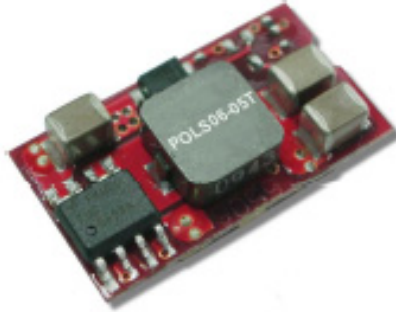
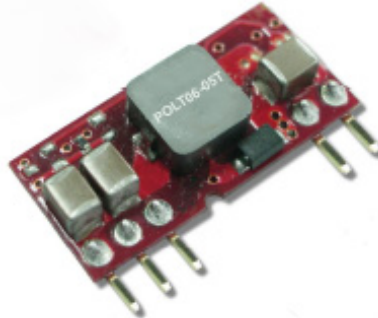


SMD Package Type



Size: 0.80in x 0.45in x 0.21in

SIP Vertical Package Type



Size: 0.90in x 0.40in x 0.20in

SIP Horizontal Package Type



Size: 0.90in x 0.40in x 0.36in

OPTIONS

- SMD or SIP Packages
- Vertical or Horizontal Mounting for SIP Packages
- Remote Control Positive or Negative Logic

APPLICATIONS

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

FEATURES

- Input Voltage Range of 2.4~5.5VDC
- High Efficiency of 94%
- Small Size and Low Profile
- Delivers up to 6A of Output Current
- No Minimum Load Required
- Remote ON/OFF
- Open Frame Design
- SMD & SIP Packages Available
- Fixed Switching Frequency
- Input Under-Voltage Lockout
- Over Load, Over Temperature, and Short Circuit Protection
- CE Marked
- RoHS II & REACH Compliant
- UL60950-1, EN60950-1, & IEC60950-1 Safety Approvals

DESCRIPTION

The POL06-05T series of DC DC open frame converters delivers up to 6A of output current in a small size and low profile package. This series consists of output voltages ranging from 0.75 to 3.3VDC and an input voltage range of 2.4-5.5VDC. No minimum load is required for this series, and it has a fixed switching frequency and high efficiency of 94%. POL06-05T offers several different options such as surface mount or through hole package type, vertical or horizontal mounting on the SIP package type, and positive or negative logic. This series has over load, over temperature, and short circuit protection, as well as UL60950-1, EN60950-1, and IEC60950-1 safety approvals. It is RoHS II and REACH compliant. Please call factory for order details.

MODEL SELECTION TABLE

| Model Number | Input Voltage Range | Output Voltage | Output Current @ Full Load | Efficiency | Package | ON/OFF Logic |
|---------------|----------------------|----------------|----------------------------|------------|----------------|--------------|
| POLS06-05T | 5VDC (2.4~5.5VDC) | 0.75~3.3VDC | 6A | 94% | SMD | Positive |
| POLS06-05T-P | | | | | | Negative |
| POLT06-05T | 5VDC (2.4~5.5VDC) | 0.75~3.3VDC | 6A | 94% | SIP Vertical | Positive |
| POLT06-05T-P | | | | | | Negative |
| POLT06-05TA | | | | | SIP Horizontal | Positive |
| POLT60-05TA-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 | $V_{out(set)} < V_{in} - 0.5VDC$ | 2.4 | 5 | 5.5 | VDC |
| Maximum Input Current | $V_{in} = V_{in(min.)}$ $V_{out(set)} = 3.3VDC$, $I_o = I_o(max.)$ | | 6 | | A |
| Shutdown Voltage | | | 2.0 | | VDC |
| Start-Up Voltage | | | 2.2 | | VDC |
| Input Reflected Ripple Current | 5~20MHz, 1 μ H source impedance | | 35 | | mAp-p |
| Input Filter ⁽¹⁾ | | Capacitor Type | | | |
| Input No Load Current | $V_o, set = 0.75VDC$ | | 20 | | mA |
| | $V_o, set = 3.3VDC$ | | 45 | | |
| OUTPUT SPECIFICATIONS | | | | | |
| Output Voltage | | 0.75 | | 3.3 | VDC |
| Voltage Accuracy | % of V_{out} | -2.0 | | +2.0 | % |
| Line Regulation | $V_{in} = V_{out(set)} + 0.5VDC$ to $V_{in(max.)}$ at Full Load; % of V_{out} | -0.3 | | +0.3 | % |
| Load Regulation | No Load to Full Load; % of V_{out} | -0.4 | | +0.4 | % |
| Voltage Adjustability ⁽²⁾ | | 0.7525 | | 3.63 | VDC |
| Output Current | | | | 6 | A |
| Minimum Load | | 0 | | | % |
| Maximum Capacitor Load ⁽³⁾ | $ESR \geq 1m\Omega$ | | 1000 | | μ F |
| | $ESR \geq 10m\Omega$ | | 3000 | | |
| Ripple & Noise (20MHz bandwidth) | Measured by 20MHz bandwidth, with a 1 μ F MLCC & a 10 μ F T/C | | | 20 | mVrms |
| | | | | 50 | mVp-p |
| Dynamic Load Response ⁽⁴⁾ | $\Delta I_o / \Delta t = 2.5A/\mu S$, $V_{in, nom}$ | | Peak Deviation | | |
| | Load change step (50% to 100% or 100% to 50% of I_o, max) | | Setting time ($V_o < 10\%$ peak deviation) | 130 | mV |
| Dynamic Load Response ⁽⁵⁾ | $\Delta I_o / \Delta t = 2.5A/\mu S$, $V_{in, nom}$ | | Peak Deviation | | |
| | Load change step (50% to 100% or 100% to 50% of I_o, max) | | Setting time ($V_o < 10\%$ peak deviation) | 60 | μ S |
| Output Voltage Overshoot-Startup | $V_{in} = 2.4 \sim 5.5VDC$ at Full Load; % of $V_{out(set)}$ | | 1.0 | | % |
| Temperature Coefficient | | -0.4 | | +0.4 | %/°C |
| Rise Time | Time for V_{out} to rise from 10% to 90% of $V_{out(set)}$ | | | 6 | mS |
| REMOTE ON/OFF CONTROL⁽⁶⁾ | | | | | |
| Negative Logic (Option) | DC-DC ON | | Open or 0~0.3VDC | | |
| | DC-DC OFF | | 1.5VDC~ $V_{in(max)}$ | | |
| Positive Logic (Standard) | DC-DC ON | | Open or $V_{in(max)}$ | | |
| | DC-DC OFF | | 0~0.3VDC | | |
| Input Current of CTRL Pin | | 0.01 | | 1.0 | mA |
| Remote OFF Input Current | | | 0.6 | | mA |
| Turn-on Delay Time | Case 1 ⁽⁷⁾ | | 1 | | mS |
| | Case 2 ⁽⁸⁾ | | | | |
| PROTECTION | | | | | |
| Short Circuit Protection | | Continuous, Automatic Recovery | | | |
| Over Load Protection | % if I_{out} Rated | | 220 | | % |
| Over Temperature Protection | | | 135 | | °C |
| ENVIRONMENTAL SPECIFICATIONS | | | | | |
| Operating Ambient 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 | | | |
| Lead-Free Reflow Solder Process | | IPC J-STD-020D | | | |
| Moisture Sensitivity Level (MSL) | | IPC J-STD-033B Level 2a | | | |
| MTBF | MIL-HDBK-217F, Full Load | 9,398,000 | | | Hours |

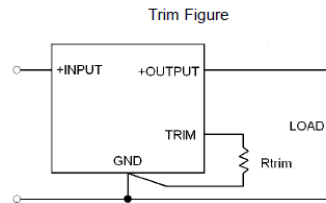
SPECIFICATIONS

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 |
|---|---------------------------|---|--------------|-----|------|
| GENERAL SPECIFICATIONS | | | | | |
| Efficiency | Vin(nom) 3.3VDC@Full Load | | 94 | | % |
| Switching Frequency | | 270 | 300 | 330 | KHz |
| PHYSICAL SPECIFICATIONS | | | | | |
| Weight | | | 0.1oz (2.8g) | | |
| Dimensions (L x W x H) | SMD Package | 0.80in x 0.45in x 0.21in (20.3mm x 11.4mm x 5.4mm) | | | |
| | SIP Vertical Package | 0.90in x 0.40in x 0.20in (22.9mm x 10.2mm x 5.0mm) | | | |
| | SIP Horizontal Package | 0.90in x 0.40in x 0.36in (22.9mm x 10.2mm x 9.1mm) | | | |
| SAFETY & EMC CHARACTERISTICS | | | | | |
| Safety Approvals | | UL60950-1 EN60950-1 IEC60950-1 | | | |

NOTES

- 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 to ensure module stability. The external C_{in} is 2pcs of 150µF low-ESR polymer capacitors // 2pcs of 47µF ceramic capacitors at least.
- Output voltage 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 R_{trim} for a particular output voltage V_{out} , use the following equation:

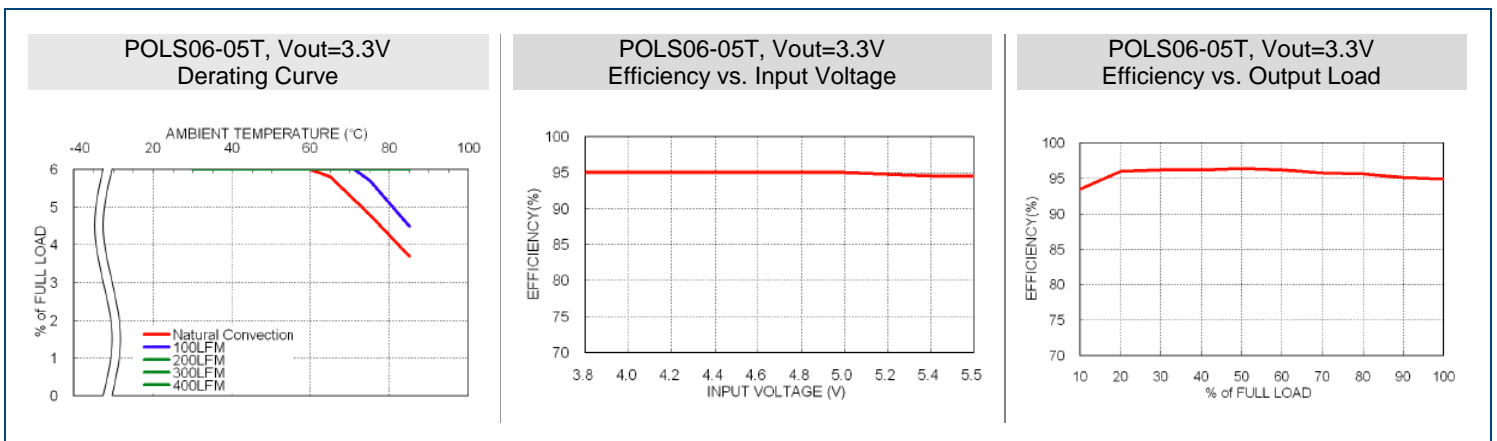


| Vout(set) (VDC) | Rtrim (kΩ) |
|-----------------|------------|
| 0.7525 | Open |
| 1.2 | 41.973 |
| 1.5 | 23.077 |
| 1.8 | 15.004 |
| 2.5 | 6.974 |
| 3.3 | 3.160 |

- Test by minimum input and constant resistive load.
- With a 1µF MLCC & a 10µF T/C
- With 2pcs of 150µF polymer capacitors.
- Remote ON/OFF referred to -Vin pin
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
- 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 on the ON/OFF input is set to logic low (delay from instant at which $V_{on/off}=0.3VDC$ unit $V_{out}=10\%$ of $V_{out(set)}$)

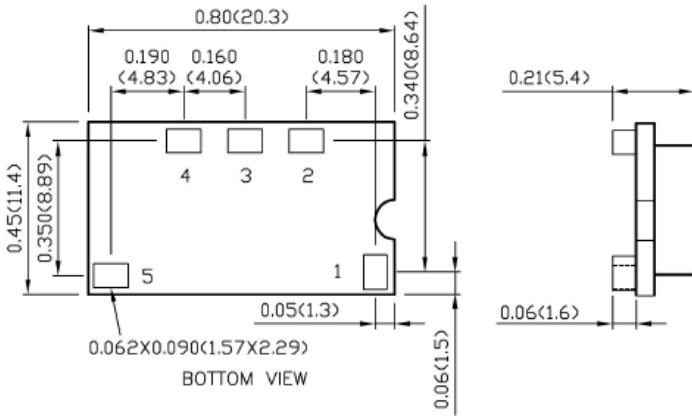
CAUTION: This power module is not internally fused. An input line fuse must be always be used.

CHARACTERISTIC CURVES



MECHANICAL DRAWINGS

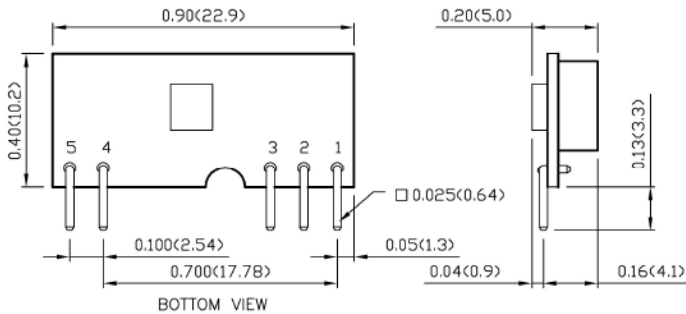
SMD Package



PIN Connection

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

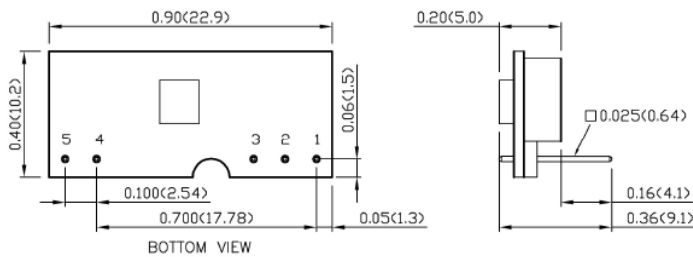
SIP Vertical Package



PIN Connection

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

SIP Horizontal Package



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

1. All dimensions in inch (mm)
2. Tolerance: $x.xx \pm 0.02$ ($x.x \pm 0.5$)
 $x.xxx \pm 0.01$ ($x.xx \pm 0.25$)
3. Pin pitch tolerance ± 0.01 (0.25)
4. Pin dimension tolerance ± 0.004 (0.1)

MODEL NUMBER SETUP

| POLT | 06 | - | 05 | TA | P |
|--|----------------|----------|-----------------------|---|---|
| Series Name | Output Current | | Input Voltage | Package | Remote Control Option |
| POLS: SMD Type POLT: SIP Type | 06: 6A | | 05: 2.4-5.5VDC | T: No Assembly T: Vertical Mounting SIP TA Horizontal Mounting SIP | 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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