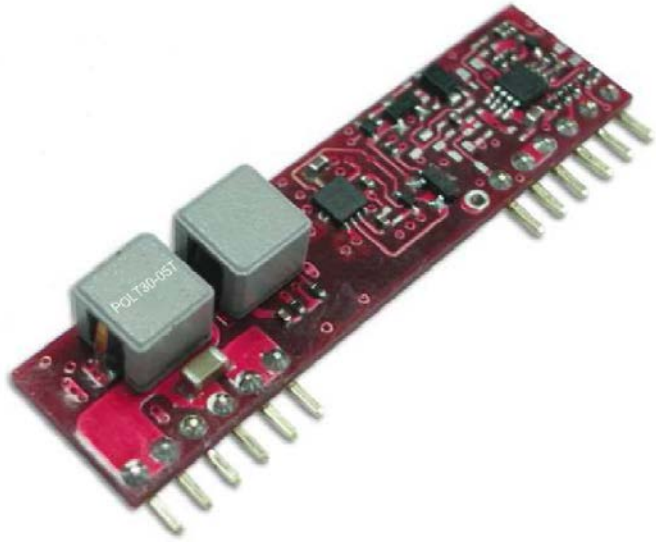
SMD Package

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 non-isolated open frame converters offers up to 30A output current 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 Vin(nom), 3.3VDC	Package Type	Maximum Capacitive Load[1] ESR≥1mΩ/ESR≥10mΩ	Efficiency Vin(nom), 3.3VDC @Full Load
POLS30-05T	4.5~5.5VDC Vin(min.)=Vout(set)+1.5	0.8~3.63VDC	30A	180mA	SMD	2000/10000µF	93%
POLT30-05T					SIP		
POLS30-12T	6~14VDC Vin(min.)=Vout(set)+2.4	0.8≤Vout≤2.75	30A	200mA	SMD	2000/10000µF	93%
		2.75<Vout≤3.63	20A				
POLT30-12T		0.8≤Vout≤2.75	30A		SIP		
		2.75<Vout≤3.63	25A				

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	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(2)		Capacitor Type			
OUTPUT SPECIFICATIONS					
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(3)	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		30		mV
	50% load step change Setting time (Vout<10% peak deviation)		25		µs
Dynamic Load Response	With 2pcs of 150µF polymer capacitors				
	ΔIo/Δt=5A/µs, Vin(nom) Peak Deviation		250		mV
	50% load step change Setting Time(Vout<10% peak deviation)		40		µs
Temperature Coefficient		-0.5		+0.5	%/ºC
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	%
REMOTE ON/OFF CONTROL(4)					
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(5)			2.5		ms
Active Load Share (Option)(6)	% of Iout rated — Accuracy		10		%
	% of Iout rated — 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 $\lvert V_{SEQ} - Vout \rvert$	Vin(min.) to Vin(max.), Iout(min.) to Iout(max.), V_{SEQ} < Vout				mV
	Power-Up (2V/ms)		100		
	Power-down (1V/ms		200		
PROTECTION					
Short Circuit Protection		Hiccup, Automatic Recovery			
Over Load Protection	% of Iout rated		150		%
Over Temperature Protection			125		ºC
ENVIRONMENTAL SPECIFICATIONS					
Operating Case Temperature	With Derating	-40		+85	ºC
Storage Temperature		-55		+125	ºC
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
GENERAL SPECIFICATIONS					
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.

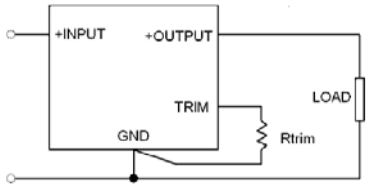
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
PHYSICAL SPECIFICATIONS						
Weight	SMD Models			0.21oz (6g)		
	SIP Models			0.25oz (7g)		
Dimensions (L x W x H)	SMD Models	POLS-05T		1.30in x 0.53in x 0.37in (33mm x 13.5mm x 9.4mm)		
		POLS-12T		1.30in x 0.53in x 0.31in (33mm x 13.5mm x 7.8mm)		
	SIP Models	POLT-05T		2in x 0.50in x 0.37in (50.8mm x 12.7mm x 9.4mm)		
		POLT-12T		2in x 0.50in x 0.31in (50.8mm x 12.7mm x 7.8mm)		
SAFETY & EMC CHARACTERISTICS						
Safety Approvals	UL60950-1, EB60950-1, IEC60950-1					
Lead-Free Reflow Solder Process	IPC J-STD-020D					
Moisture Sensitivity Level (MSL)	IPC J-STD-033B 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 a particular output voltage Vout, use the following equation:

$$Rtrim = \left[\frac{1200}{Vout - 0.80} - 100\right]\Omega$$

Trim Figure



Trim Table

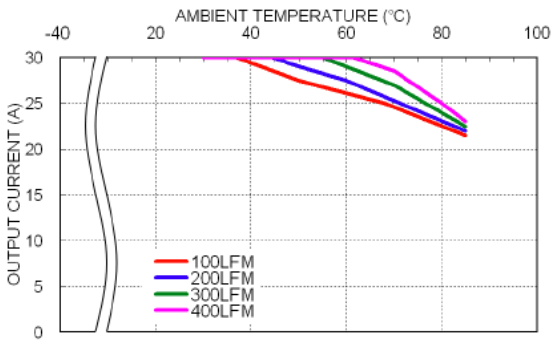
Vout(set) (VDC)	Rtrim (Ω)
0.8	Open
1.2	2900
1.5	1614
1.8	1100
2.5	605
3.3	380
5.0	185

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.

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.*

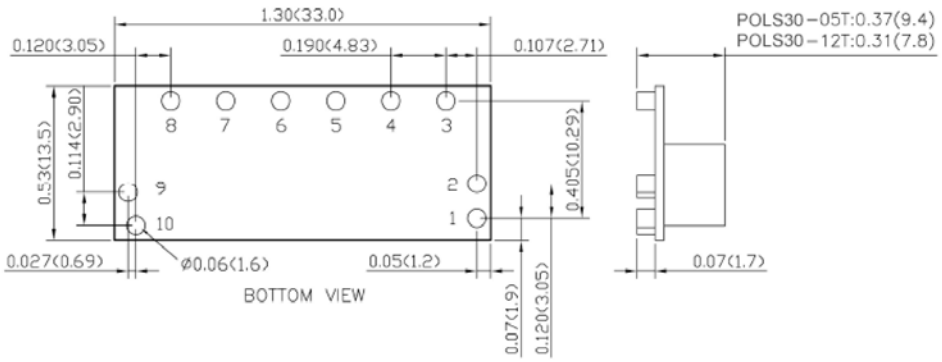
DERATING CURVES

POLS30-05T, Vout=3.3V Derating Curve



MECHANICAL DRAWINGS

POLS30

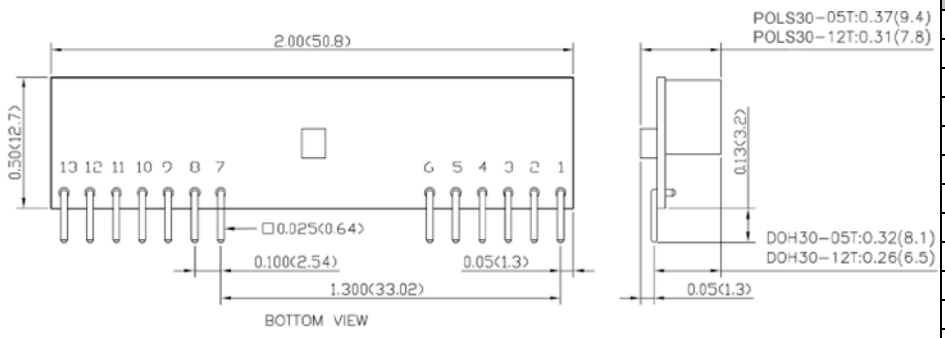


PIN CONNECTION

PIN	DEFINE
1	Ctrk
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
POLS: SMD Type **POLT:** SIP Type	**30:** 30A		**05:** 4.5~5.5VDC **12:** 6~14VDC			**None:** Remote On/Off Positive Logic **P:** Remote On/Off Negative Logic **S:** Current Share **E:** Extra GND pin 2 extra GND(1) L: Long Pins 5.08mm±0.25mm(2)

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 ISO9001-2008 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.

Contact **Wall Industries** for further information:

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