5V PD(Powered Device) Module, PN : MPDI-MOD-05VK

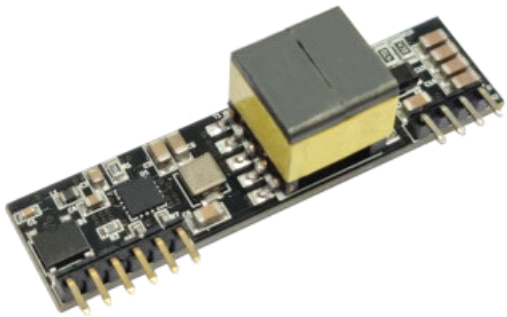
May. 26, 2022

DESCRIPTION

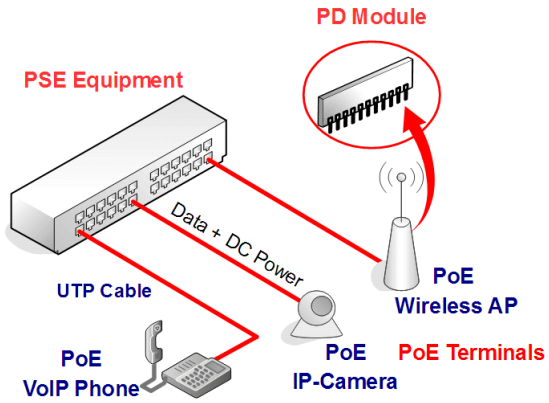
5V, 9W max. PD(Powered Device) Integrated Module (Isolation Type)

FEATURES

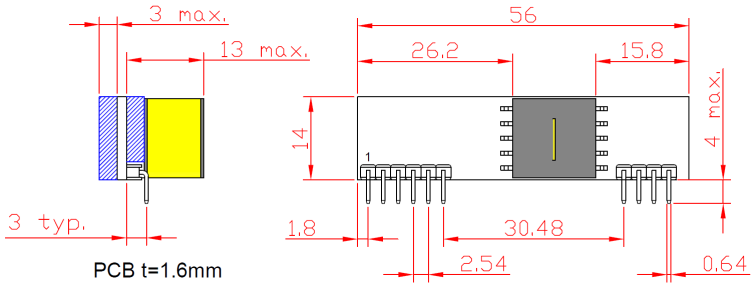
- Fully Supports IEEE802.3af Compliant
- Input Voltage Range 37V to 57V
- Short Circuit, Over-temperature Protection and In-rush Current Limit
- Default Class : 0 (Adjustable Classification)
- Easy Installation and Low Cost
  - √ Included 2 Input Bridge Diodes & Input Line Beads
  - √ Included 600W TVS Diode for Input Protection
- Low Output Ripple and Noise
- Adjustable Output Voltage (for External Power Adapter)
- 1500Vrms Isolation (Input-Output)
- RoHS Compliant



APPLICATION DIAGRAM

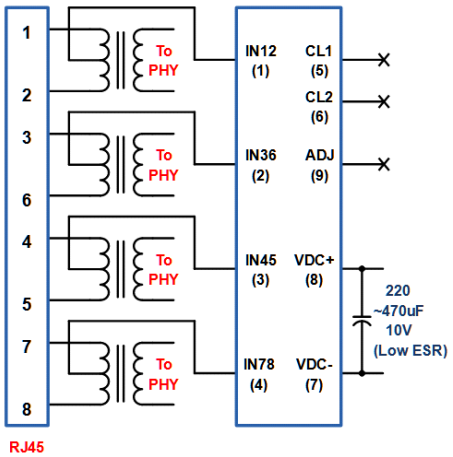


OUTLINE DRAWING



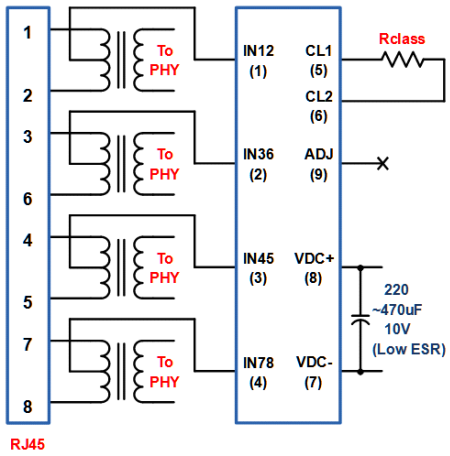
Recommended PC Board Hole Dia.=1mm

TYPICAL CONNECTION



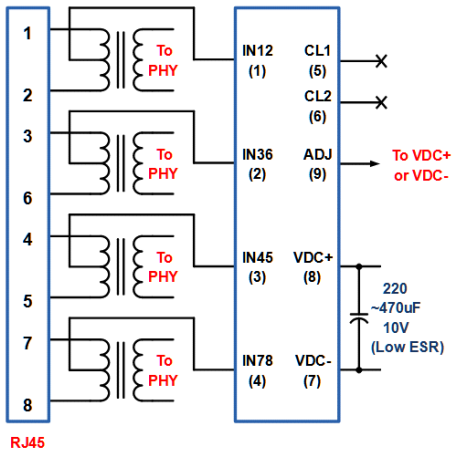
Class : 0 and Vout=5VDC

CLASSIFICATION CONNECTION



Class : 1~3 and Vout=5VDC

VOLTAGE ADJ. CONNECTION



Class : 0 and Vout=5VDC ± Adj.

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PIN ASSIGNMENT

Pin #	Name	Description
1	IN12	**Input (1) :** This input pin connects to the centre tap of PoE Interface transformer connected to pins 1&2 of the RJ45 connector. It is not polarity sensitive.
2	IN36	**Input (2) :** This input pin connects to the centre tap of PoE Interface transformer connected to pins 3&6 of the RJ45 connector. It is not polarity sensitive.
3	IN45	**Input (3) :** This input pin connects to the centre tap of PoE Interface transformer connected to pins 4&5 of the RJ45 connector. It is not polarity sensitive.
4	IN78	**Input (4) :** This input pin connects to the centre tap of PoE Interface connected to pins 7&8 of the RJ45 connector. It is not polarity sensitive.
5	CL1	**Class Programming (1) :** Connect an external resistor to CL2 will classify of the PD.
6	CL2	**Class Programming (2) :** Connect an external resistor to CL1 will classify of the PD.
7	VDC-	**Negative DC Output :** This pin provides the GND output.
8	VDC+	**Positive DC Output :** This pin provides the +5VDC output.
9	ADJ	**Output Adjust :** The output voltage can be adjusted from nominal value, by connecting this pin to VDC+ or VDC- pin
10	NC	**Do not connect to this pin.**

SPECIFICATIONS

No	Item	Specification
1	Input Voltage	37~57 VDC
2	Output Voltage	5V (±5%)
3	Output Current	1.8A max.
4	Line Regulation (Vin=37~57V, 9W)	0.1%
5	Load Regulation (Vin=48V, 0.1~9W)	0.5%
6	Ripple & Noise (Vin=48V, Iout=1.8A)	100mVp-p max.
7	Efficiency (Vin=48V, Iout=1.8A)	80% min.
8	Input to Output Isolation	1500 Vrms
9	Type of DC/DC Converter	Flyback Type
10	Short Circuit Protection Duration	Inf.
11	Operating Environment	-20 ~ 70 ℃ / 10 ~ 90 %
12	Storage Environment	-40 ~ 85 ℃ / 5 ~ 95 %

CLASSIFICATION LEVELS AND REQUIRED EXTERNAL RESISTORS

Class	Rclass	Pmin	Pmax
0	Open	0.44W	9W
1	301 kΩ	0.44W	3.84W
2	147 kΩ	3.84W	6.49W
3	90.9 kΩ	6.49W	9W
4	RESERVED		

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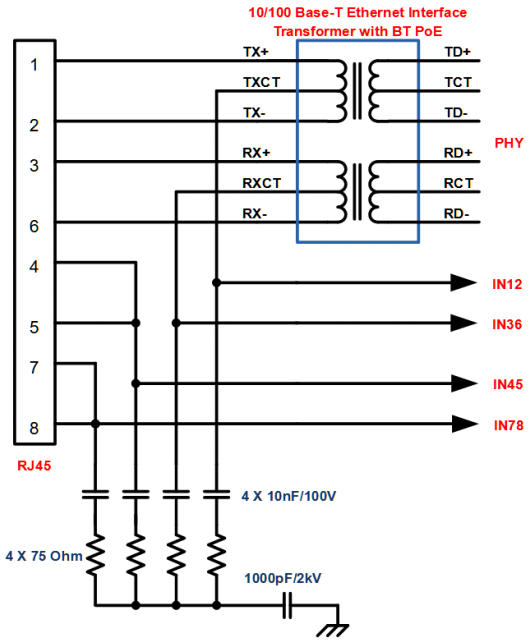
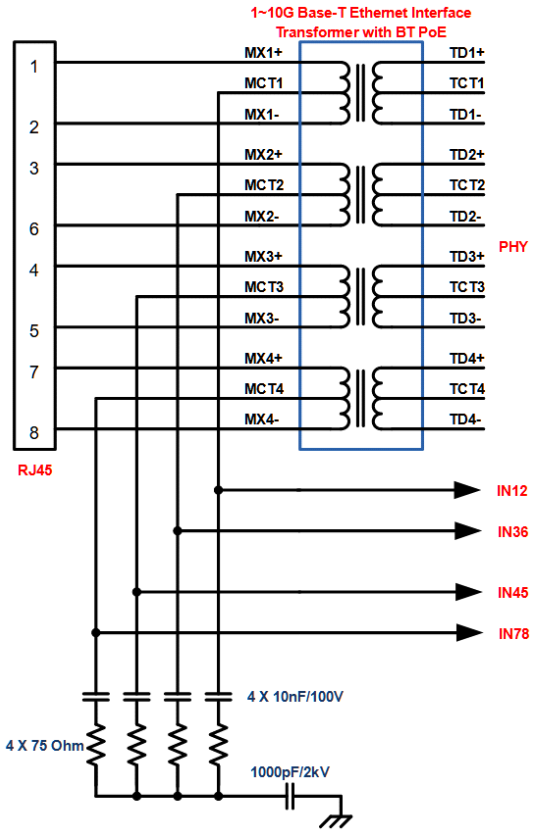
ADJUSTING THE OUTPUT VOLTAGE LEVELS

Reducing the Output Voltage		Increasing the Output Voltage	
Jumper (0-ohm)	Voltage	Jumper (0-ohm)	Voltage
ADJ Pin to VDC+	4.5V	ADJ Pin to VDC-	5.7V
Open	5.0V	Open	5.0V

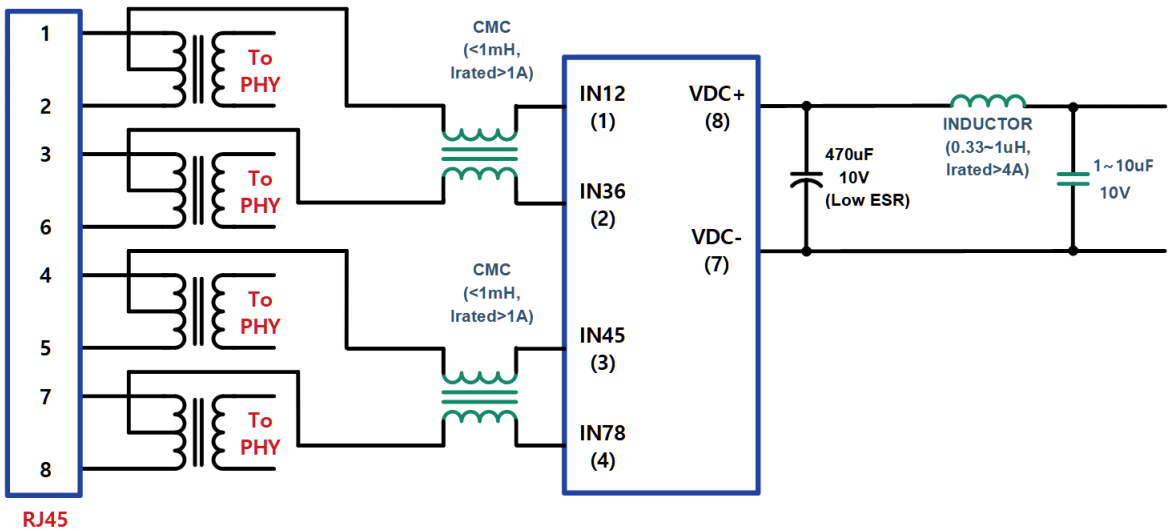
10/100 Base-T APPLICATION



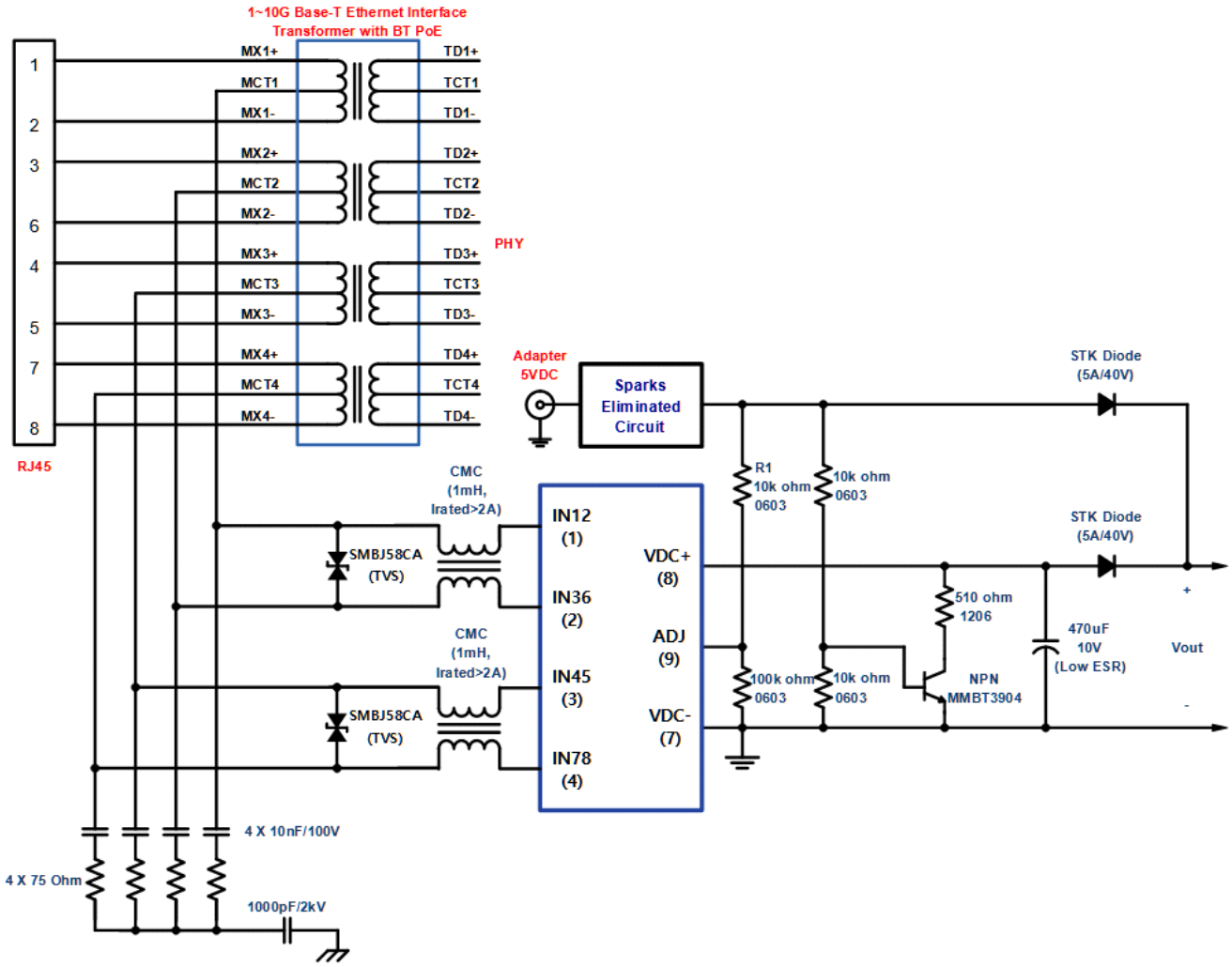
1~10G Base-T APPLICATION



ADVANCED CONNECTION (LOWER NOISE)



OPTIONAL EXTERNAL SCHEMATIC FOR LOCAL POWER SUPPLY (5VDC Adapter)



*The values of all devices must be determined through experiments.

LAYOUT RECOMMENDATION (Top-side View of Main PCB)