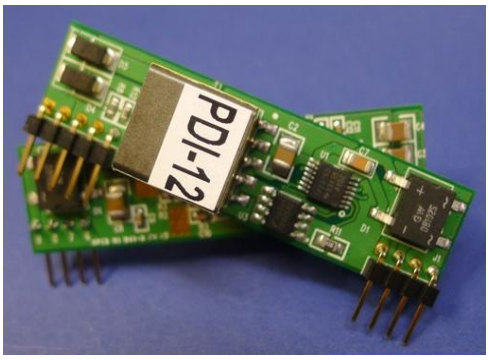


Extended Temperature Embedded PoE PD Module PDI Series Module

1. Description

The PDI series of modules are designed as embedded isolated PoE PD solutions for extended working temperature environment (-40˚C ~ +85˚C). They can support a reliable and stable PoE application in critical conditions, like higher temperature fields, the sealed housing, enclosed type devices, …etc.

The PDI modules are fully integrated, less thermal accumulation and high DC/DC converting efficiency PD modules, PDI-12 is 92% DC/DC converting efficiency @ full load; PDI-50is 89% DC/DC converting efficiency @ full load. Tiny size, 60mm (L) x 16.7mm (W) X16mm (H) and less external components is needed, one output decoupling capacitor.

PDI modules support two different output voltage modules – PDI-50 (12W / 5Vdc) and PDI-12 (12W / 12Vdc). The PDI modules are also designed to pin to pin compatible with TPD and SPD modules. All capacitors on module are MLCC equipped only to reduce the risks coming from the failed EC capacitors.

2. Feature

- IEEE802.3af compliant.
- Extended working temperature (-40˚C ~ +85˚C).
- Support PoE applications in both of Fast / Gigabit Ethernet environments.
- Support wide input voltage range - 37Vdc to 57Vdc.
- Thermal cut off.
- Short circuit protection.
- Over current protection
- High DC/DC converting efficiency.
- Less external component – one output decoupling capacitor.
- Isolation level 1.5KVrms.
- Enhanced surge protection
- Internal build in 2 channel bridge rectifiers support end-point and mid-span mode.

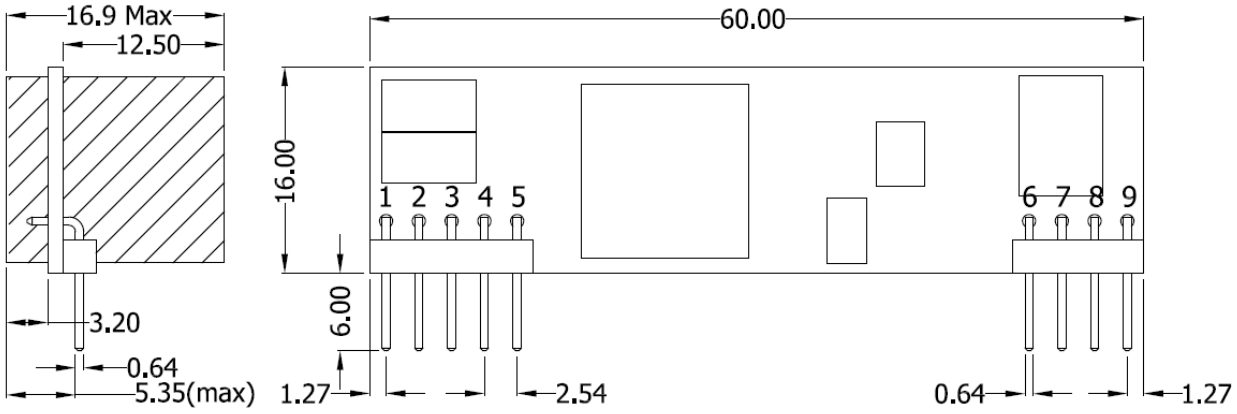
3. Applications

- Wireless Access Point (AP)
- VoIP Phone
- Surveillance System
- IP Camera
- PTZ Camera
- Security System
- Fingerprint Identification
- WiMAX Base Station
- PoE Clock
- Network Attached Storage (NAS)
- Remote Display Board
- Point of Sale (POS) System
- Media Converter
- Stand Alone PoE Splitter
- Isolated DC/DC Converter

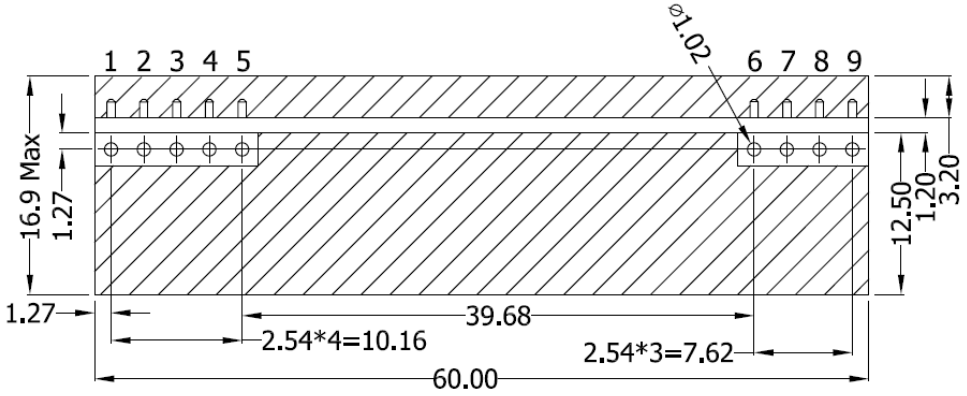
4. PDI Series Product List

Part Number	Nominal Output Voltage / Current	Maximum Output Power	Nominal Input Voltage	Marking
PDI-50	5Vdc / 2.4A	12W @ 25˚C	48Vdc	PDI-50
PDI-12	12Vdc / 1.0A	12W @ 25˚C	48Vdc	PDI-12

5. Package



Dimensions in mm

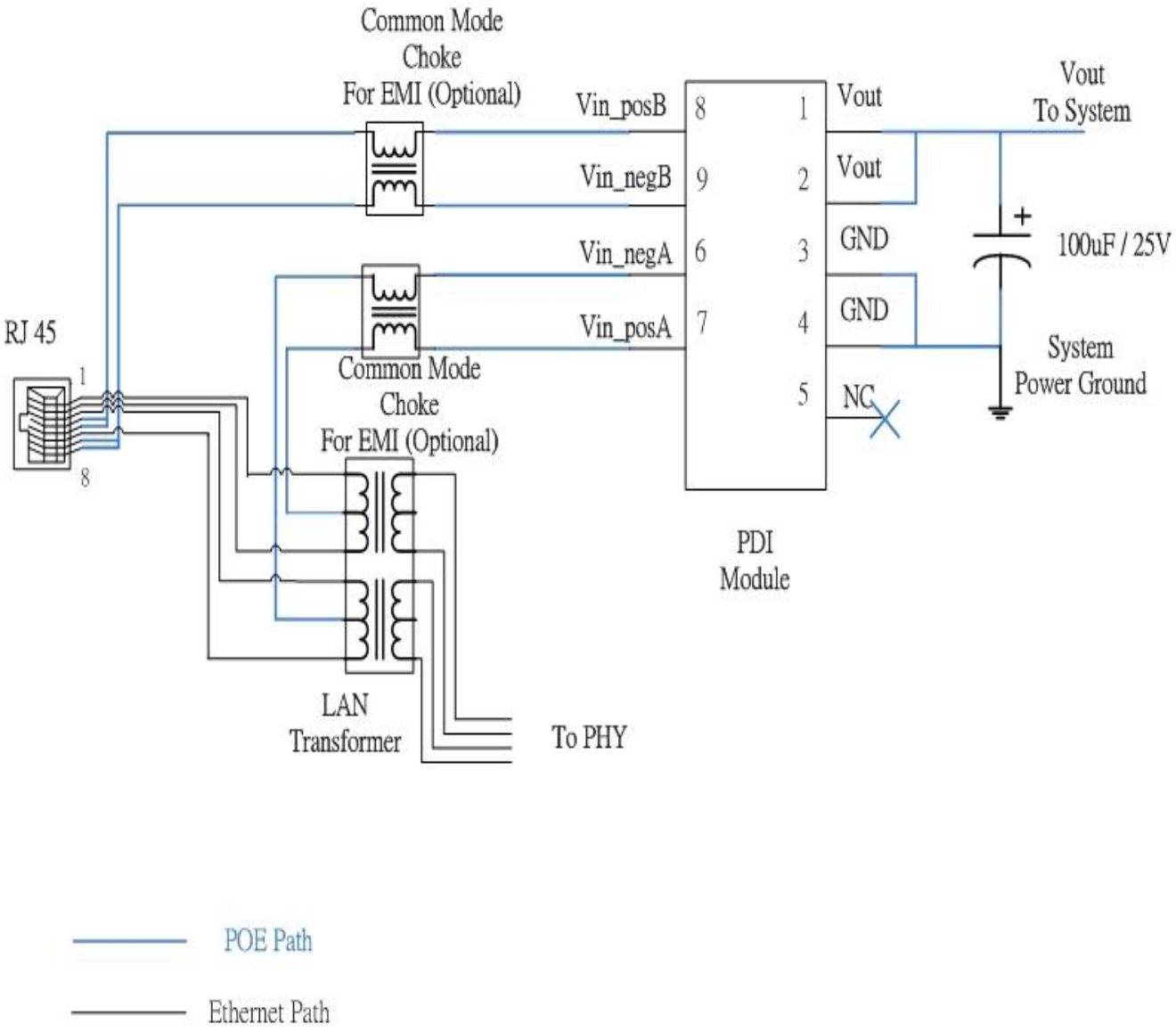


Dimensions in mm

6. Pin Definition

Pin Number	Symbol	Description
1	Vout	**Regulated DC Output.** PDI (secondary side) DC power output pin (5Vdc /12Vdc). Connect to system positive power input.
2	Vout	**Regulated DC Output.** PDI (secondary side) DC power output pin (5Vdc /12Vdc). Connect to system positive power input.
3	GND	**PDI Power Ground.** PDI (secondary side) power ground. Connect to system power ground.
4	GND	**PDI Power Ground.** PDI (secondary side) power ground. Connect to system power ground.
5	NC	**No Connection.** Left it floating, do not connect to this pin
6	Vin_negA	**Power Interface Negative Input A (Alternative A mode).** PDI High voltage (primary side) negative voltage input A. Connect to central tap (primary side) of LAN transformer which is connected to pin 3 & 6 of the RJ45 connector. Vin_negA and Vin_posA are not polarity sensitive.
7	Vin_posA	**Power Interface Positive Input A (Alternative A mode).** PDI High voltage (primary side) positive voltage input A. Connect to central tap (primary side) of LAN transformer which is connected to pin 1 & 2 of the RJ45 connector. Vin_negA and Vin_posA are not polarity sensitive.
8	Vin_posB	**Power Interface Positive Input B (Alternative B mode).** PDI High voltage (primary side) positive voltage input B. Connect to pin 4 & 5 of the RJ45 connector. Vin_negB and Vin_posB are not polarity sensitive.
9	Vin_negB	**Power Interface Negative Input B (Alternative B mode).** PDI High voltage (primary side) negative voltage input B. Connect to pin 7 & 8 of the RJ45. Vin_negB and Vin_posB are not polarity sensitive.

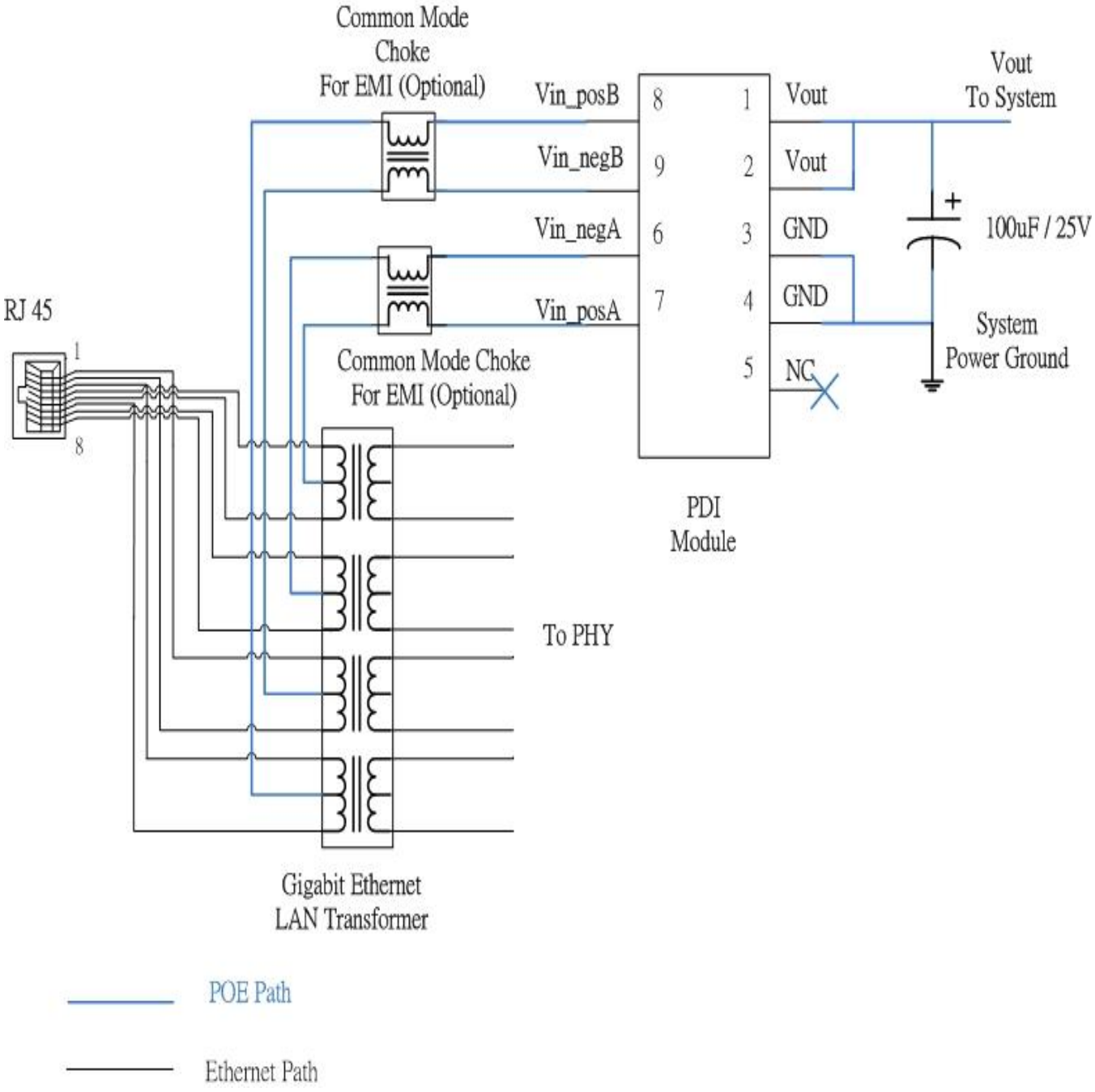
7. Fast Ethernet Typical Application



Note

Common mode choke can eliminate EMI effect which is optional component.

8. Gigabit Ethernet Typical Application



Note

Common mode choke can eliminate EMI effect which is optional component.

9. Electrical Characteristics

Item	DC Characteristic	Symbol	Min.	Typ.	Max.	Unit	Comment
1	Power Interface input Voltage	Vin_pos – Vin_neg	37	48	57	V	
2	Under Voltage Lockout	VLock out	33		37	V	
3	Output Voltage	Vout	4.75 11.4	5.0 12	5.25 12.6	V V	PDI-50 PDI-12
4	Maximum Output Power - (Vin = 48Vdc)	Pout			12 12	W W	PDI-50 PDI-12
5	Maximum Output Current - (Vin = 48Vdc)	Iout			2.4 1.0	A A	PDI-50 PDI-12
6	Maximum Rating output Power- Continuous(Vin = 48Vdc)	$Pout_{(c)}$			11 11	W W	PDI-50 PDI-12
7	Maximum Rating output Current - Continuous(Vin = 48Vdc)	$Iout_{(c)}$			2.2 0.92	A A	PDI-50 PDI-12
8	Maximum Input Current Consumption (Vin = 48Vdc)	Iin_max			400	mA	@Full Load
9	Vout Reverse Voltage	Vr			20	V	
10	DC/DC Converter Efficiency	EFF		89% 92%			PDI-50 PDI-12 @Full Load
11	Isolation Level	ISO			1.5	KV	
12	Primary Side Soft Start Delay	t_{ss}		800		us	
13	Operating Temperature	T_{OP}	-40	25	+85	˚C	@Full Load
14	Storage Temperature	TStorage	-40	25	+85	˚C	

Note

1. Test ambient condition is 25˚C.
2. Maximum output power and efficiency depends on ambient temperature. Maximum output power and efficiency maybe decay in high ambient temperature environment.