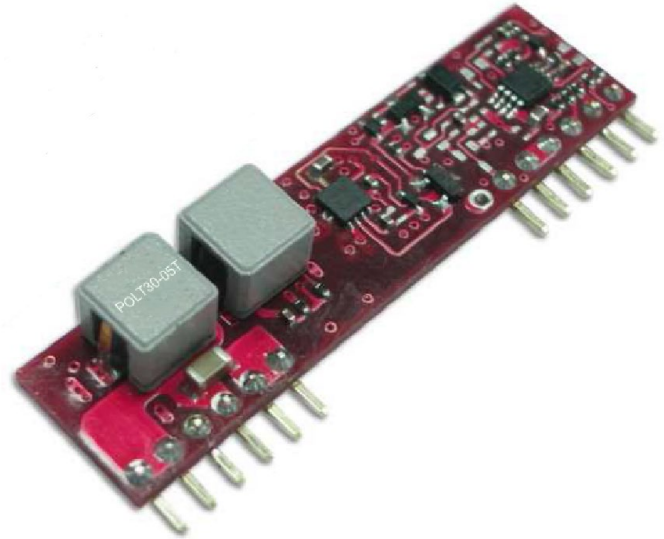


SMD Package



Size: 1.30in x 0.53in x 0.31~0.37in

SIP Package



Size: 2.00in x 0.50in x 0.37~0.31in

**OPTIONS**

- SMD or SIP Package
- Remote ON/OFF Positive or Negative Logic
- Current Share
- Extra GND Pins (only for SMD package)
- Long Pins (only for SIP Type)

**FEATURES**

- High Efficiency up to 93%
- No Minimum Load Required
- Small Size and Low Profile
- SMD Package Qualified for Lead Free Reflow Solder Process According IPC J-STD-020D
- Monotonic Start-Up Into Pre-Biased Output
- Output Voltage Sequencing
- Tracking
- Parallel Operation with Active Current Sharing
- CE Marked
- Compliant to RoHS II & REACH
- Current Share
- Over Load, Short Circuit, and Over Temperature 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 POL30 series of DC/DC POL non-isolated converters offers up to 30A output current and 16~108.9 watts of output power in a compact and low profile package. This series consists of single output models and input voltage ranges of 4.5~5.5VDC and 6~14VDC. Several different options are available for this series including SMD or SIP package, positive or negative logic, current share, and different pin options. Each model in this series is CE marked, compliant to RoHS II, and is protected against over load, short circuit and over temperature conditions. 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<br>Vin(nom), 3.3VDC | Package Type | Maximum Capacitive Load <sup>(1)</sup><br>ESR≥1mΩ/ESR≥10mΩ | Efficiency<br>Vin(nom), 3.3VDC<br>@Full Load |
|--------------|---------------------------------------|----------------|----------------|---|--------------|--|--|
| POLS30-05T   | 4.5~5.5VDC<br>Vin(min.)=Vout(set)+1.5 | 0.8~3.63VDC    | 30A            | 180mA                                     | SMD          | 2000/10000μF   | 93%  |
| POLT30-05T   |                                       |                |                |   | SIP          |  |  |
| POLS30-12T   | 6~14VDC<br>Vin(min.)=Vout(set)+2.4    | 0.8≤Vout≤2.75  | 30A            | 200mA                                     | SMD          | 2000/10000μF   | 93%  |
|              |                                       | 2.75<Vout≤3.63 | 20A            |   |              |  |  |
|              |                                       | 0.8≤Vout≤2.75  | 30A            |   | SIP          |  |  |
| POLT30-12T   |                                       | 2.75<Vout≤3.63 | 25A            |   |              |  |  |

| SPECIFICATIONS  |   |                             |           |      |       |
|---|---|-----------------------------|-----------|------|-------|
| All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.<br>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   | 5Vin(nom) Vin(min.)=Vout(set) + 1.5VDC  | 4.5                         | 5         | 5.5  | VDC   |
|   | 12Vin(nom) Vin(min.)=Vout(set) + 2.4VDC   | 6                           | 12        | 14   |       |
| Input Reflected Ripple Current  | 5~20MHz, 1μH source impedance   |                             | 100       |      | mAp-p |
| Start-Up Voltage  |   |                             | 4.4       |      | VDC   |
| Shutdown Voltage  |   |                             | 4.3       |      | VDC   |
| Input Filter <sup>(2)</sup>   |   | Capacitor Type              |           |      |       |
| <b>OUTPUT SPECIFICATIONS</b>  |   |                             |           |      |       |
| Output Voltage  |   | See Table                   |           |      |       |
| Voltage Accuracy  | %of Vout(set)   | -1.5                        |           | +1.5 | %     |
| Line Regulation   | Vin=Vin(min.) to Vin(max.) at Full Load; % of Vout(set)   | -0.1                        |           | +0.1 | %     |
| Load Regulation   | No Load to Full Load; % of Vout(set)  | -0.7                        |           | +0.4 | %     |
| Voltage Adjustability <sup>(3)</sup>  | POLT30-12T  | 0.8                         |           | 5.5  | VDC   |
|   | Others  | 0.8                         |           | 3.63 |       |
| 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   |                             | 75        |      | mVp-p |
| Dynamic Load Response   | With a 1μF MLCC & a 10μF T/C  |                             |           |      |       |
|   | ΔIo/Δt=5A/μs, Vin(nom) Peak deviation<br>50% load step change Setting time (Vout<10% peak deviation)                |                             | 30        |      | mV    |
| Dynamic Load Response   | With 2pcs of 150μF polymer capacitors   |                             |           |      |       |
|   | ΔIo/Δt=5A/μs, Vin(nom) Peak Deviation<br>50% load step change Setting Time(Vout<10% peak deviation)                 |                             | 25        |      | μs    |
| Temperature Coefficient   |   | -0.5                        |           | +0.5 | %/°C  |
| Rise Time   | Time for Vout to rise from 10% to 90% of Vout(set)  |                             |           | 10   | ms    |
| Output Voltage Overshoot-Startup  | Vin=Vin (min.) to Vin(max.) at Full Load; % of Vout (set)   |                             |           | 3.0  | %     |
| <b>REMOTE ON/OFF CONTROL<sup>(4)</sup></b>  |   |                             |           |      |       |
| Negative Logic (Option)   | DC-DC ON  | Open of -0.3~1.2VDC         |           |      |       |
|   | DC-DC OFF   | 3.0VDC~Vin (max.)           |           |      |       |
| Positive Logic (Standard)   | DC-DC ON  | Open or 3.0VDC~Vin(max.)    |           |      |       |
|   | DC-DC OFF   | -0.3~1.2VDC                 |           |      |       |
| Input Current of CTRL Pin   |   |                             |           | 0.2  | mA    |
| Remote OFF Input Current  |   |                             |           | 3.3  | mA    |
| Turn-On Delay Time <sup>(5)</sup>   |   |                             | 2.5       |      | ms    |
| Active Load Share (Option) <sup>(6)</sup>   | % of Iout rated   | Accuracy                    | 10        |      | %     |
|   |   | Number of units in parallel |           | 5    | pcs   |
| Sequencing Delay Time   | Delay from Vin, min. to application of voltage on SEQ pin   | 10                          |           |      | Ms    |
| Tracking Accuracy<br> V <sub>SEQ</sub> - Vout   | Vin(min.) to Vin(max.), Iout(min.) to Iout(max.), V <sub>SEQ</sub> < Vout<br>Power-Up (2V/ms)<br>Power-down (1V/ms) |                             | 100       |      | mV    |
|   |   |                             | 200       |      |       |
| <b>PROTECTION</b>   |   |                             |           |      |       |
| Short Circuit Protection  |   | Hiccup, Automatic Recovery  |           |      |       |
| Over Load Protection  | % of Iout rated   |                             | 150       |      | %     |
| Over Temperature Protection   |   |                             | 125       |      | °C    |
| <b>ENVIRONMENTAL SPECIFICATIONS</b>   |   |                             |           |      |       |
| Operating Case Temperature  | With Derating   | -40                         |           | +85  | °C    |
| Storage Temperature   |   | -55                         |           | +125 | °C    |
| Thermal Shock   |   | MIL-STD-810F                |           |      |       |
| Relative Humidity   | Non-Condensing  | 5                           |           | 95   | %RH   |
| Vibration   |   | MIL-STD-810F                |           |      |       |
| MTBF  | MIL-HDBK-217F, Full Load  |                             | 1,258,000 |      | Hours |
| <b>GENERAL SPECIFICATIONS</b>   |   |                             |           |      |       |
| Efficiency  |   | See Table                   |           |      |       |
| Switching Frequency   |   | 261                         | 300       | 339  | kHz   |

**SPECIFICATIONS**

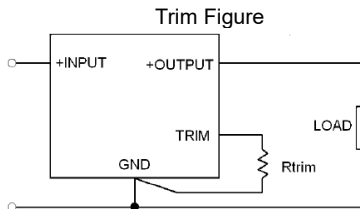
All specifications are based on 25°C, Nominal Input Voltage, and Maximum Output Current unless otherwise noted.  
We reserve the right to change specifications based on technological advances.

| SPECIFICATION                           | TEST CONDITIONS                                  |          | Min   | Typ | Max | Unit |
|---|--|----------|---|-----|-----|------|
| <b>PHYSICAL SPECIFICATIONS</b>          |  |          |   |     |     |      |
| Weight                                  | SMD Models                                       |          | 0.21oz (6g)   |     |     |      |
|   | SIP Models                                       |          | 0.25oz (7g)   |     |     |      |
| Dimensions (L x W x H)                  | SMD Models                                       | POLS-05T | 1.30in x 0.53in x 0.37in<br>(33mm x 13.5mm x 9.4mm) |     |     |      |
|   |  | POLS-12T | 1.30in x 0.53in x 0.31in<br>(33mm x 13.5mm x 7.8mm) |     |     |      |
|   | SIP Models                                       | POLT-05T | 2in x 0.50in x 0.37in<br>(50.8mm x 12.7mm x 9.4mm)  |     |     |      |
|   |  | POLT-12T | 2in x 0.50in x 0.31in<br>(50.8mm x 12.7mm x 7.8mm)  |     |     |      |
| <b>SAFETY &amp; EMC CHARACTERISTICS</b> |  |          |   |     |     |      |
| Safety Approvals                        | UL60950-1 <sup>(7)</sup> , EN60950-1, IEC60950-1 |          |   |     |     |      |
| Lead-Free Reflow Solder Process         | IPC J-STD-020D                                   |          |   |     |     |      |
| Moisture Sensitivity Level (MSL)        | IPC J-STD-033B<br>Level 2a                       |          |   |     |     |      |

**NOTES**

1. Test by minimum input and constant resistive load.
2. To make sure the module is stable, it is necessary that input external capacitors minimize input ripple voltage of the module.
3. Output voltage programmable from 0.8V to 5.0V 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:

$$R_{trim} = \left[ \frac{1200}{V_{out} - 0.80} - 100 \right] \Omega$$



Trim Table

| Vout(set) (VDC) | Rtrim (Ω) |
|-----------------|-----------|
| 0.8             | Open      |
| 1.2             | 2900      |
| 1.5             | 1614      |
| 1.8             | 1100      |
| 2.5             | 605       |
| 3.3             | 380       |
| 5.0             | 185       |

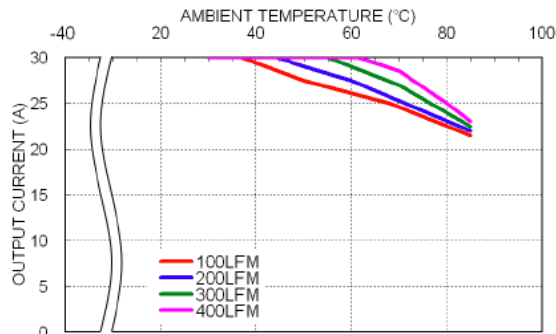
4. Referred to -Vin pin
5. Case 1: ON/OFF input is set to logic low (module on) and then input power is applied (delay from instant at which Vin=Vin(min) until Vout=10% of Vout(set))  
Case 2: Input power is applied for at least one second and then the ON/OFF input is set to logic low (delay from instant at which Von/off=0.3VDC until Vout=10% of vout(set))
6. Selecting current share function may cause regulations to not meet listed specifications.
7. This product is Listed to applicable standards and requirements by UL.

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

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

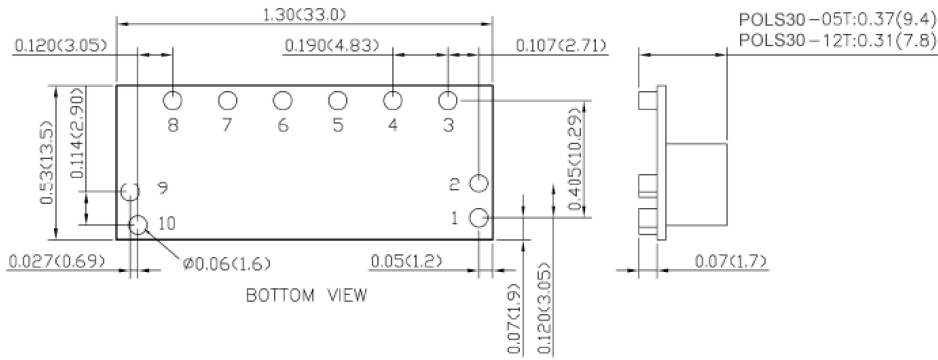
**DERATING CURVES**

POLS30-05T, Vout=3.3V Derating Curve



MECHANICAL DRAWINGS

POL30

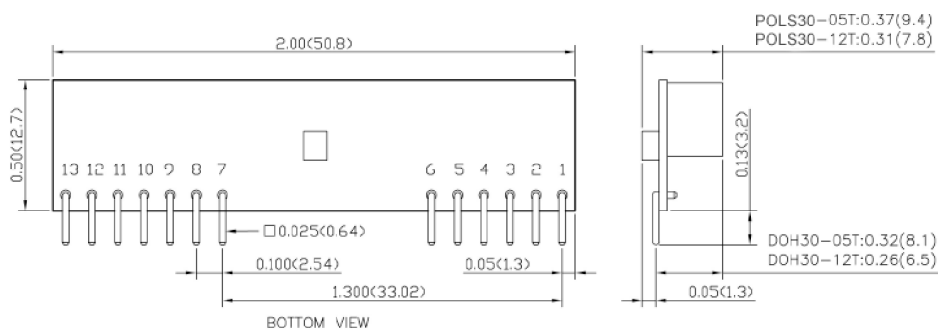


| PIN CONNECTION |                |
|----------------|----------------|
| PIN            | DEFINE         |
| 1              | Ctrl           |
| 2              | GND (option)   |
| 3              | Share (option) |
| 4              | +Sense         |
| 5              | Trim           |
| 6              | +Vout          |
| 7              | GND            |
| 8              | Seq            |
| 9              | GND (option)   |
| 10             | +Vin           |

Notes:

1. All dimensions in inch (mm)
2. Tolerance: x.xx±0.02 (x.xx±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)

POLT30



| PIN CONNECTION |                |
|----------------|----------------|
| PIN            | DEFINE         |
| 1              | +Vout          |
| 2              | +Vout          |
| 3              | +Sense         |
| 4              | +Vout          |
| 5              | GND            |
| 6              | GND            |
| 7              | Share (Option) |
| 8              | GND            |
| 9              | +Vin           |
| 10             | +Vin           |
| 11             | Seq            |
| 12             | Trim           |
| 13             | Ctrl           |

MODEL NUMBER SETUP

| POLS   | 30             | - | 05  | T           | - | P  |
|--|----------------|---|---|-------------|---|--|
| Series Name                                    | Output Voltage |   | Input Voltage                               | No Assembly |   | Assembly   |
| <b>POLS:</b> SMD Type<br><b>POLT:</b> SIP Type | <b>30:</b> 30A |   | <b>05:</b> 4.5~5.5VDC<br><b>12:</b> 6~14VDC |             |   | <b>None:</b> Remote On/Off Positive Logic<br><b>P:</b> Remote On/Off Negative Logic<br><b>S:</b> Current Share<br><b>E:</b> Extra GND pin 2 extra GND <sup>(1)</sup><br><b>L:</b> Long Pins 5.08mm±0.25mm <sup>(2)</sup> |

Notes:

1. E for SMD Type Only
2. L for SIP Type Only

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

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