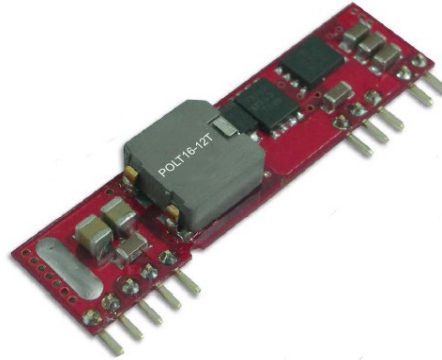


SMD Package



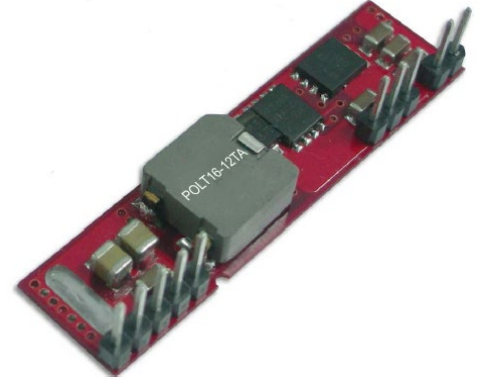
Size: 1.30in x 0.53in x 0.30in

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 Package Available for SIP Package
- Remote Control Negative or Positive Logic Option

**APPLICATIONS**

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

**FEATURES**

- High Efficiency of 92%
- SMD or SIP Package Available
- Remote Control
- Small Size and Low Profile
- SMD Package Qualified for Lead Free Reflow Solder Process According to IPC J-STD-020D
- CE Marked
- Compliant to RoHS II & REACH
- Over Voltage, Over Current and Short Circuit Protection
- UL60950-1, EN60950-1, and IEC60950-1 Safety Approvals

**DESCRIPTION**

The POLT16-12T series of DC/DC POL converters offers 16A output current rating and 12~80 watts output power in a compact size and low profile package. This series consist of single output models with an input voltage range of 8.3~14VDC. Several options are available for this series including SMD or SIP package and remote control negative or positive logic. Each model in this series is CE marked, compliant to RoHS II & REACH, and has over voltage, over current, 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	No Load Input Current 0.75VDC/0.5VDC	Package Type	Maximum Capacitive Load <sup>(1)</sup>	Efficiency <sup>(2)</sup>	Remote On/Off
POLS16-12T	Vout(set)≤3.63VDC Vin=8.3~14	0.75~5VDC	16A	40/100mA	SMD Package	1000/5000μF	92%	Positive
POLS16-12T-P								Negative
POLT16-12T	Vout(set)>3.63 Vin=8.3~13.2	0.75~5VDC	16A	40/100mA	Vertical SIP Package	1000/5000μF	92%	Positive
POLT16-12T-P								Negative
POLT16-12TA		0.75~5VDC	16A	40/100mA	Horizontal SIP Package	1000/5000μF	92%	Positive
POLT16-12TA-P								Negative

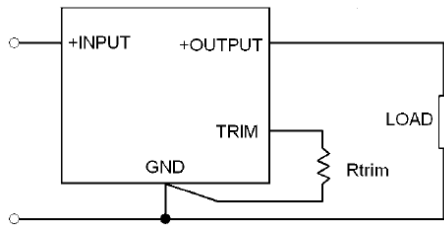
SPECIFICATIONS					
All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted. We reserve the right to change specifications based on technological advances.					
SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
<b>INPUT SPECIFICATIONS</b>					
Input 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.)		10		A
Input Reflected Ripple Current	5~20MHz, 1μH source impedance		30		mAp-p
Start Up Voltage			7.9		VDC
Shutdown Voltage			7.8		VDC
Input Filter <sup>(3)</sup>		Capacitor Type			
<b>OUTPUT SPECIFICATIONS</b>					
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)	-0.3		+0.3	%
Load Regulation	No Load to Full Load; % of Vout(set)	-0.4		+0.4	%
Voltage Adjustability <sup>(4)</sup>		0.7525		3.63	VDC
Remote Sense				0.5	VDC
Output Current		See Table			
Maximum Capacitive Load		See Table			
Ripple & Noise	Measured by 20MHz bandwidth with a 1μF MLCC & a 10μF T/C		30		mVrms
			75		mVp-p
Dynamic Load Response	With a 1μF MLCC & a 10μF T/C ΔIo/Δt=2.5A/μs, Vin(nom) Peak deviation 50% load step change Setting time(Vout<10% peak deviation)		200		mV
			25		μs
Dynamic Load Response	With 2pcs of 150μF polymer capacitors ΔIo/Δt=2.5A/μs, Vin(nom) Peak deviation 50% load step change Setting time (Vout<10% peak deviation)		100		mV
			50		μs
Temperature Coefficient		-0.4		+0.4	%/°C
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		%
<b>REMOTE ON/OFF CONTROL<sup>(5)(6)</sup></b>					
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
Turn-On Delay Time <sup>(7)</sup>			3		ms
<b>PROTECTION</b>					
Short Circuit Protection		Continuous, Automatic Recovery			
Over Load Protection			180		%
Over Temperature Protection			125		°C
<b>ENVIRONMENTAL SPECIFICATIONS</b>					
Operating Case Temperature		-40		+85	°C
Storage Temperature		-55		+125	°C
Relative Humidity	Non-Condensing	5		95	%RH
Thermal Shock		MIL-STD-810F			
Vibration		MIL-STD-810F			
MTBF	MIL-HDBK-217F, Full Load	3,416,000			Hours
<b>GENERAL SPECIFICATIONS</b>					
Efficiency		See Table			
Switching Frequency		270	300	330	kHz
<b>PHYSICAL SPECIFICATIONS</b>					
Weight		0.21oz (6.0g)			
Dimensions (L x W x H)	SMD 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)			
<b>SAFETY CHARACTERISTICS</b>					
Safety Approvals		UL60950-1 <sup>(8)</sup> , EN60950-1, IEC60950-1			
Lead-Free Reflow Solder Process		IPC J-STD-020D			

**NOTES**

1. Test by minimum input and constant resistive load.  $ESR \geq 1m\Omega$  /  $ESR \geq 10m\Omega$
2.  $V_{in(nom)}$ , 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  $C_{in}$  is 6pcs of  $47\mu F$  ceramic capacitors at least.
4. Output voltage programmable from 0.7525 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  $r_{trim}$  for a particular output voltage  $V_{out}$ , use the following equation:

$$R_{trim} = \left[ \frac{10500}{V_{out} - 0.7525} - 1000 \right] \Omega$$

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

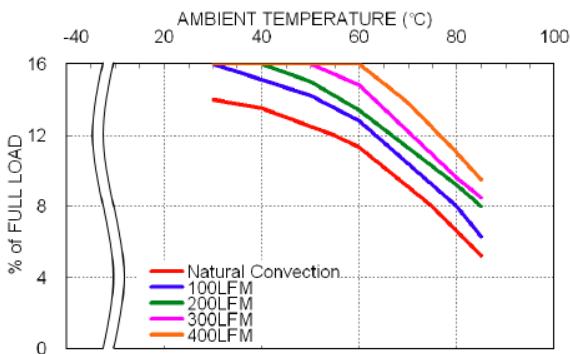
5. Remote ON/OFF referred to  $-V_{in}$  pin
6. Positive Logic: ON/OFF is open collector/drain logic input  
 Negative Logic: ON/OFF pin is open collector/drain logic input with external pull-up resistor
7. Case 1: ON/OFF input is set to logic low (module on) and then input power is applied (delay from instant at which  $V_{in}=V_{in(min)}$ ) until  $V_{out}=10\%$  of  $V_{out(set)}$   
 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  $V_{on/off}=0.3VDC$  until  $V_{out}=10\%$  of  $V_{out(set)}$ )
8. This product is Listed to applicable standards and requirements by UL.

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

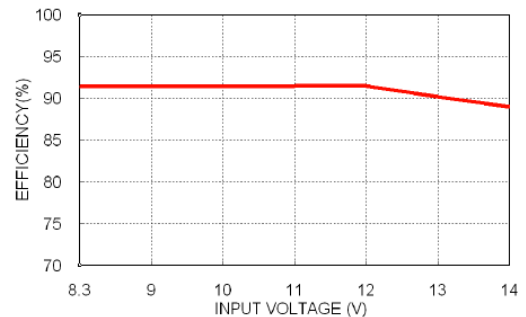
*\*Due to advances in technology, specifications subject to change without notice.*

**DERATING CURVES**

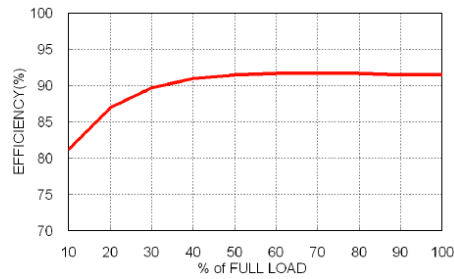
POLS16-12T, Vout=3.3V Derating Curve



POLS16-12T, Vout=3.3V Efficiency vs. Input Voltage

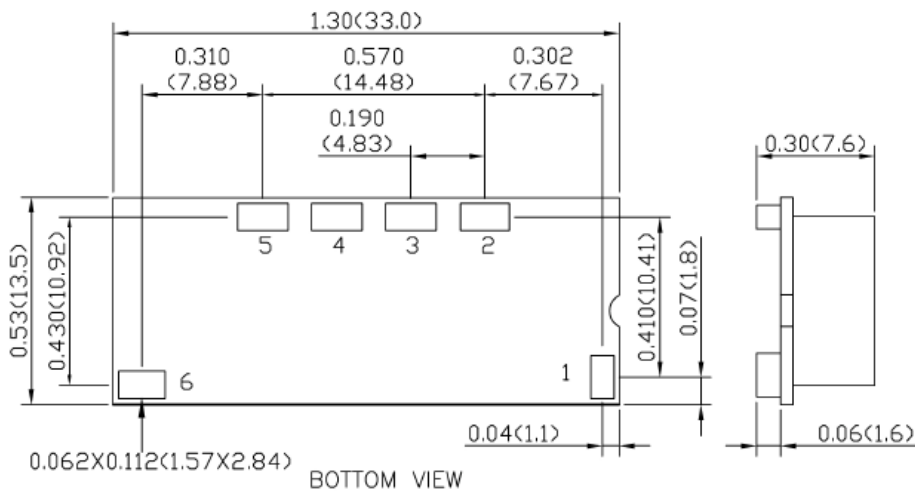


POLS16-12T, Vout=3.3V Efficiency vs. Output Load



MECHANICAL DRAWINGS

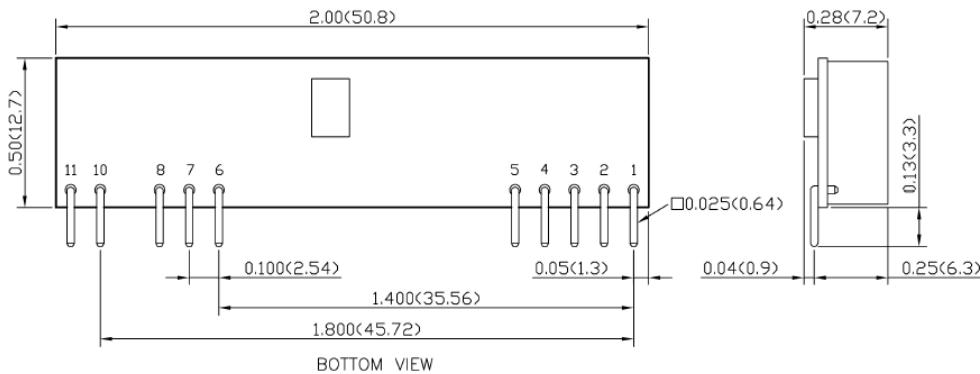
POLS16-12T



PIN CONNECTION

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

POLT16-12T

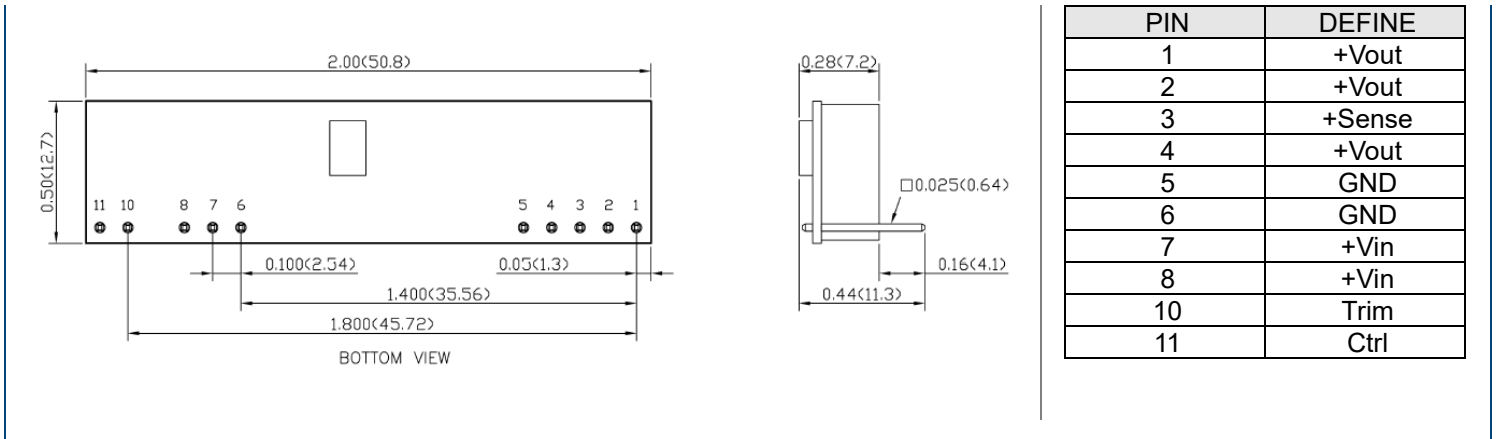


PIN CONNECTION

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

POLT16-12TA

PIN CONNECTION



**MODEL NUMBER SETUP**

POLT	16	-	12	TA	-	P
Series Name	Output Current		Input Voltage	Output Quantity		Remote Control Option
<b>POLS:</b> SMD Type <b>POLT:</b> SIP Type			<b>12:</b> 8.3~14VDC	<b>T:</b> No Assembly (SMD Type) <b>T:</b> Vertical Mouting (SIP Type) <b>TA:</b> Horizontal Mouting (SIP Type)		<b>Blank:</b> Positive Logic <b>P:</b> 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.

Contact **Wall Industries** for further information:

Phone: ☎(603)778-2300  
 Toll Free: ☎(888)597-9255  
 Fax: ☎(603)778-9797  
 E-mail: [sales@wallindustries.com](mailto:sales@wallindustries.com)  
 Web: [www.wallindustries.com](http://www.wallindustries.com)  
 Address: 37 Industrial Drive  
 Exeter, NH 03833

©2019 Wall Industries, Inc. Specifications subject to change without notice. Wall Industries is not responsible for typographical errors. The information contained herein is for informational purposes only. This information is provided by Wall Industries and we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information contained in this document for any purpose. All product and manufacturer names are trademarks or registered trademarks of their respective companies.