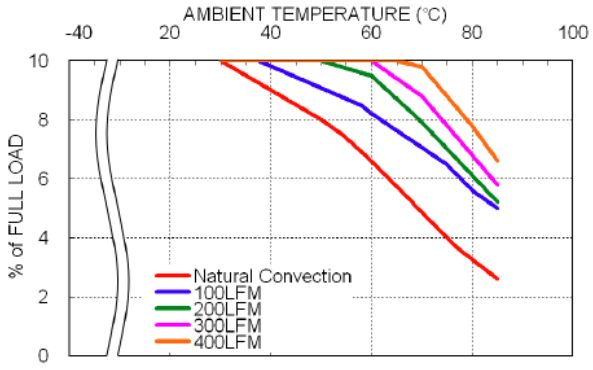
Vout(set) (VDC)	Rtrim (kΩ)
0.7525	Open
1.2	22.46
1.5	13.05
1.8	9.024
2.5	5.009
3.3	3.122
5	1.472

5. Remote On/Off Referred to –Vin pin
6. Positive Logic: ON/OFF is open collector/drain logic input
   Negative Logic: ON/OFF is open collector/drain logic input with external pull –up resistor
7. This product is Listed to applicable standards and requirements by UL.

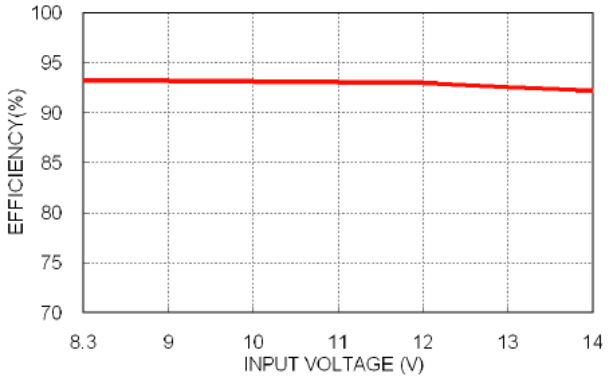
**Due to advances in technology, specifications subject to change without notice.*

DERATING CURVES

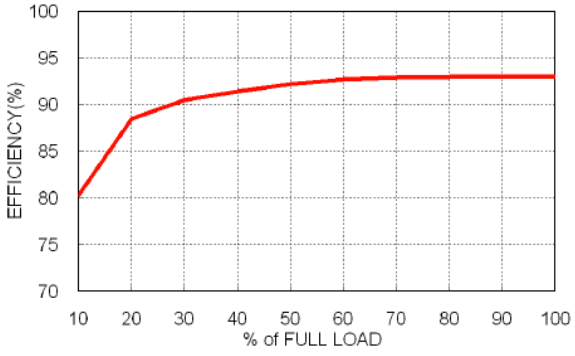
POLS10-12T, Vout=3.3V Derating Curve



POLS10-12T, Vout=3.3V Efficiency vs. Input Voltage

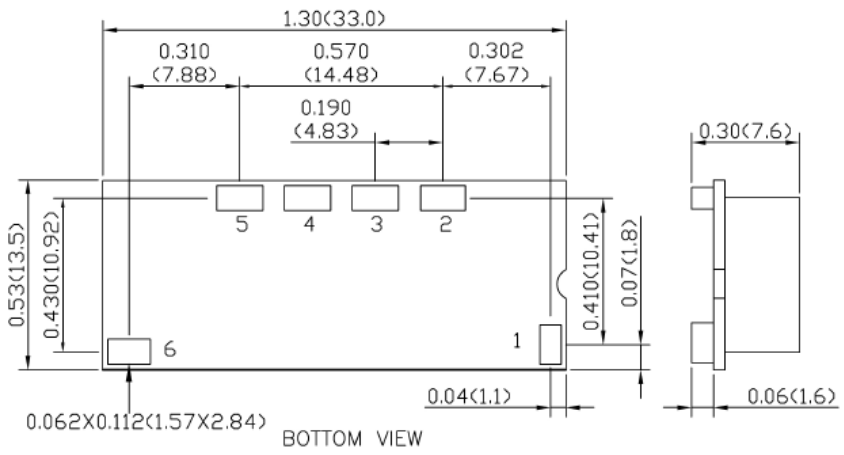


POLS10-12T, Vout=3.3V Efficiency vs. Output Load



MECHANICAL DRAWINGS

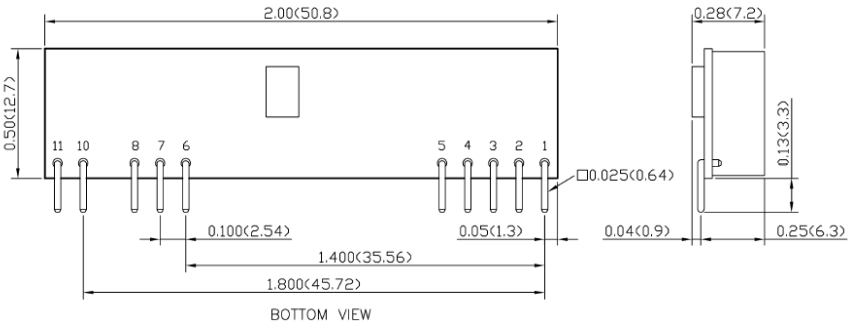
POLS10-12T



PIN CONNECTION

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

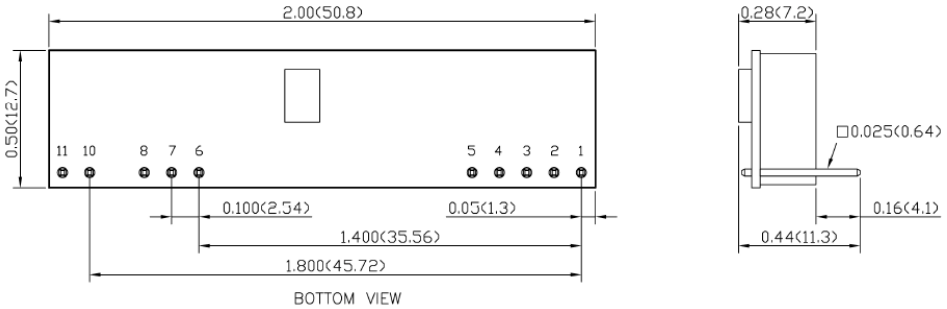
POLT10-12T



PIN CONNECTION

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

POLT-12TA



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	-	12	T	-	P
Series Name	Output Current		Input Voltage	Package		Remote On/Off Option
POLS: SMD Type POLT: SIP Type			**12:** 8.3~14VDC	**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: 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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