SPECIFICATION FOR APPROVAL

CUSTOMER :

PRODUCT NAME: Isolated PoE module for commercial displays

PRODUCT MODEL : TSD-V169B/TSD-V169B-30

BRAND : TST（OEM/ODM）

DATE : 2024 / 06 / 26

DRAWING			CUSTOMER APPROVE
DESIGNED	CHECKED	APPROVED	
VANNE	YOUTRONG	Mark	
DATE	2024 / 06 / 26		Please return the visa after confirmation, thank you!

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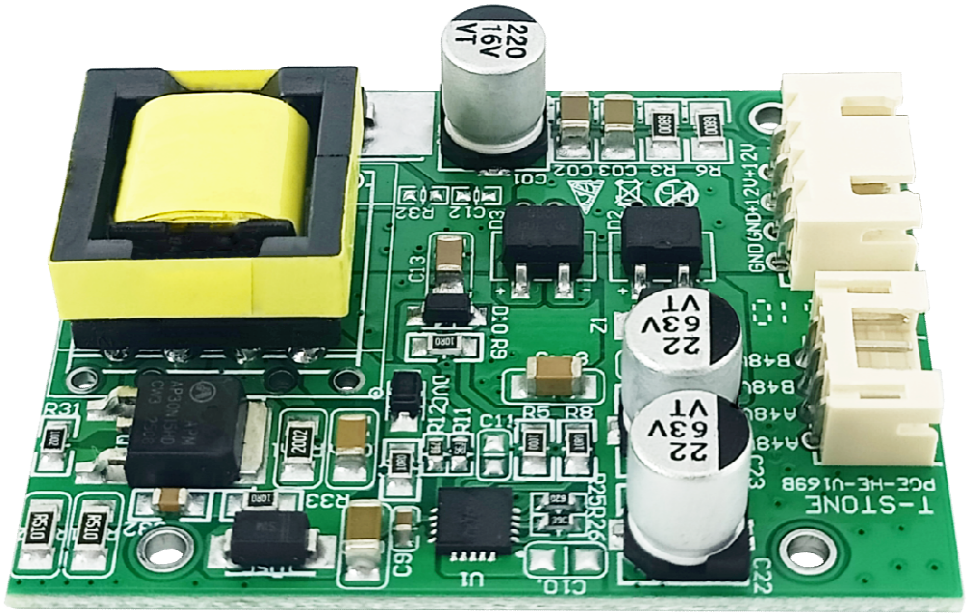


What Is PoE

PoE (Power over Ethernet) refers to the technology that can transmit data signals for some IP-based terminals (such as IP phones, wireless LAN access point APs, IP cameras, etc.) without any changes to the existing Ethernet Cat.5 cabling infrastructure, and can also provide DC power supply for such devices.

A complete PoE system consists of two parts: Power Sourcing Equipment (PSE) and Powered Device (PD). The PSE device is the device that powers the Ethernet client device and is also the manager of the entire PoE (Power-over-Ethernet) process. The PD device is the PSE load that receives the power supply, that is, the client device of the PoE system. Based on the IEEE 802.3af/at standard, the two establish information about the connection status, device type, power consumption level and other aspects of the PD of the power receiving device, and use this as the basis for PSE to supply power to the PD through Ethernet.

The Principle of PoE

The standard Category 5 cable has four twisted pairs, but only two pairs are used in l0M BASE-T and 100M BASE-T. IEEE80 2.3af/at allows two uses: (1) When the idle pin is used for power supply, pins 4 and 5 are connected as the positive pole, and pins 7 and 8 are connected as the negative pole. (2) Pin 1 and pin 2 are connected as the positive pole, and pin 3 and 6 are connected as the negative pole.

The Advantages of PoE

1. Save labor and material costs. Compared with the traditional wiring method of weak current engineering, PoE only needs to install a network cable to make the IP equipment work normally. In many cases, PoE is more advantageous in the places where it is difficult to deploy AC power. As the number of network devices in the system increases, the use of PoE eliminates the need for local power supply for the equipment, which will greatly reduce deployment costs and simplify their manageability.

2. Easy to install and manage. Customers can autonomously and securely mix PoE devices and legacy devices within the system, and can coexist with existing Ethernet cables. PoE devices are compatible with the management system of existing network devices and can share the management platform with existing network devices.

3. Good security. The Power Sourcing Equipment（PSE） in a PoE system will only supply power to the Powered Device （PD） that needs to be powered. Only when the Device that needs to be powered is connected and the protocol is successfully identified, the power supply equipment will have a voltage output and supply power to the powered device, thus eliminating the risk of leakage and short circuit on the line.

Product Introduction

The TSD-V169B is a single-function module that can be applied in devices such as commercial displays, all-in-one computers, and electronic bulletin boards. The module receives DC signals from PoE, converts and processes the 38-56V DC power through its internal circuitry, and outputs a 12V 1.5A DC power supply.

When the user's device already has a network filter, but the voltage from the PoE signal is too high to supply power directly, integrating the TSD-V169B module into the user's device can provide stable 12V direct current for the terminal device.

The V169B product series includes two models in total:

TSD-V169B: Outputs 12V 1.5A direct current, with a maximum output power of 20W;

TSD-V169B-30: Outputs 12V 2.5A direct current, with a maximum output power of 30W.

Product Description

TSD - V169B Module Interface and Dimensions

Input Interface: a 4 - pin PH2.0mm socket, which accepts a DC 38 - 56V input signal.

Output Interface: a 4 - pin PH2.54mm socket, providing a 12V 1.5A DC output signal.

Overall Dimensions: 50*40*11 mm.PCB Design: It features a square - shaped structure. The PCB has a thickness of 1.6mm, and the maximum thickness of the module is 11mm. The surface of the PCB is coated with bright - green solder mask. Module design: Two-layer PCB with single-sided layout. Screw Holes: There are four screw holes with a diameter of Φ = 2.0mm.Both the input and output of the TSD - V169B use high - temperature - resistant and flame - retardant horizontal sockets, ensuring safe and convenient plugging and unplugging for users.Net Weight: Each module weighs 15 grams.

The TSD - V169B is a PoE module with isolation function. In addition, the module's circuit is equipped with multiple protection functions, including 4KV surge protection, over - heat protection, over - voltage protection, over - current protection, and short - circuit protection. These features enable it to operate safely in various scenarios. The TSD - V169B has a maximum output power of 20W. It supports wide - voltage DC input ranging from 38V to 56V and provides a 12V 1.5A DC output signal.

The TSD - V169B complies with the IEEE802.3af PoE international standard protocol. It has obtained authoritative certifications such as CE, FCC, and RoHS. The product's EMC (Electromagnetic Compatibility) parameters meet the requirements of IEC 61000 - 4 - 2/3/4/5/6 standards. High - quality original components from well - known brands are used in the product, ensuring high precision, excellent performance, and reliable quality and safety. Since its launch on the market, it has received unanimous praise from domestic and international users.

Product Features

- Input: Wide - voltage DC power via PoE, ranging from 38V to 56V
- Output: 12V DC with a maximum current of 1.5A

- IEEE802.3af PoE international standard protocol
- Certified by authoritative authorities such as CE, FCC, and RoHS
- Meets the requirements of IEC 61000 - 4 - 2/3/4/5/6 standards for electromagnetic compatibility (EMC).
- Fully compatible with RJ12 + RJ36 - / RJ45 + RJ78 -
- Provides 4KV surge protection to safeguard the device from voltage spikes
- Incorporates short - circuit protection, overload protection, over - heat protection, and over - voltage protection to ensure safe operation
- Features a two - layer board with single - side design
- Made of beige, high - temperature - resistant, flame - retardant materials. It uses horizontal interface sockets
- Equipped with solid - state surface - mount capacitors, which offer a long service life and stable performance
- The PCB is made of environmentally friendly, high - temperature - resistant material
- Employs a pure - copper, thick - wire - core transformer for efficient power conversion
- Uses high - precision electronic components from well - known brands to ensure reliable operation
- Features high - power, high - conductivity, low - impedance transistors for efficient power handling
- Comes with pure - copper pin connectors to guarantee stable electrical contact
- Achieves a conversion efficiency of over 85%, minimizing power loss during the conversion process

Specifications

Product parameter table		
Product Name	Isolated PoE module for commercial displays	
Product Model	TSD-V169B	TSD-V169B-30
PoE Standard	IEEE802.3af	IEEE802.3af/at
Input Voltage	PoE: DC 38-56V	
Output	12V DC MAX1.5A	12V DC MAX2.5A
Conversion Efficiency	≧85%	
PoE Pin	RJ12+ RJ36- / RJ45+ RJ78- Fully compatible	
Conversion Mode	Isolated type	
Data Rate	/	
Transmission Distance	100 meters(Category 5e Cable (Cat5e))	
Surge Protection	4KV	

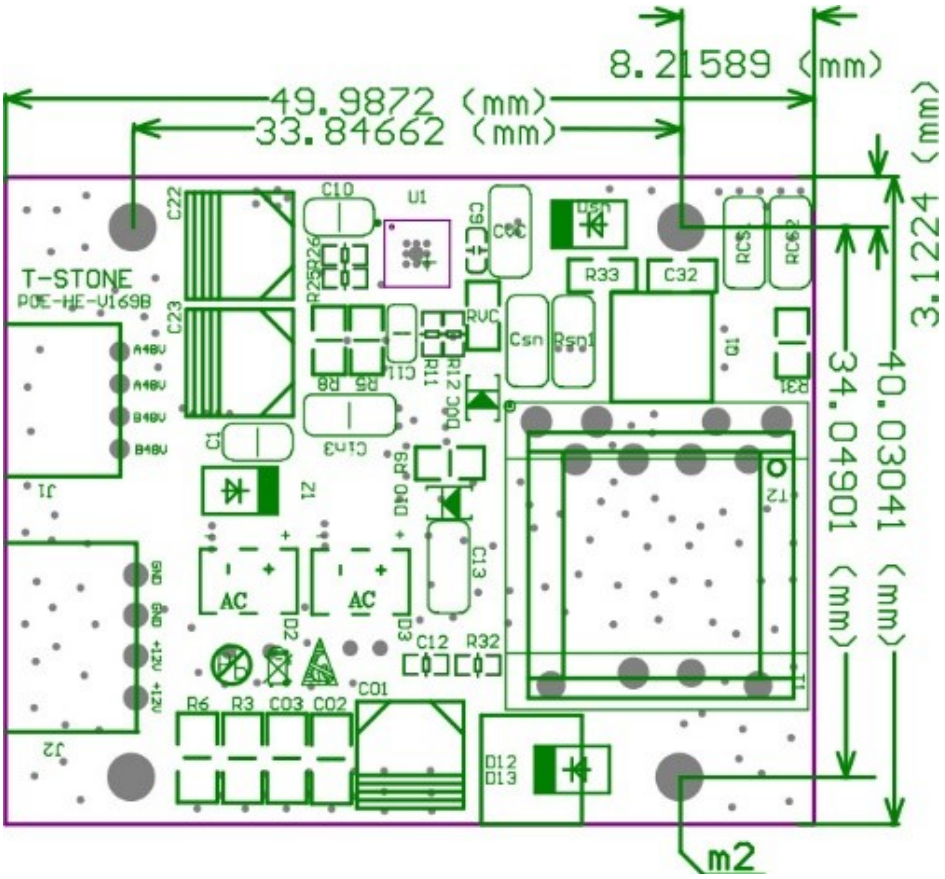
Circuit Protection	Short-circuit Protection, overcurrent Protection Overvoltage Protection, overheating Protection
LED Indicator	/
Interface	Input Port (4 - Pin PH2.0mm Socket): DC 38-56V IN Output Port (4 - Pin PH2.54mm Socket): DC 12V OUT
Function	/
Material	FR-4
Color	bright green oil
Accessories	/
EMC	IEC 61000-4-2/3/4/5/6
Temperature	-30～65℃ For Operating -40～80℃ For Storage
Humidity	RH95% MAX (Non-condensation)
Weight	N.W: 15g
Dimension	50*40*11 mm
Package	Anti-static pearl cotton

Product Applications

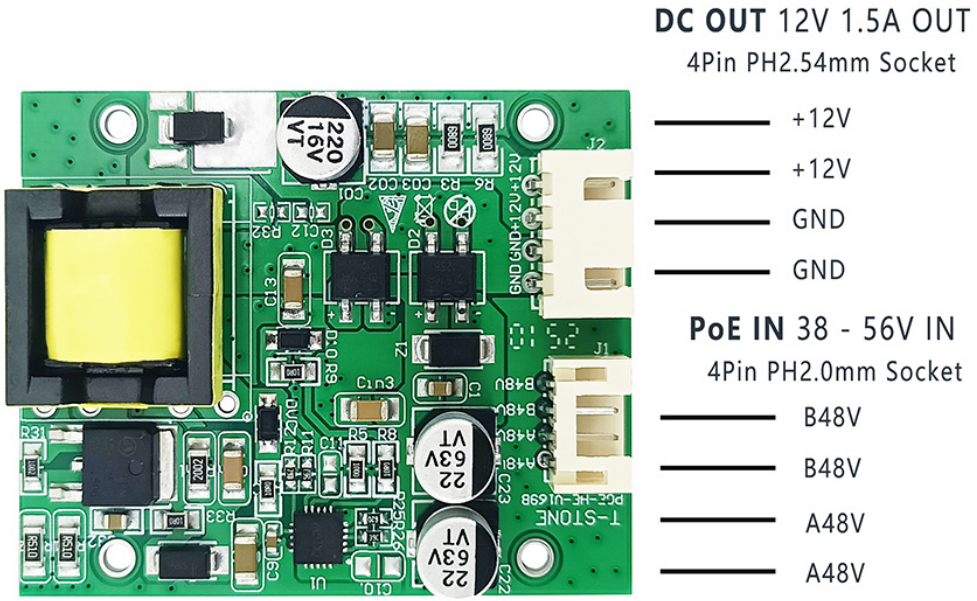
The TSD - V169B offers users a variety of power supply options. This module is lightweight and compact, with an overall height of less than 15mm. It can be flexibly installed in various types of terminal devices. This not only eliminates the need for users to carry out additional power wiring but also ensures safe and reliable power supply for the devices.

When using the TSD - V169B, users should note that it does not come with a network filter. It only processes the electrical signal in the PoE signal to provide DC power to the terminal devices.

Dimensions


8.21589 (mm)
49.9872 (mm)
33.84662 (mm)
3.1224 (mm)
40.03041 (mm)
34.04901 (mm)
m2
T-STONE
POE-HE-V169B

Interface Definition



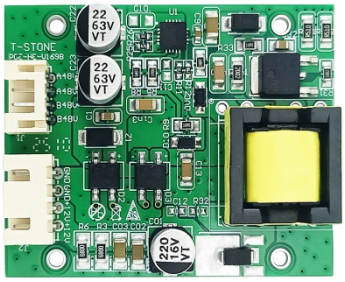
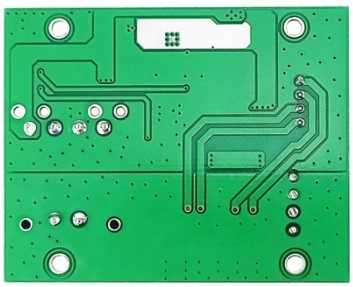
Application Scenarios

Outdoor advertising machine

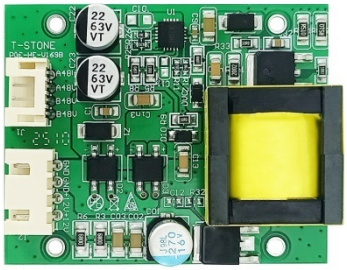
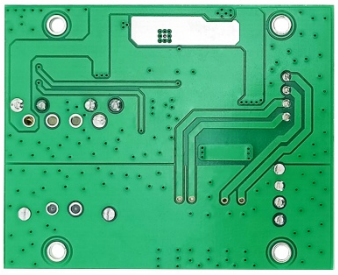
Electronic class sign

Commercial display screen

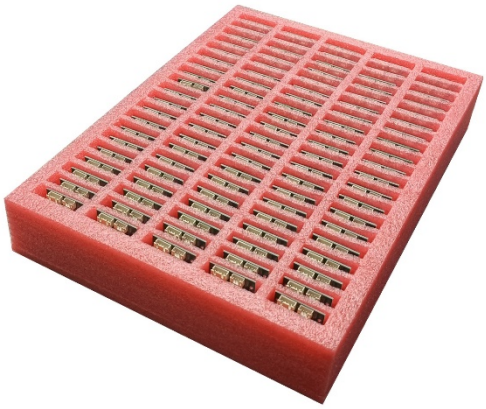
Product Detail (TSD-V169B)

Product Detail (TSD-V169B-30)

Product Package



Package Size: 41*29*32 cm (L*W*H)

MPQ: 500 PCS

N.W: 7.5 kg

G.W: 8.6 kg