60V 200mA Active Inductor XL1101

Features

- Support bus power and power extraction
- Solid-state circuit, noise-free
- Equivalent inductance: 2.5mH
- Operating voltage: 12V to 60V
- Output current: 200mA
- Communication speed adaptation from 9.6kbps to 200kbps
- Operating temperature: -40℃~125℃
- Available in DFN4*4-10 package

Applications

- Central Air Conditioner
- HVAC
- Smart Home
- Communication Device

General Description

The XL1101 is an active inductor specifically optimized for DC power line communication solutions. Built with solid-state circuitry, it features a compact footprint, silent operation, long lifespan, high reliability, a wide operating voltage range, and a high saturation current, making it an ideal replacement for traditional differential-mode transformers. The XL1101 supports both bus powering and power harvesting. On the master side, it enables the power supply to deliver power onto the bus; on the slave side, it extracts power from the bus to supply downstream loads.

Manufactured using solid-state technology, the XL1101 supports communication data rates from 9.6 kbps to 200 kbps. With no magnetic cores or coils inside, it eliminates mechanical oscillation noise. Additionally, its small size and lightweight design effectively minimize PCB footprint.

Typical application schematic

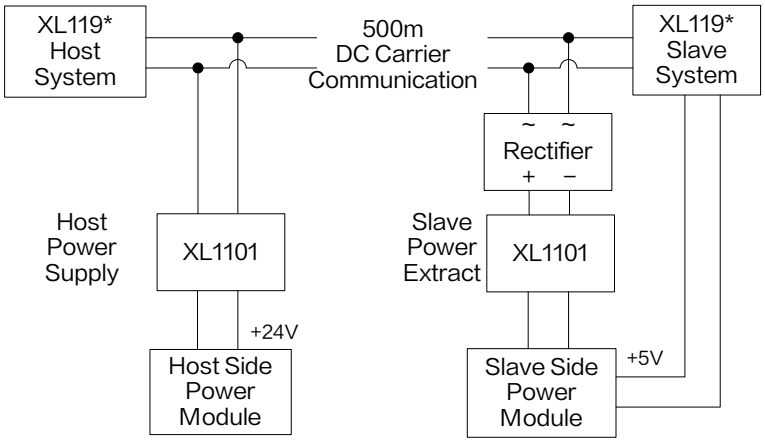


Figure1.Typical Application of XL1101

Pin Configurations

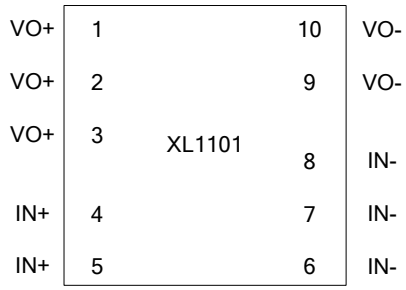


Figure2. Pin Configuration of XL1101

Table 1 Pin Description

Pin Number	Pin Name	Description
1~3	VO+	Positive output, connect to load positive.
4~5	IN+	Positive input, connect to power supply positive.
6~8	IN−	Negative input, connect to power supply negative.
9~10	VO−	Negative output, connect to load negative.

Ordering Information

Order Information	Marking ID	Package Type	Eco plan	Packing Type Supplied As
XL1101	XL1101	DFN4*4−10	RoHS & HF	1000 Units on Reel

Function Block

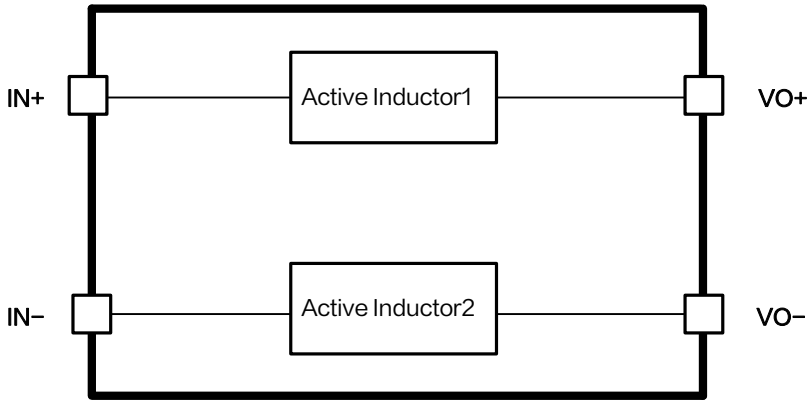


Figure3. Function Block Diagram of XL1101

Absolute Maximum Ratings（Note1）

Parameter	Symbol	Value	Unit
Operating Junction Temperature	T_J	−40 ~ 125	℃
Storage Temperature	T_{STG}	−65 ~ 150	℃
Lead Temperature (Soldering, 10 sec)	T_{LEAD}	260	℃

Note1: Stresses greater than those listed under Maximum Ratings may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operation is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

Electrical Characteristics

T_A = 25℃, Communication speed 19.2kbps.

Parameters	Symbol	Min.	Typ.	Max.	Unit
Operating Voltage	V_{IN}	12	–	60	V
Rated Current	I_{OUT}	–	200	–	mA
Rated Power Consumption	P_D	–	800	–	mW
Equivalent Inductance 1	L1	–	2.5	–	mH
Equivalent Inductance 2	L2	–	2.5	–	mH

Typical Application Schematic–Host Power Supply

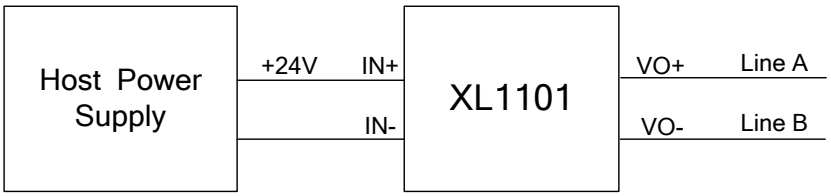


Figure4.XL1101 Application Schematic–Host Power Supply

Typical Application Schematic–Slave Power Extract

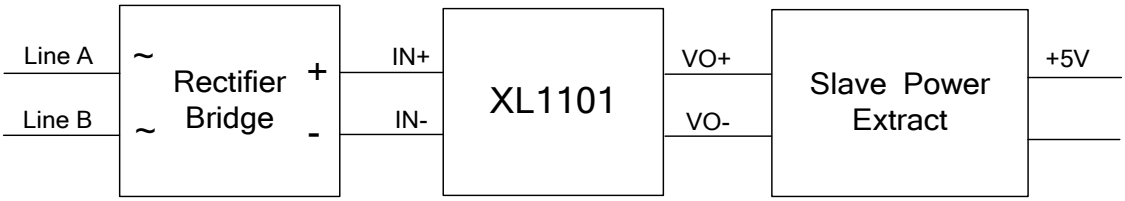
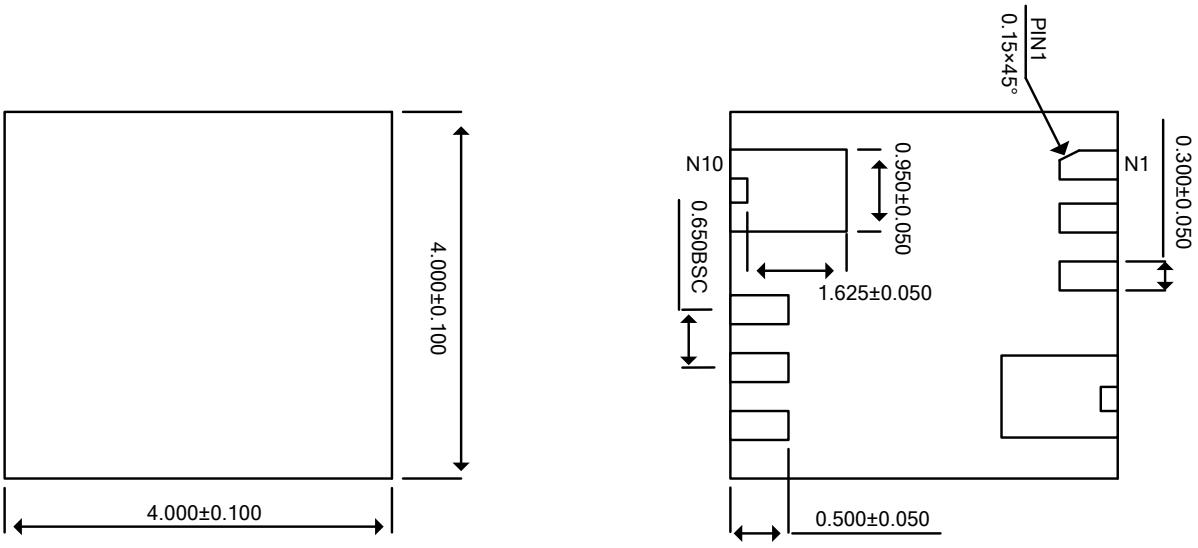


Figure5.XL1101 Application Schematic–Slave Power Extract

Package Information

DFN4*4-10



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