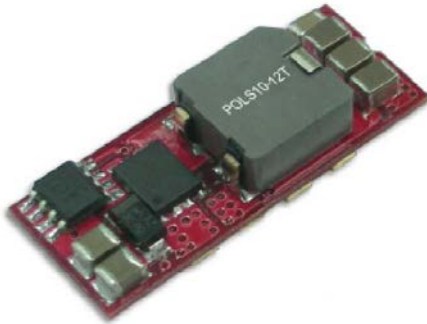
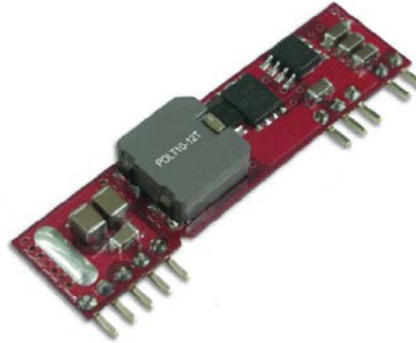


SMT Package



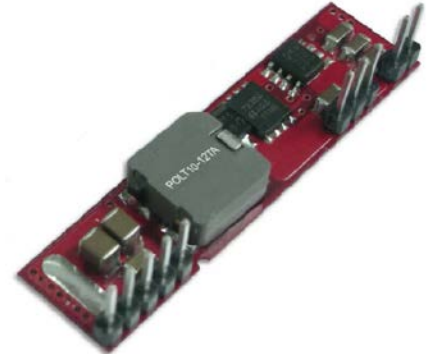
Size: 1.30in x 0.53in x 0.30in

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

#### APPLICATIONS

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

#### 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

#### DESCRIPTION

The POL10-12T series of DC/DC open frame power supplies offers a 10A output current rating 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 <sup>(1)</sup> | Efficiency <sup>(2)</sup> | Remote ON/OFF |
|---------------|----------------------------|----------------|---------------------------|--------------------------------------|----------------|----------------------------------------|---------------------------|---------------|
| POLS10-12T    | Vout≤3.63<br>Vin=8.3~14VDC | 0.75~5VDC      | 10A                       | 40/100                               | SMD            | 1000/5000μF                            | 93%                       | Positive      |
| POLS10-12T-P  |                            |                |                           |                                      |                |                                        |                           | Negative      |
| POLT10-12T    | Vout>3.63<br>Vin=8.3~13.2  | 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.

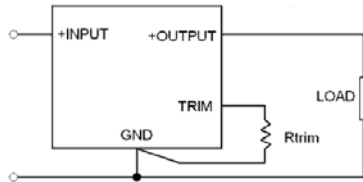
| SPECIFICATION                           |                                                                                                                                                      | TEST CONDITIONS                                       |     | Min  | Typ   | Max | Unit |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-----|------|-------|-----|------|
| 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 <sup>(3)</sup>             |                                                                                                                                                      | 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 <sup>(4)</sup>    |                                                                                                                                                      | 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<br>ΔIo/Δt=2.5A/μs, Vin(nom) Peak Deviation<br>50% load step change      Setting Time(Vout<10% Peak Deviation)           |                                                       | 200 |      | mV    |     |      |
|                                         |                                                                                                                                                      |                                                       | 25  |      | μs    |     |      |
|                                         |                                                                                                                                                      |                                                       |     |      |       |     |      |
| Dynamic Load Response                   | With 2pcs of 150μF polymer capacitors<br>ΔIo/Δt=2.5A/μs, Vin(nom) Peak Deviation<br>50% load step change      Setting Time (Vout<10% Peak Deviation) |                                                       | 100 |      | mV    |     |      |
|                                         |                                                                                                                                                      |                                                       | 25  |      | 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 |      | %     |     |      |
| REMOTE ON/OFF CONTROL <sup>(5)(6)</sup> |                                                                                                                                                      |                                                       |     |      |       |     |      |
| 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 |      | °C    |     |      |
| ENVIRONMENTAL SPECIFICATIONS            |                                                                                                                                                      |                                                       |     |      |       |     |      |
| Operating Case Temperature              | With Derating                                                                                                                                        | -40                                                   |     | +85  | °C    |     |      |
| Storage Temperature                     |                                                                                                                                                      | -55                                                   |     | +125 | °C    |     |      |
| 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<br>(33mm x 13.5mm x 7.6mm)   |     |      |       |     |      |
|                                         | SIP Package                                                                                                                                          | 2.00in x 0.50in x 0.28in<br>(50.8mm 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 (MSL)        | IPC J-STD-033B, Level 2a                                                                                                                             |                                                       |     |      |       |     |      |

## NOTES

1. Efficiency Vin(nom), 3.3VDC
2. Test by minimum input and constant resistive load.  $ESR \geq 1m\Omega$  /  $ESR \geq 10m\Omega$
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 47 $\mu$ F 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.

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

Trim Figure



Trim Table

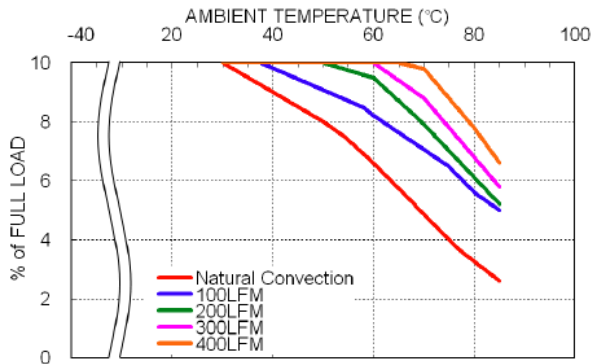
| Vout(set) (VDC) | Rtrim (k $\Omega$ ) |
|-----------------|---------------------|
| 0.7525          | Open                |
| 1.2             | 22.46               |
| 1.5             | 13.05               |
| 1.8             | 9.024               |
| 2.5             | 5.009               |
| 3.3             | 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

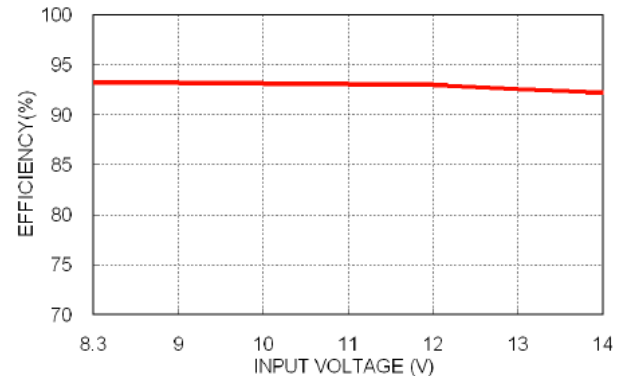
*\*Due to advances in technology, specifications subject to change without notice.*

## DERATING CURVES

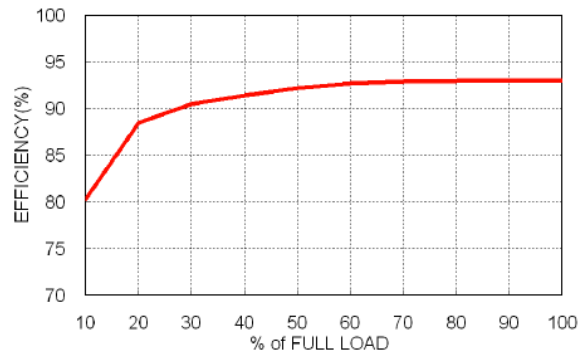
POL10-12T, Vout=3.3V Derating Curve



POL10-12T, Vout=3.3V Efficiency vs. Input Voltage

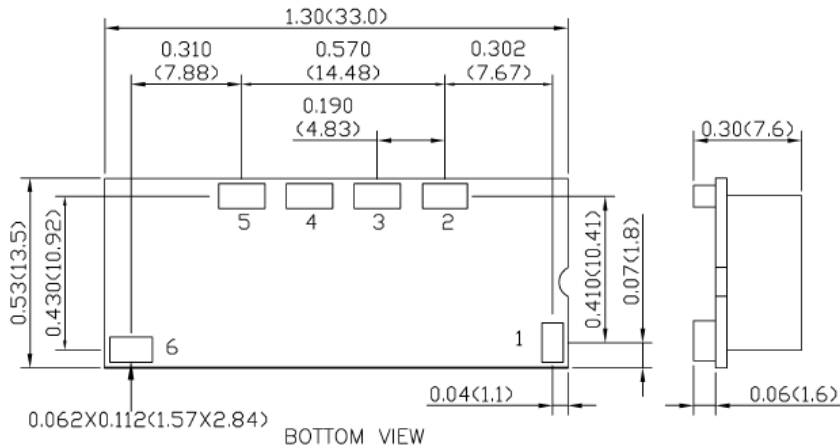


POL10-12T, Vout=3.3V Efficiency vs. Output Load



MECHANICAL DRAWINGS

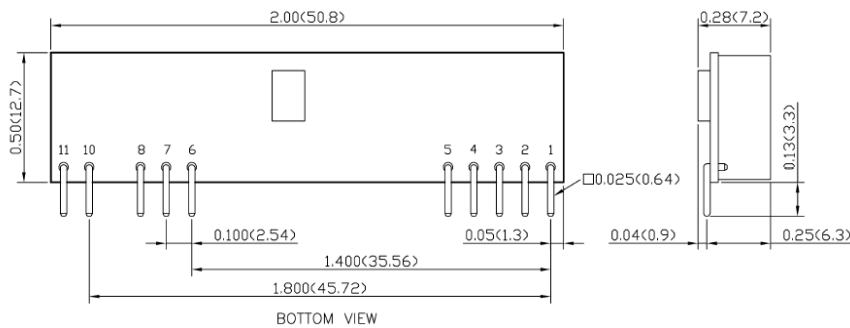
POLS10-12T



PIN CONNECTION

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

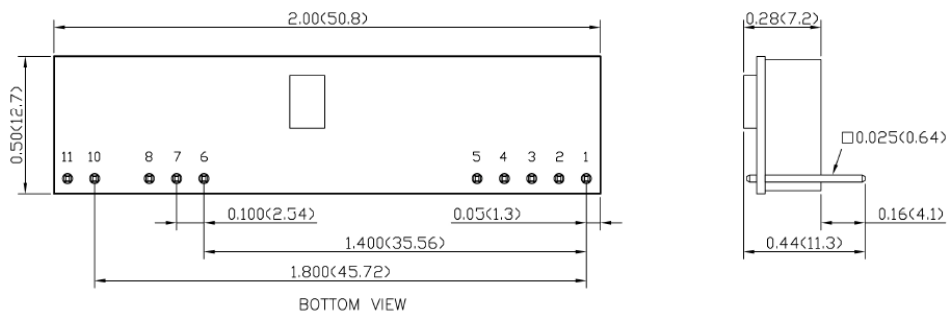
POLT10-12T



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                                    |
| POLT: SMD Type<br>POLS: SIP Type |                |   | <b>12:</b> 8.3~14VDC | <b>T:</b> No Assembly (SMD Type)<br><b>T:</b> Vertical Mounting (SIP Type)<br><b>TA:</b> Horizontal Mounting (SIP Type) |   | <b>None:</b> Positive Logic<br><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 ISO9001-2008 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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