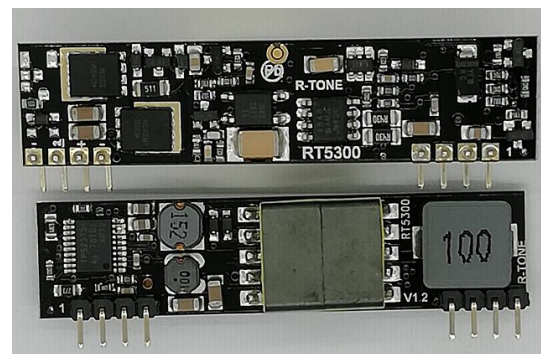
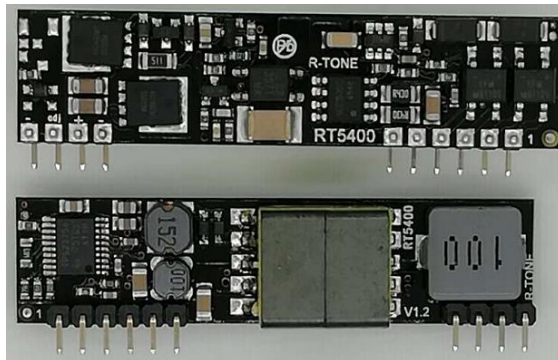
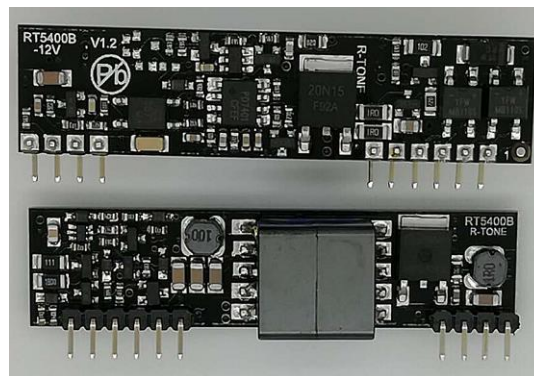


RT5300&RT5400

30W POE PD Module (Isolation Model)

Product Description



Version	Date	Author	Approved By	Remarks
V1.2	2017/8/5	LI xiao yan	Rock	5V Base on RT7640 12V Base on RT7630

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Features:

- IEEE802.3at and IEEE802.3af compliant
- Maximum 30W output power
- Input voltage range 36V to 57V
- Integral high efficiency DC/DC converter.
- Low output ripple and noise
- High performance with low price
- Short-circuit protection
- Transformer isolation ,1500V isolation (input to output)
- Easy to use, with a minimum number of external components.

Applications:

- IP Cameras
- Wireless access point
- Security and alarm systems
- VOIP telephone
- Point of sale network terminal equipment

Description:

The RT5X00 series of modules are designed to extract power from a conventional twisted pair Category 5 Ethernet cable, conforming to the IEEE 802.3af and IEEE 802.3at Power-over-Ethernet(PoE) standard.

The RT5X00 signature and control circuit provides the PoE compatibility signature and power classification required by the Power Sourcing Equipment (PSE) before applying up to 30W power to the port.

The DC/DC converter operates over a wide input voltage range and provides a regulated output. The DC/DC converter also has built-in short-circuit output protection.

● Product Selector

Part Number	Output *	Maximum Output Power*	AT-D ET LED	Integrated bridge	Power structure	Marking	Package
RT5300-5V	5V 4.8A	24W	YES	NO	Forward	RT5300	DIP
RT5300-12V	12V 2A	30W	YES	NO	Forward	RT5300	DIP
RT5300B-12V	12V 2A	30W	YES	NO	Flyback	RT5300B	DIP
RT5300B-24V	24V 1A	30W	YES	NO	Flyback	RT5300B	DIP
RT5400-5V	5V 4.8A	24W	NO	YES	Forward	RT5400	DIP
RT5400-12V	12V 2A	30W	NO	YES	Forward	RT5400	DIP
RT5400B-12V	12V 2A	30W	NO	YES	Flyback	RT5400B	DIP
RT5400B-24V	24V 1A	30W	NO	YES	Flyback	RT5400B	DIP

*At 25°C with VIN = 54V

● RT5300 Pin Description:

Pin #	Name	Description
1	VIN+	POE Direct Input +. This pin connects to the positive (+) output of the POE input bridge rectifiers.
2	VIN-	POE Direct Input -. This pin connects to the negative (-) output of the POE input bridge rectifiers.
3	AT-DET-	AT Detect Output. This pin indicates if an IEEE802.3at PSE is supplying power to the RT5300.
4	CAP-	Internal cap-, only RT5300-5V need Match Dynamic load ,connecting external cap- ,47uf 100v OR NC
5	-VDC	DC Return. This pin is the return path for the +VDC output.
6	+VDC	DC Output. This pin provides the regulated output from the DC/DC converter.
7	ADJ	Output Adjust. The output voltage can be adjusted from its nominal value, by connecting an external resistor from this pin to either the +VDC pin or the -VDC pin.
8	-VDC	DC Return. This pin is the return path for the +VDC output.

● RT5400 Pin Description:

Pin #	Name	Description
1	VA1	RX Input (1). This input pin is used in conjunction with VA2 and connects to the centre tap of the transformer connected to pins 1 & 2 of the RJ45 connector (RX) - it is not polarity sensitive.
2	VA2	TX Input (2). This input pin is used in conjunction with VA1 and connects to the centre tap of the transformer connected to pins 3 & 6 of the RJ45 connector (TX) - it is not polarity sensitive.
3	VB1	Direct Input (1). This input pin is used in conjunction with VB2 and connects to pin 4 & 5 of the RJ45 connector - it is not polarity sensitive.
4	VB2	Direct Input (2). This input pin is used in conjunction with VB1 and connects to pin 7 & 8 of the RJ45 connector - it is not polarity sensitive.
5	cap+	Internal cap+, only RT5400-5V need Match Dynamic load ,connecting external cap+ ,47uf 100v OR NC
6	cap-	Internal cap-, only RT5400-5V need Match Dynamic load ,connecting external cap- ,47uf 100v OR NC
7	-VDC	DC Return. This pin is the return path for the +VDC output.
8	+VDC	DC Output. This pin provides the regulated output from the DC/DC converter.
9	ADJ	Output Adjust. The output voltage can be adjusted from is nominal value, by connecting an external resistor from this pin to either the +VDC pin or the -VDC pin.
10	-VDC	DC Return. This pin is the return path for the +VDC output.

● Absolute Maximum Ratings

	Parameter	Symbol	Min	Max	Units
1	DC Supply Voltage	VCC	-0.3	60	V
2	DC Supply Voltage Surge for 1ms	VSURGE	-0.6	80	V
3	Storage Temperature	TS	-40	100	°C

Note 1: Exceeding the above ratings may cause permanent damage to the product. Functional operation under these conditions is not implied. Maximum ratings assume free airflow.

● Recommended Operating Conditions

	Parameter	Symbol	Min	Typ	Max	Units
1	Input Supply Voltage1	VIN	36	48	57	V
2	Under Voltage Lockout	VLOCK	30		36	V
3	Operating Temperature2	TOP	-20	25	70	Ta / °C
4	Operating Temperature 30W Continuous	TOP			50	Ta / °C
	24W Continuous				70	
	14W Continuous		-40	25	85	

Note 1: With minimum load

2: See Section Operating Temperature Range

** Extended use close to, or at the maximum operating temperature can reduce the life time of the device.

● DC Electrical Characteristics

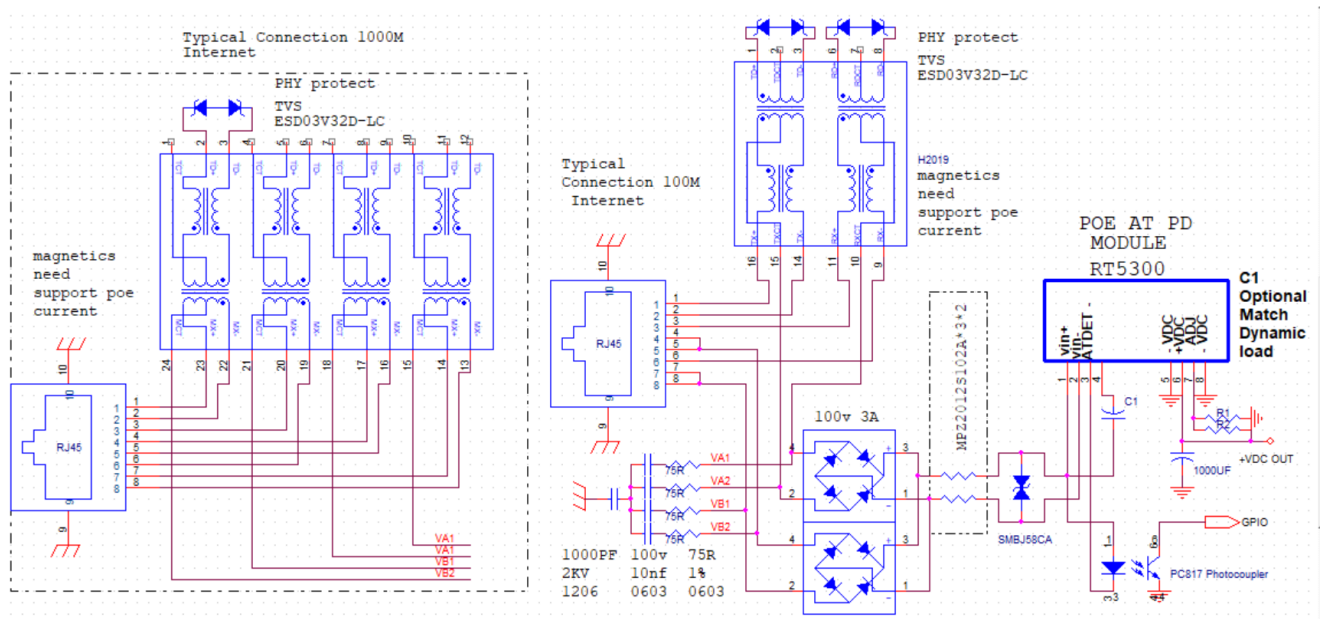
	DC Characteristic	Sym	Min	Typ1	Max	Units	Test Comments
1	Nominal Output Voltage	+VDC	11.5	12.0	12.5	V	12V
	Nominal Output Voltage	+VDC	4.75	5.0	5.25	V	5V
2	Line Regulation	VLINE		0.1		%	@ 50% Load
3	Load Regulation	VLOAD		1		%	@ VIN=48V
4	Output Ripple and Noise ²	VRN		180		mVp-p	@ Max load2
5	Minimum Load ³	RLOAD	200			mA	@ 5V out
			200				@ 12V out
			100				@ 24V out
6	Short-Circuit Duration	TSC			∞	sec	
7	Efficiency @ 80% Load	EFF		86		%	RT5400X
	Efficiency @ 80% Load	EFF		87		%	RT5300X
8	Isolation Voltage (I/O)	VISO		1500		VPK	Impulse Test
9	Temperature Coefficient	TC		0.02		%	Per °C

Note1: Typical figures are at 25°C with a nominal 52V supply and are for design aid only. Not Guaranteed

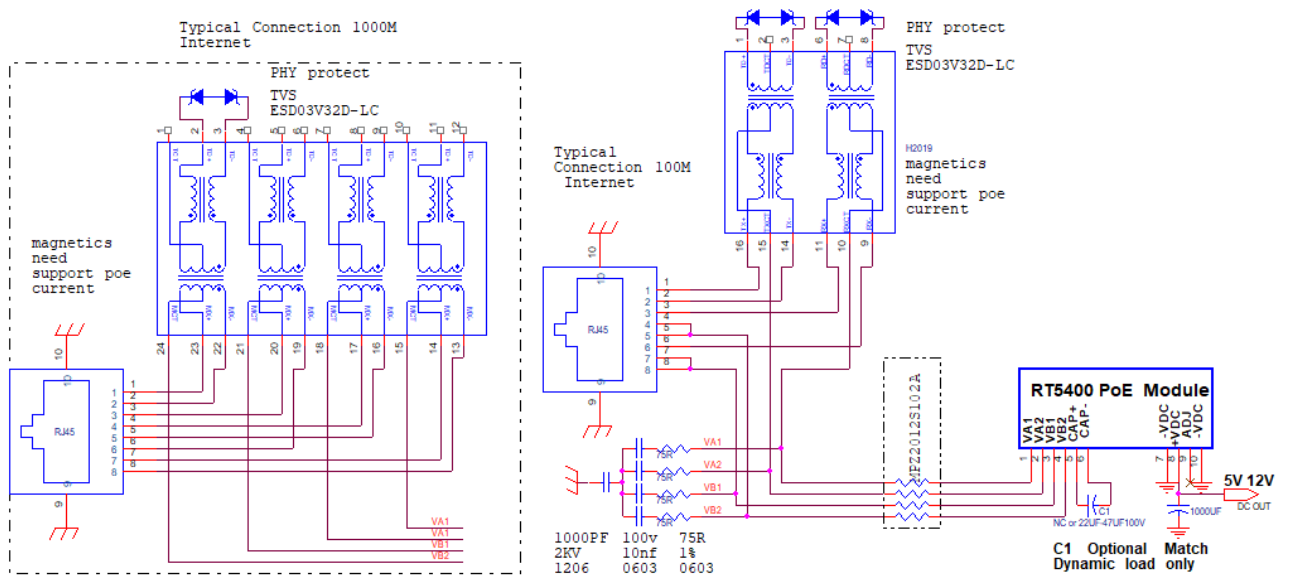
2: The output ripple and noise can be reduced with an external filter, see application note.

3: The module can emit an audible noise if operated at less than the specified minimum load and may cause the PSE to fail its MPS .

● RT5300 Typical Connection Diagram :



● RT5400 Typical Connection Diagram:



● **Output Adjustment**

Reducing the output voltage, connect R2 between ADJ and +VDC				
	R2 Value	output voltage	R2 Value	output voltage
RT5300B-24V	open	24V	68K	21.6V
	open			
	open			
	open			

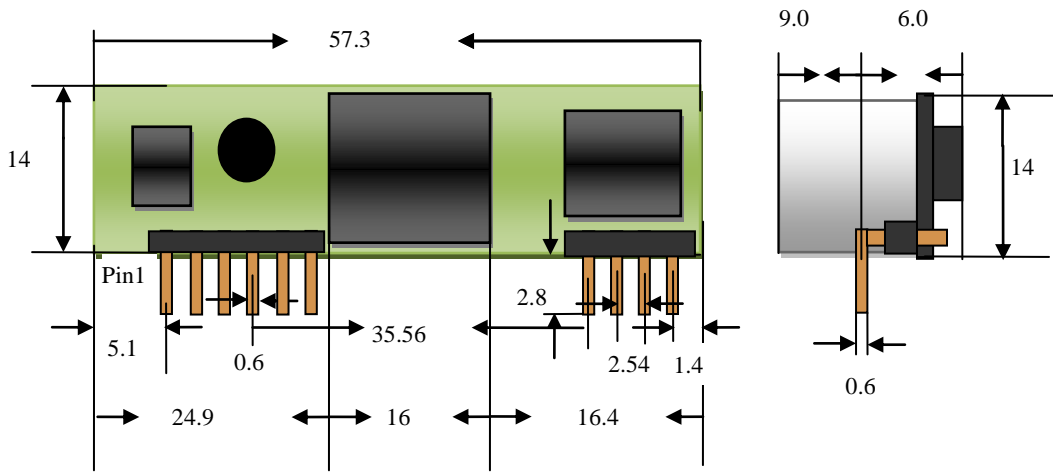
Increasing the output voltage, connect R1 between ADJ and -VDC				
	R1 Value	output voltage	R1 Value	output voltage
RT5300B-24V	open	24V	0R	24.8V
	open			
	open			
	open			

*Note: It is important that the minimum output adjust is not taken below 10.8V (12V Nominal) and 21.6V (24V Nominal). Setting the output voltage below this level may result in the module being permanently damaged.

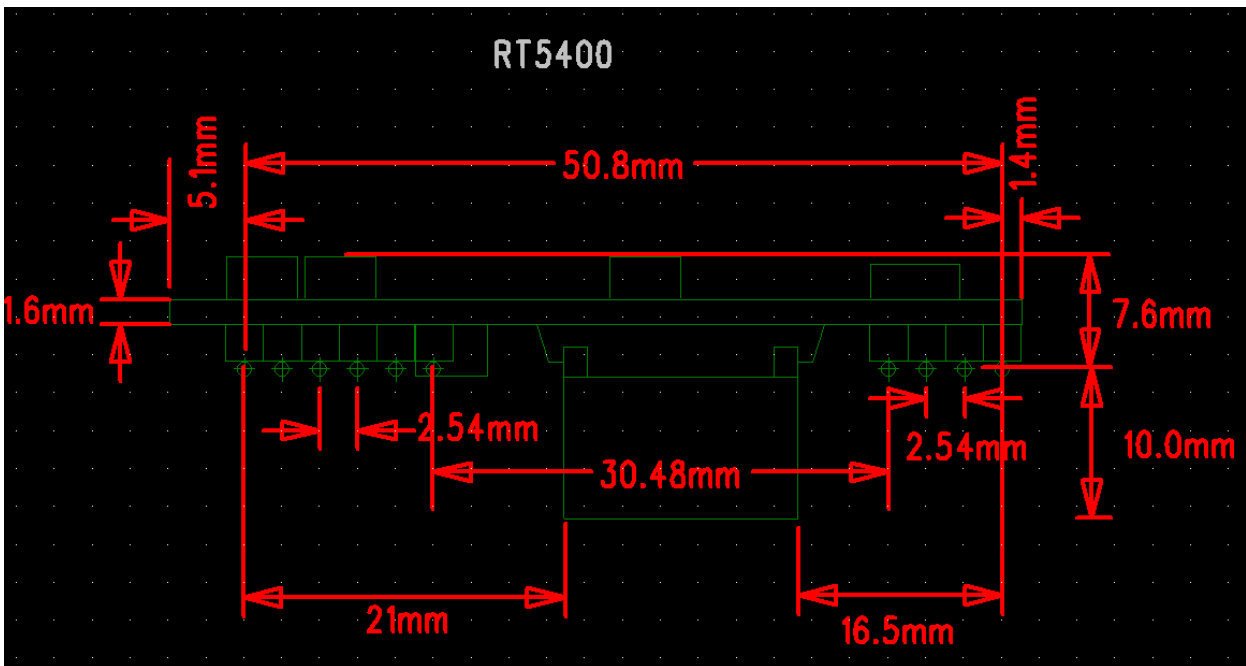
● **Power Classification**

The RT5400 and RT5300 classification is fixed at Class 4, this means that an IEEE802.3at Type 1 or an IEEE802.3af PSE will default to Class 0. However an IEEE802.3at PSE will recognise the Class 4 as a Type 2 PD.

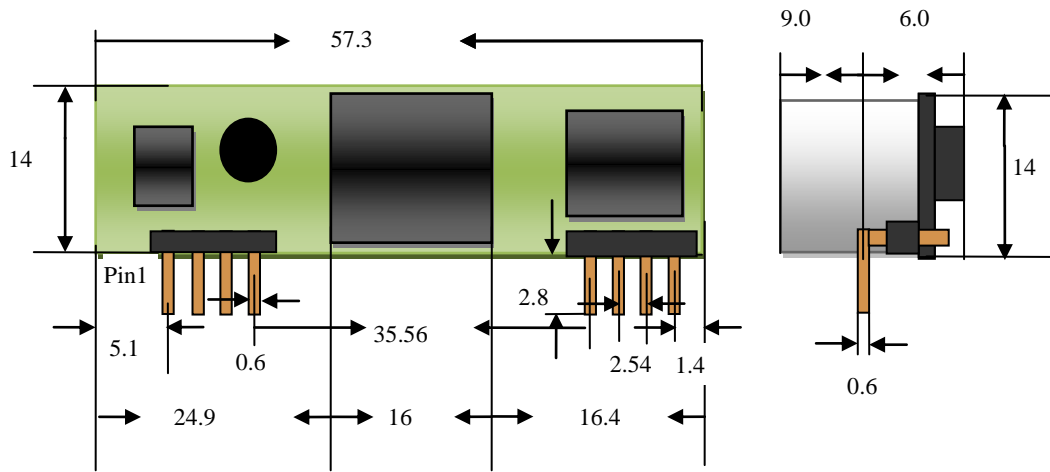
● RT5400 Package Size 6+4PIN : (mm ± 0.3mm)



Recommended PCB hole diameter PTH = 1.2 ± 0.05



● RT5300 Package Size 4+4PIN : (mm ± 0.3mm)



Recommended PCB hole diameter PTH = 1.2 ± 0.05

