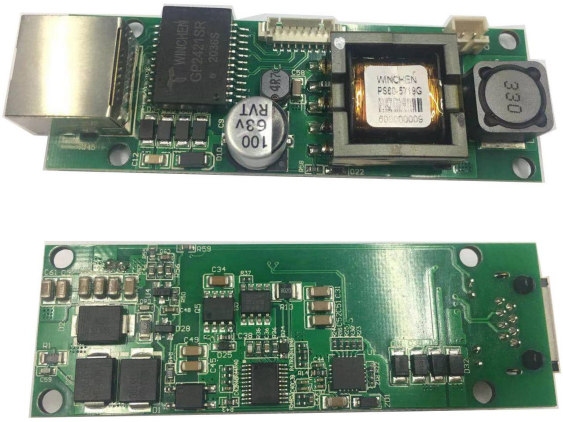
Power-Over-Ethernet Module



1. Product characteristics

- Compliant with IEEE802.3bt&IEEE802.3 at standard
- 42V~57V wide operating voltage range.
- The maximum output power can be 38W: 19V/2A.
- The output ripple is less than 150 mV.
- Conversion efficiency can be as high as 87% (input: 48V, output)19V@2A).
- With over-current and short-circuit protection measures.
- Input/Output: isolate 2000Vdc.
- Signal transmission is 1000Mbps

2.Scope of application

□ IEEE 802.3at Compatible Devices
□ Video and VoIP Phone
□ PoS terminal, RFID terminal
□ Fiber to Home (FTTH) Terminal
□ Security Camera

3. describe

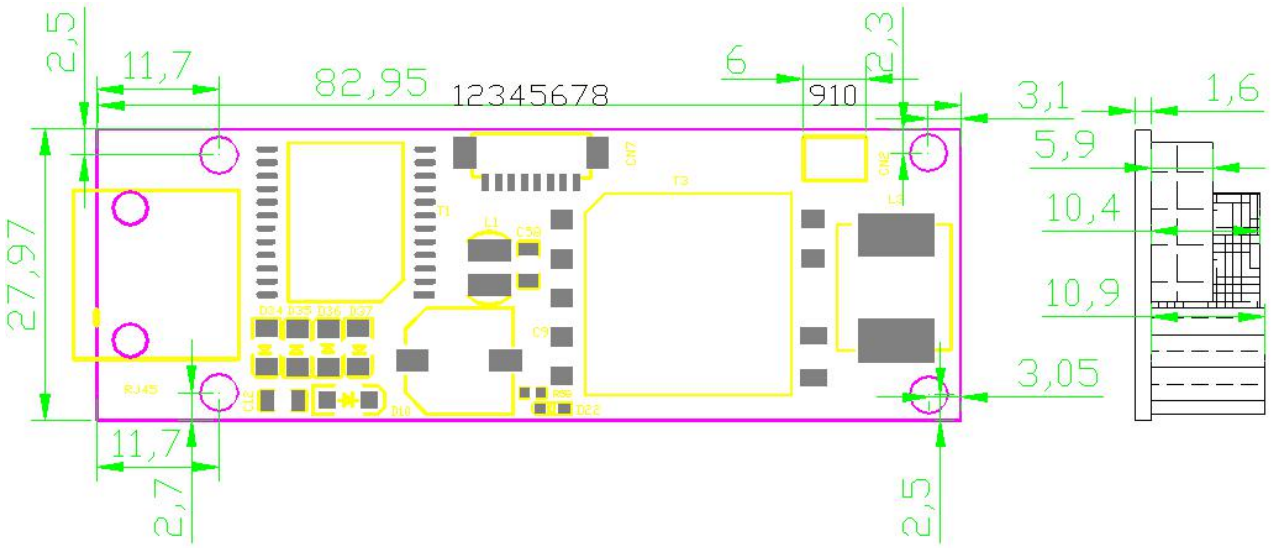
➤ The POE PS60-5719G series module combines the PSE network power separation module. It can transmit data and power to non-PoE receiving devices without additional separators. The signal transmission is up to 150 meters with 1000Mbps.

➤ It can be freely matched with more than 85% PC modules in the market, and can also be used to power and separate the network for other devices that need PoE function.

➤ The POE PS60-5719G control circuit provides the power device (PSE) required by PoE for compatibility signature and power classification, has complete protocol detection and then adds 38W power to the port.

➤ Auto Maintain Power Characteristics (MPS) - Auto-adjust MPS for Class 1-2 or Class 3-4 PSEs - Supports ultra-low power standby mode, main adapter priority input, etc. Also has a long soft start cycle for efficient DC/DC converters to ensure IEEE802.3at start-up requirements are met.

4. Pin foot definition



Dimensions based on physical objects（mm）

Pin	Name	describe
1	NC	This pin is RJ45 mesh 8 feet.
2	NC	This pin is RJ45 mesh 7 feet.
3	NC	This pin is RJ45 mesh 5 feet.
4	NC	This pin is RJ45 mesh 4 feet.
5	RX-	This pin receives the RX signal of 6 legs in RJ45.
6	RX+	This pin sends the RX signal for the 3 legs of the RJ45 port.
7	TX-	This pin receives TX signal from RJ45 port 2 feet.
8	TX+	This pin sends TX signals for RJ45 port 1 foot.
9	Vout-	Negative DC output.This pin provides negative adjustment output
10	Vout+	The DC output of the positive pole.This pin provides positive adjustment output

5. Electrical characteristics

5.1 Absolute maximum rating parameter

No	parameter	Symbol	MIN	MAX	Units
1	Input DC Voltage	V_{CC}	42	57	V
2	DC Voltage Surge 1ms	V_{SURGE}	-0.6	75	V
3	ambient temperature	T_S	-40	+80	℃

*Exceeding the above rating may cause permanent damage to the product.Functional operations under these conditions are not recommended.

The maximum rating assumes free air flow.

5.2 Recommended working conditions

No	parameter	Symbol	MIN	MAX	Units
1	input voltage	V_{IN}	42	57	V
2	Low Voltage Lock	V_{LOCK}	35	-	V
3	working temperature	T_{OP}	-40	80	℃

*Applicable only to maximum operating temperature of PS60-5719G.

5.3 DC Characteristic

No	parameter	Symbol	MIN	TYP	MAX	Units	Test Opinions
1	Standard Output Voltage	$+V_{DC}$	18.6	19.0	19.2	V	VIN=48v
2	Output Current (VIN=48V)	P_{WR}	-	2	2.5	A	Wide voltage input 42-57V
3	Power adjustment rate	V_{LINE}	-	0.1	-	%	@50% Load
4	Load Adjustment Rate	V_{LOAD}	-	1	-	%	@VIN=48V
5	Ripple Output Noise	V_{RN}	-	100	150	mVp-p	@Maximum Load
6	Minimum Load	R_{LOAD}	40	50	-	mA	
7	Short circuit duration	T_{SC}	-	-	∞	sec	
8	Efficiency (load 80%)	E_{FF}	-	86	-	%	
9	Isolation Voltage (I/O)	V_{ISO}	-	-	2000	V_{PK}	
10	temperature coefficient	T_c	-	0.02		%	Per ℃
11	efficiency	η	84	87	∞	%	

1: Typical number is 25 C, nominal voltage is 48V, for auxiliary design only.

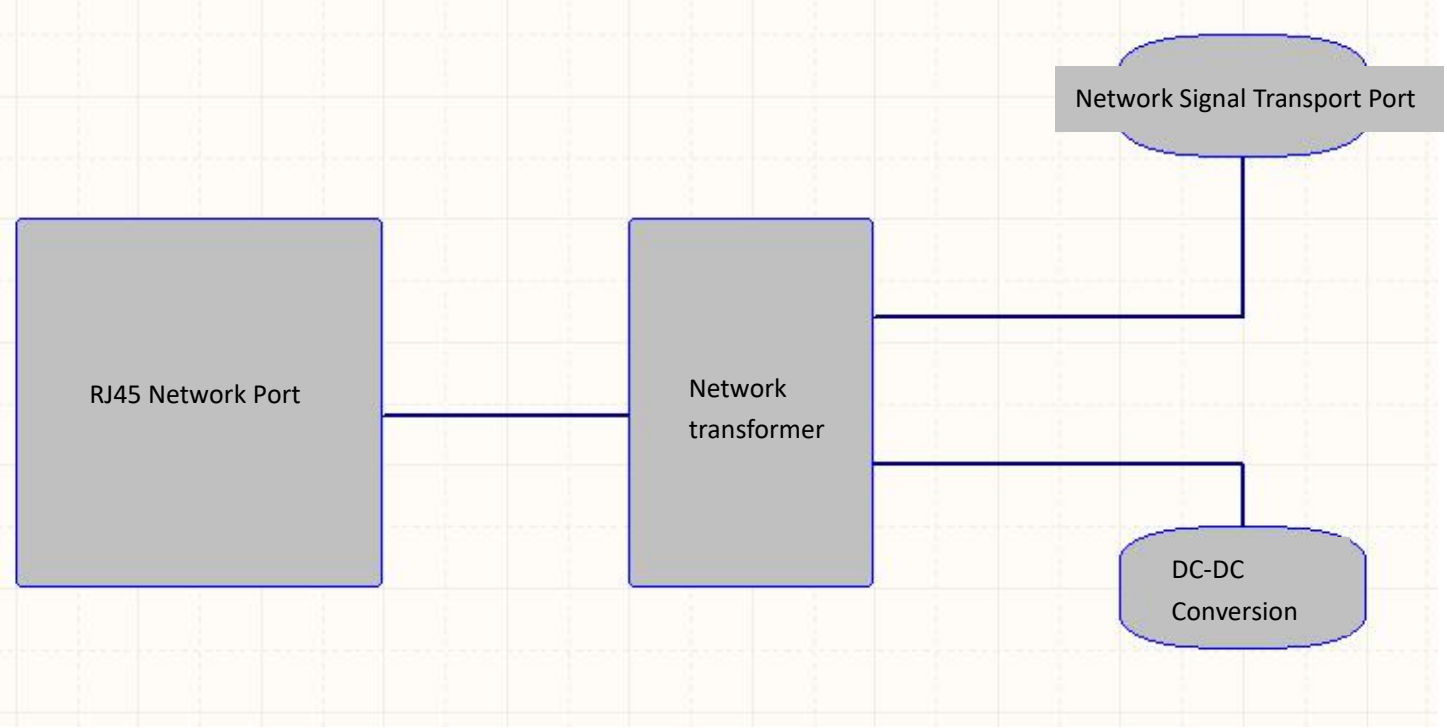
2: Output ripple and noise can be reduced by an external filter, see the application instructions.

3: If operated under the specified minimum load, the module emits audible noise and may cause PSE malfunction.

6. Functional Description

6.1 input

PS60-5719G is compatible with devices that use different power options, see Fig. 1: Typical system diagram.Specify that the PSE does not apply power to both outputs at the same time (see IEEE802.3at for more information).



Typical System Diagram

6.2. PD Signature

When the PS60-5719G is connected to a Class 5E cable, it will automatically go to the Power Supply Device (PSE) or the Midspan Device when requiredDisplay the power device (PD) signal.The device then identifies a power supply device connected to the line and supplies power.

6.3. quarantine

Meets the security isolation requirements of section 33.4.1a of IEEE802.3at
Device (PD) must pass IEC 60950 Section 6.2 Electrical strength test.This requires a) 1500V AC Test or b)
1500V pulse test.The PS30-5712T specification meets the 1500Vdc pulse test.At least one track on either side of the isolation barrierA gap of 3 mm is also important.

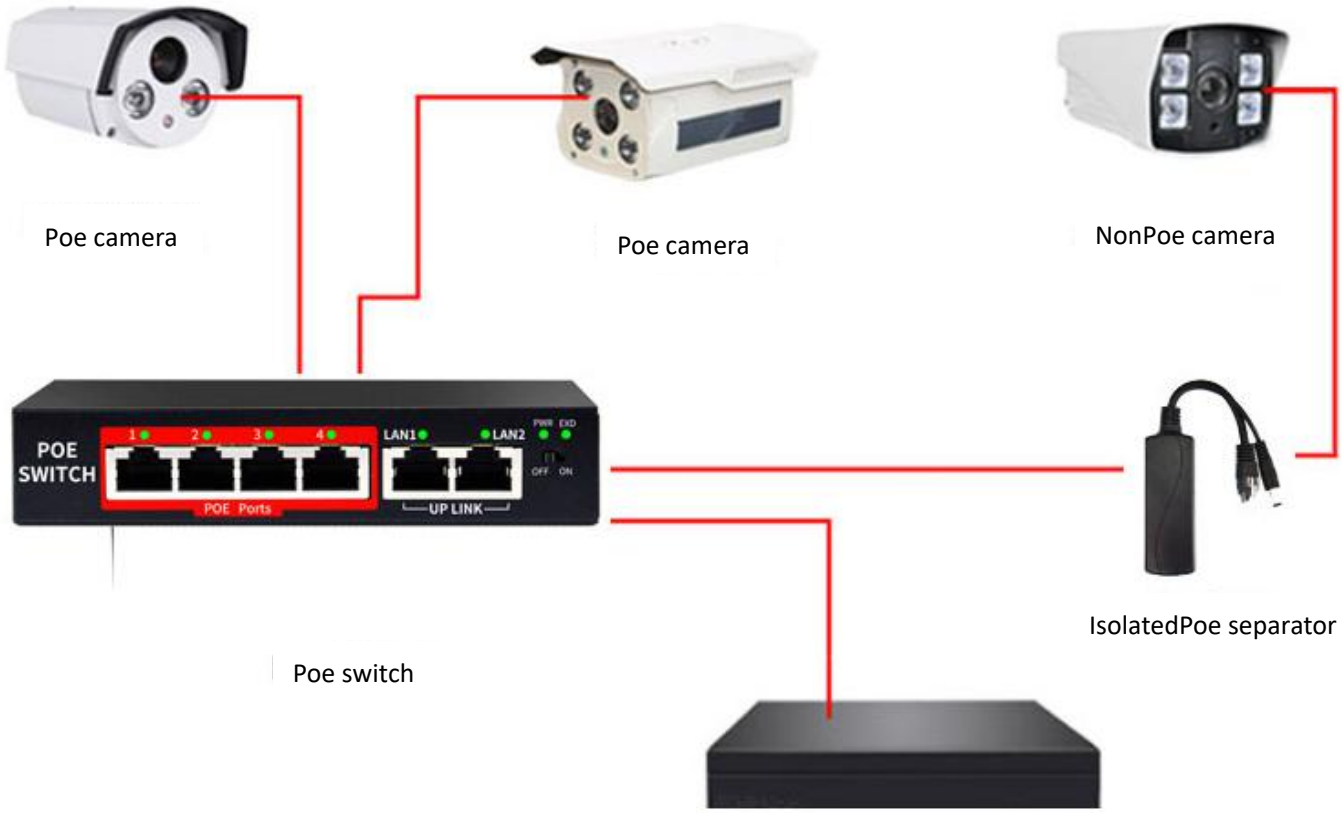
6.4. Power Classification

PS60-5719G is suitable for level 8 operation.Refer to other PoE products for alternative power programming.

6.5. DC/DC Converter

The PS60-5719G converter provides adjustable low ripple and noise output with superior reliability and circuit protection built in.

6.6. Typical connections



Typical application diagram

7. Operating temperature range

- Because PS60-5719G is a power element that generates heat, it is important to consider heat loss during the design phase.
- The core of the PS60-5719G is a DC/DC converter, which produces heat like other power sources.The heat generated by the module will depend on the load required to drive and the input voltage provided by PSE.The information shown in this section of the data table refers to the rated 48Vdc input voltage provided by SE.
- The maximum ambient operating temperature of PS60-5719G is 60 C.These results are generated in static air without any heat loss and the PS60-5719G performance can be improved by forcing air flow over the parts or by using a radiator.
- The built-in thermal protection function of PS60-5719G reduces the output power when the operating temperature is over a certain range. It is recommended that the module be powered by PSE or midspan devices that meet IEEE802.3at standard.
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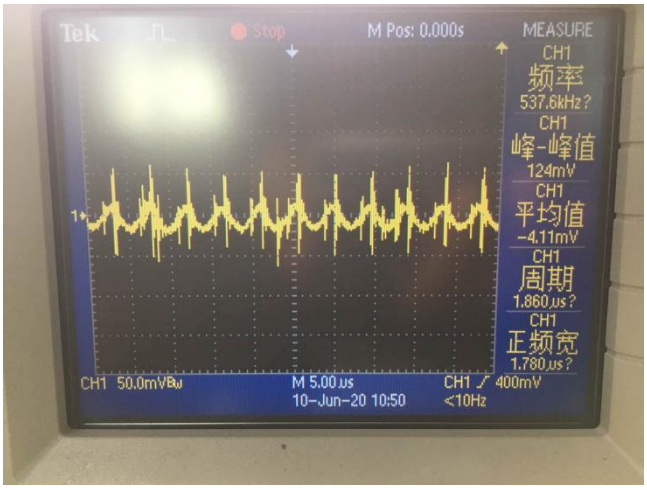
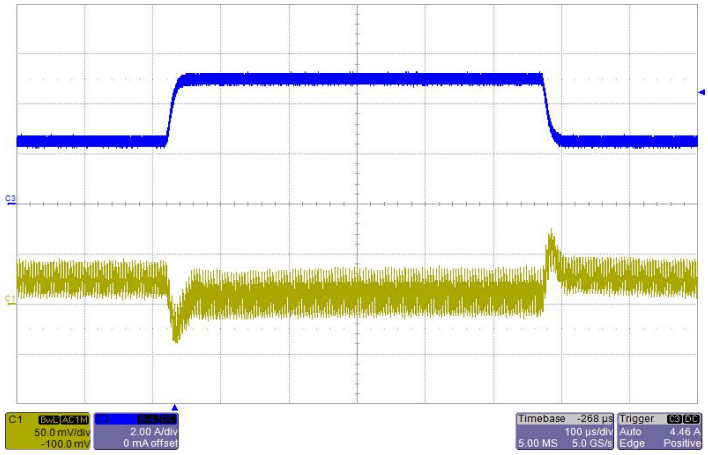
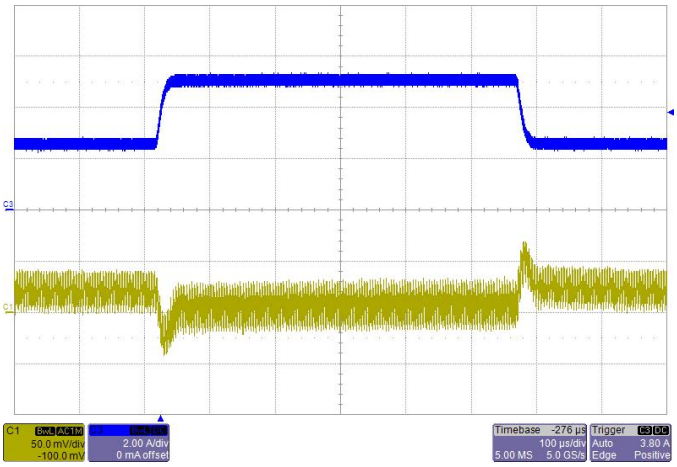
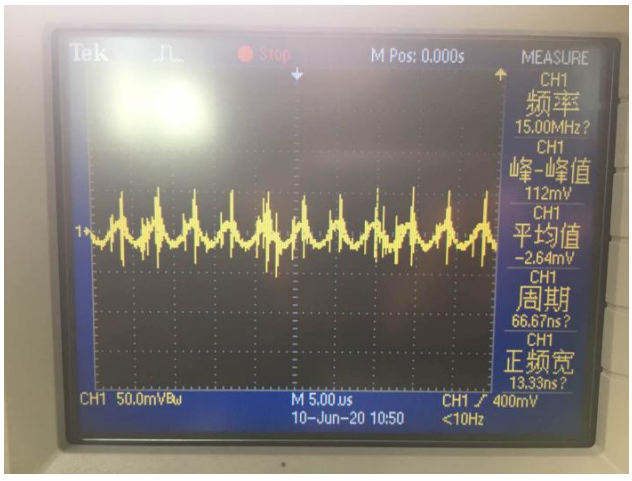
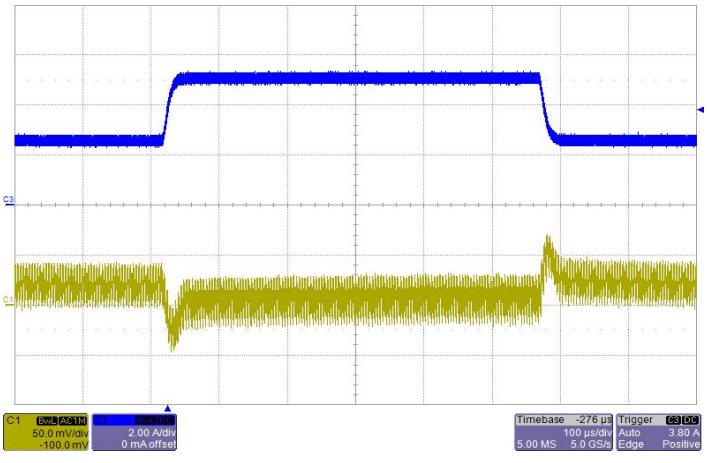
Because each application environment is different, it is not possible to give fixed and absolute temperature recommendations.However, the assignment used Any housing must provide adequate ventilation for the PS60-5719G.

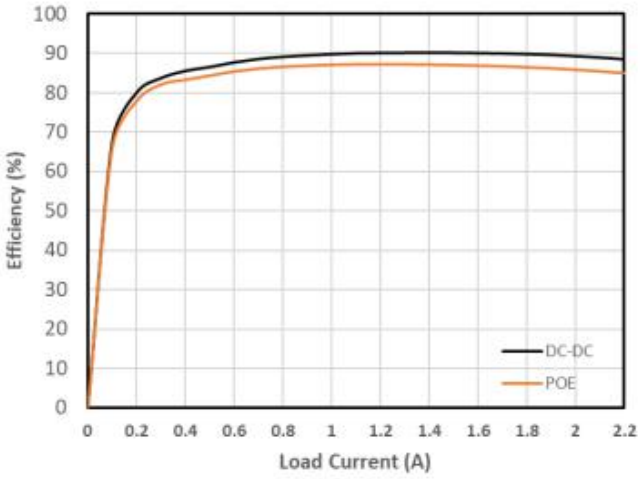
8. Thermal limit/protection

- PS60-5719G uses internal temperature monitoring to provide heat protection current or cut off power supply to prevent exceeding its preset setting Temperature limit.
- Two-stage the rmo electric current restriction reduces the IC working current limit by 50%, reaching 145_C and above 165_C.Stop working
- The normal current limits of both are restored when the temperature returns below 125_C.

8. Test waveform diagram

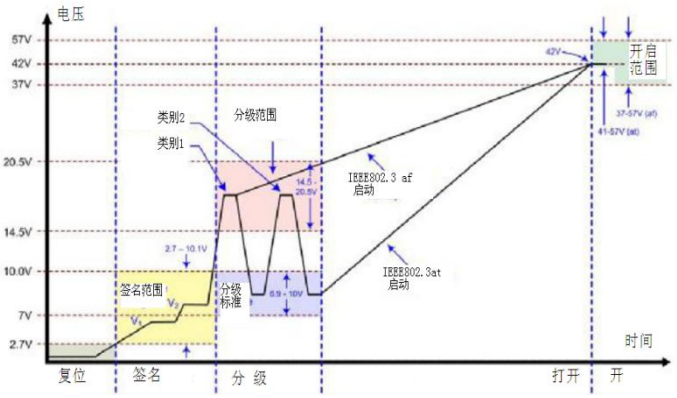
Typical features：Vout=12

	
Noise（VIN=42V，Io=2A，5~20MHz bandwidth）	transient response（Vin=42V Io=50%~100%~50%）
	
Noise（VIN=48V，Io=2A，5~20MHz bandwidth）	transient response（Vin=48V Io=50%~100%~50%）
	
Noise（VIN=57V，Io=2A，5~20MHz bandwidth）	transient response（Vin=57V Io=50%~100%~50%）



Efficiency (VOUT = 19 V)

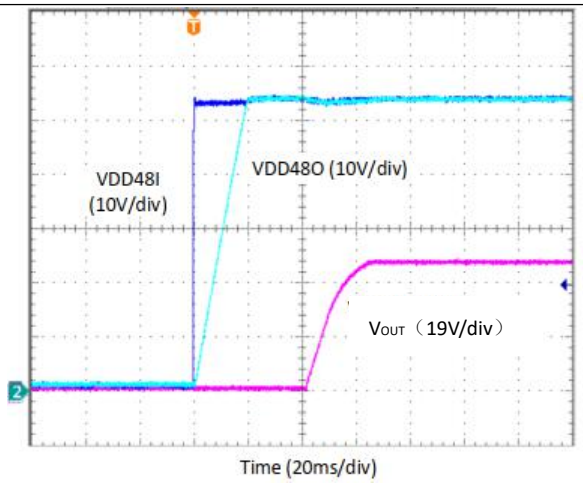
Output Voltage (Input 48V)



Power supply process

Component maximum temperature

Conditions: Ambient temperature: 29 C; Output power: 19V/2A; Frequent: 3H



Input Voltage-Output Voltage

Input Output Response