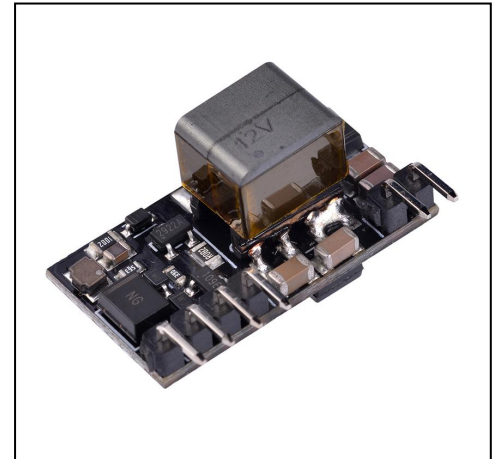


DESCRIPTION

PD (Powered Device) Integrated Module (Isolation Type)

FEATURES

- Fully Supports IEEE 802.3af Compliant
- Input Voltage Range 37V to 57V
- Short Circuit, Over-temperature Protection and In-rush Current Limit
- Default Class : 0
- High Efficiency (85% min. 12V@ Full Load)
- Easy Installation and Low Cost
- ✓ Included Input Bridge-Diodes
- Low Output Ripple and Noise
- Adjustable Output Voltage
- 1500Vrms Isolation (Input-Output)
- RoHS Compliant



APPLICATION AREAS

- Security and alarm systems
- Voice over IP phones
- Access control systems
- IP Cameras
- Displays, Net Monitors
- Public address systems
- Wireless access points
- Environmental control
- Telemetry
- Remote environmental monitoring

1 Product Overview

1.1 DP9900 Product Selector

Part Number	Nominal Output Voltage	Output Power	
		70°C	85°C
DP1425-5V	5.0V	9 Watts	6 Watts
DP1425-12V	12.0V	12 Watts	9 Watts
DP1425-24V	24.0V	12 Watts	11 Watts

Table 1: Ordering Information

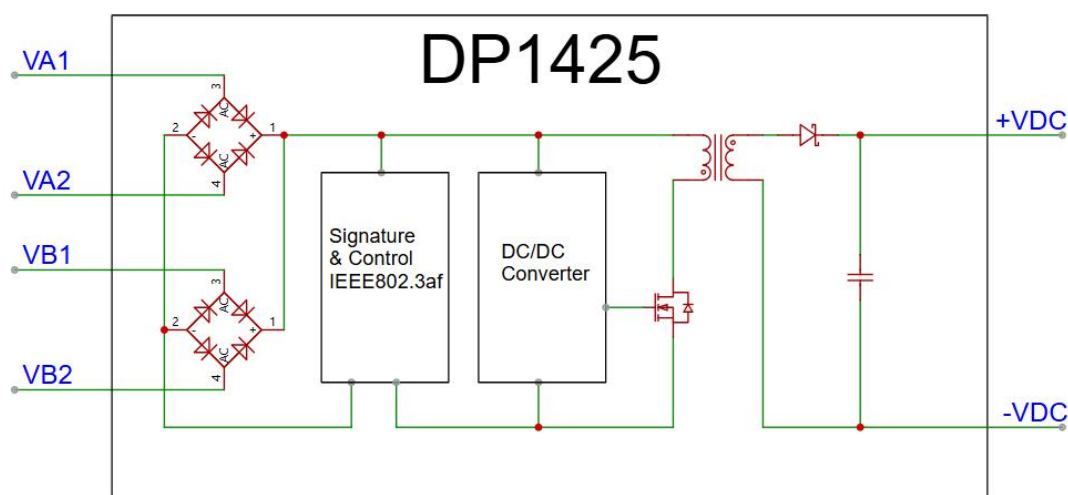


Figure 1: Block Diagram

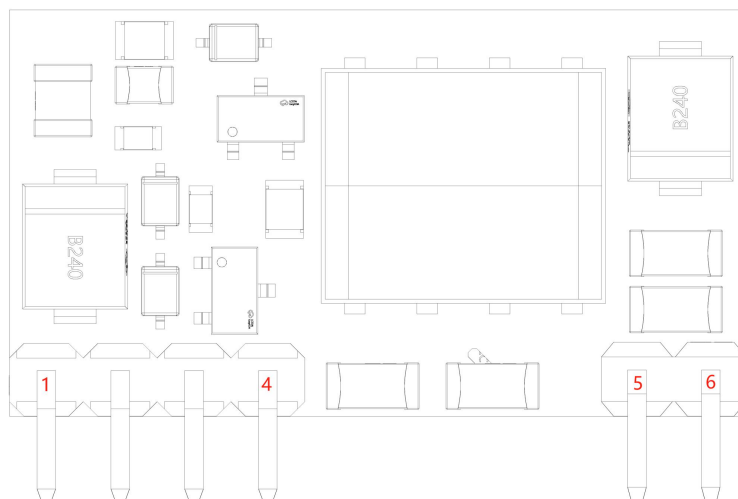


Figure 2: DP1425 Package Format

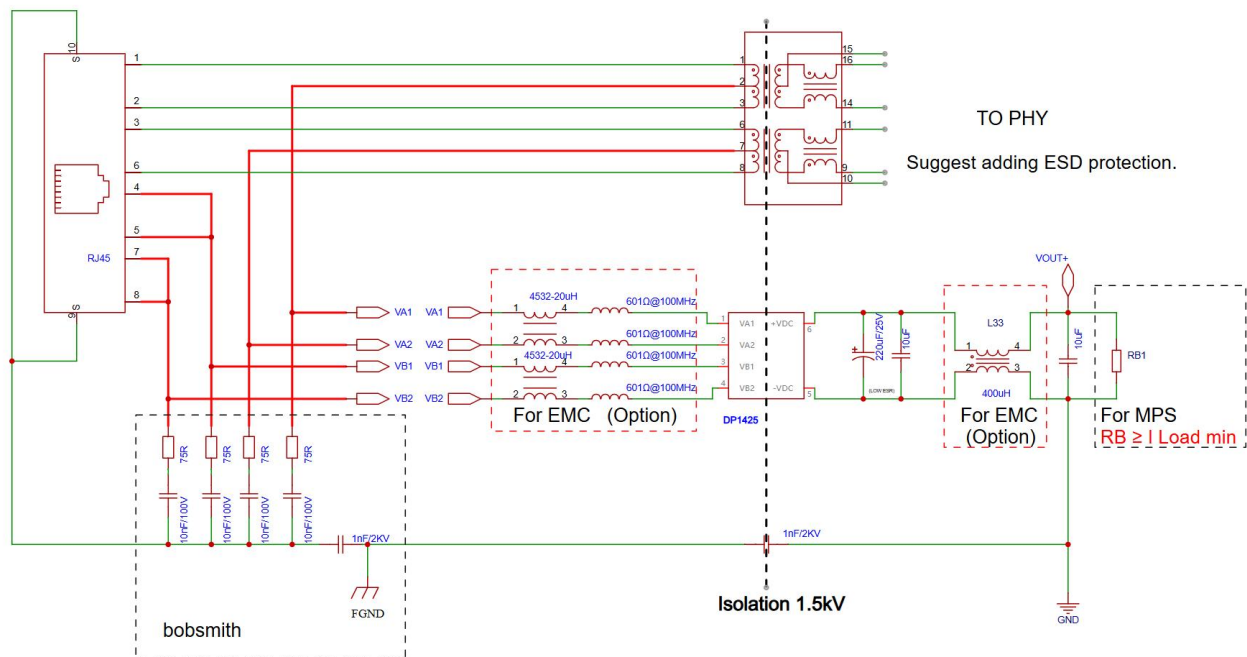
1.2 Pin Description

Pin #	Name	Description
1	VA1	Input (1) : This input pin connects to the centre tap of the transformer connected to pins 1&2 of the RJ45 connector. It is not polarity sensitive.
2	VA2	Input (2) : This input pin connects to the centre tap of the transformer connected to pins 3&6 of the RJ45 connector. It is not polarity sensitive.
3	VB1	Input (3) : This input pin connects to the centre tap of the transformer connected to pins 4&5 of the RJ45 connector. It is not polarity sensitive.
4	VB2	Input (4) : This input pin connects to the centre tap of the transformer connected to pins 7&8 of the RJ45 connector. It is not polarity sensitive.
5	-VDC	Negative DC Output : This pin provides the -VDC output.
6	+VDC	Positive DC Output : This pin provides the +VDC output.

Table 2: Pin Description

2 Functional Description

2.1 Typical Connections

**10/100Mbps POE APPLICATION**

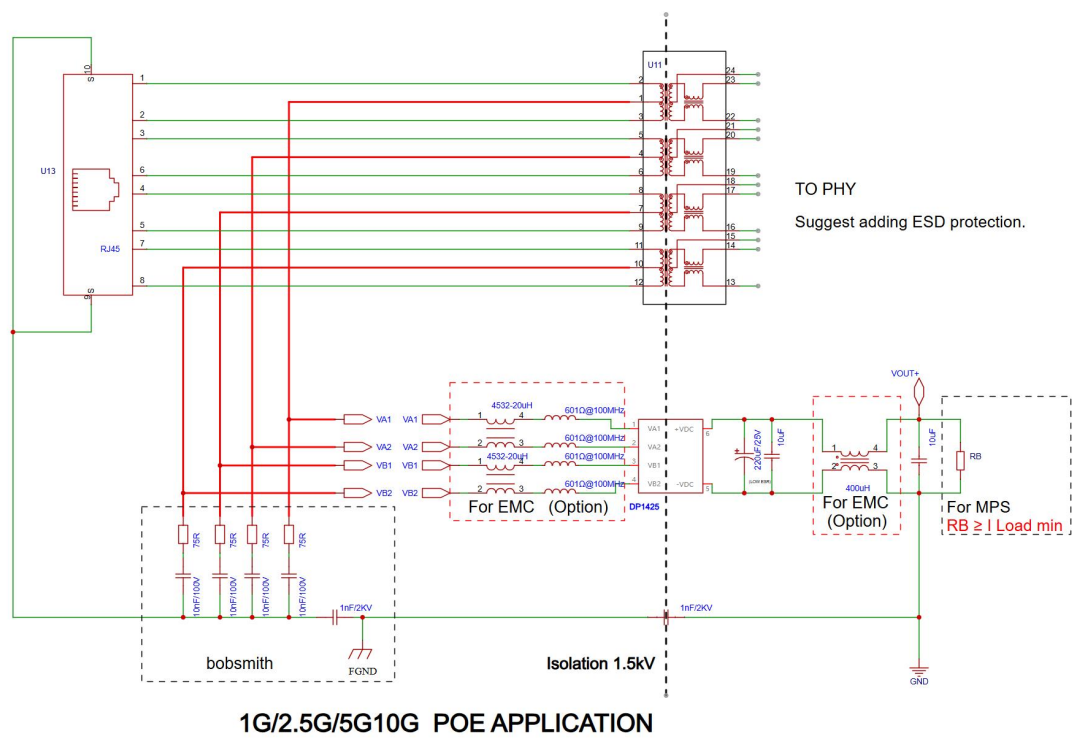


Figure 3: Typical Connection Diagram

3 Electrical Characteristics

3.1 Absolute Maximum Ratings

	Parameter	Symbol	Min	Max	Units
1	DC Supply Voltage	V_{CC}	-0.3	60	V
2	DC Supply Voltage Surge for 1ms	V_{SURGE}	-0.6	80	V
3	Storage Temperature	T_S	-40	+100	°C

3.2 Recommended Operating Conditions

	Parameter	Min	Typ	Max	Units
1	Input Supply Voltage	37	48	57	v
2	Under Voltage Lockout	30		37	v
3	Input Current		350	400	mA
4	Operating Temperature	-40	25	85	°C
5	IEEE 802.3af	Class 0			

3.3 DC Electrical Characteristics

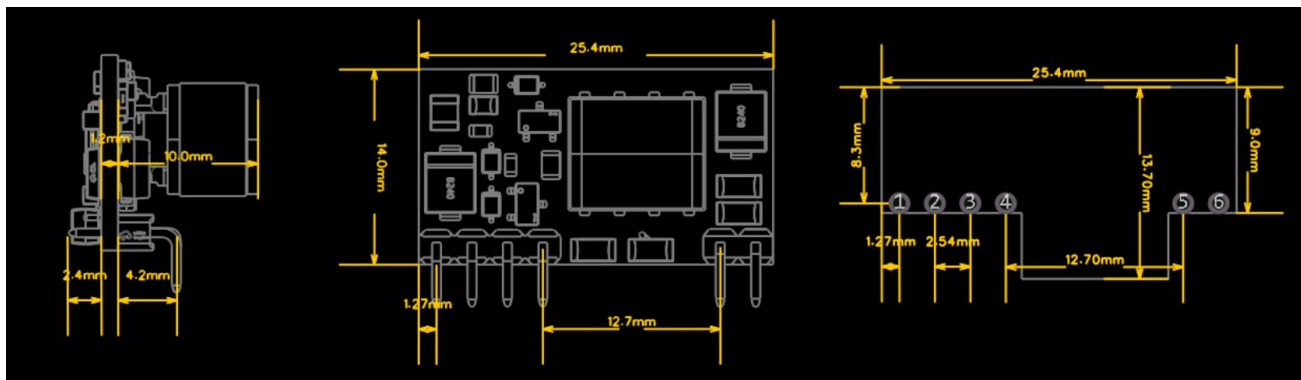
	DC Characteristic	Variant	Sym	Min	Typ ¹	Max	Units
1	Nominal Output Voltage	DP1425-24V	+VDC	23.5	24	24.5	V
		DP1425-12V		11.6	12	12.4	
		DP1425-5V		4.75	5	5.25	
2	Minimum Load ²	DP1425-24V	I _{LOAD}	20			mA
		DP1425-12V		40			
		DP1425-5V		100			
3	Output Current (VIN = 48V)	DP1425-24V	I _{out}		0.5		A
		DP1425-12V			1.0		
		DP1425-5V			1.8		
4	Line Regulation	DP1425-24V	V _{LINE}		0.15		%
		DP1425-12V			0.05		
		DP1425-5V			0.05		
5	Load Regulation – Min to Max (VIN = 48V)	DP1425-24V	V _{LOAD}		0.15		%
		DP1425-12V			0.1		
		DP1425-5V			0.1		
6	Output Ripple and Noise ⁵ @ Max load	DP1425-24V	V _{RN}		240		mV _{p-p}
		DP1425-12V			170		
		DP1425-5V			100		
7	Peak Efficiency	DP1425-24V	EFF		84		%
		DP1425-12V			85		
		DP1425-5V			83		
8	Short-Circuit Duration ³		T _{SC}			∞	sec
9	Isolation Voltage (I/O) - Impulse Test		V _{ISO}		1500		V _{PK}

Note 1: Typical figures are at 25°C with a nominal 48V supply and are for design aid only. Not Guaranteed

Note 2: The module can emit an audible noise, if operated at less than the stated minimum I_{LOAD} and cause the PSE to fail its MPS.

Note 3: >200mohm short due to thermal limitation.

4 Package



Mechanical Specifications

layout recommendation

Typical Characteristics : $V_{out}=5V$

Only DP1425-5V , and no additional capacitors .



Full load start up from PSE $I_o=1.8A$

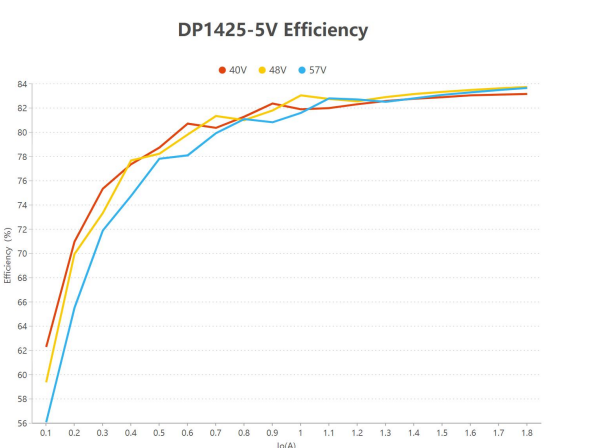


Noise $V_{IN}=52V, I_o=1.8A$ 20MHz Bandwidth



Transient Response $V_{IN}=52V, I_o=50\% \sim 100\% \sim 50\%$

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PoE Efficiency (Include rectifier bridges)

Typical Characteristics : Vout=12V

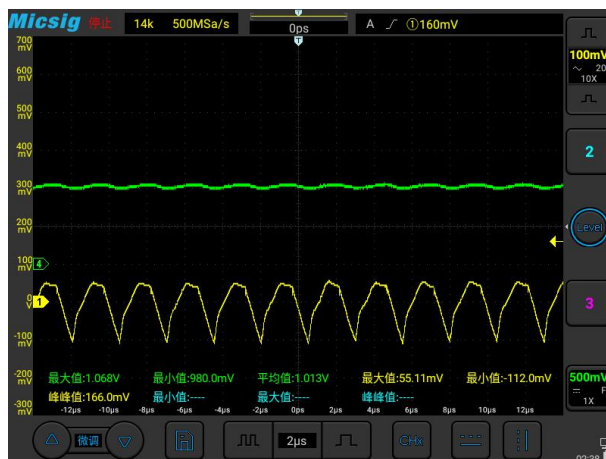
Only DP1425-12V , and no additional capacitors .



Full load start up from PSE Io=1A

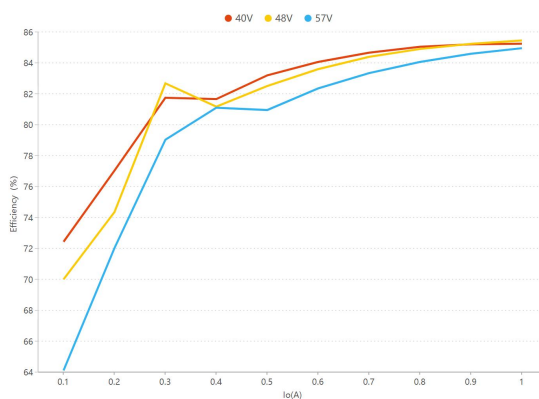


Transient Response VIN=52V, Io=50%~100%~50%



Noise VIN=52V,Io=1A 20MHz Bandwidth

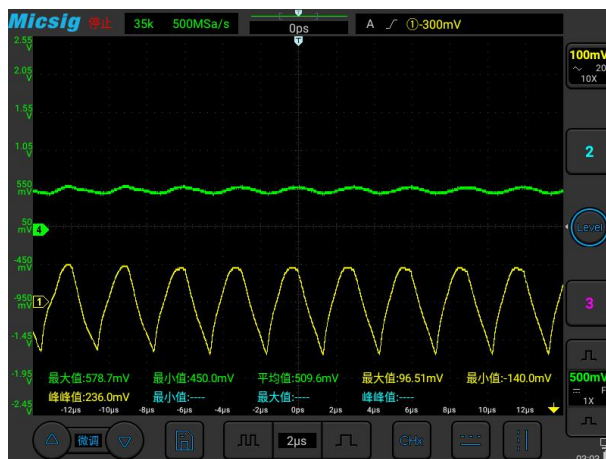
DP1425-12V Efficiency



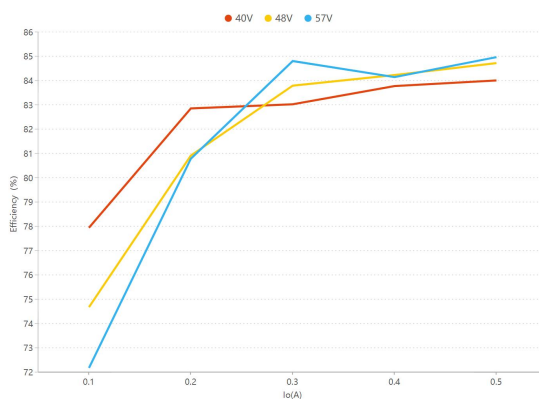
PoE Efficiency (Include rectifier bridges)

Typical Characteristics : Vout=24V

Only DP1425-24V , and no additional capacitors .



DP1425-24V Efficiency



PoE Efficiency (Include rectifier bridges)