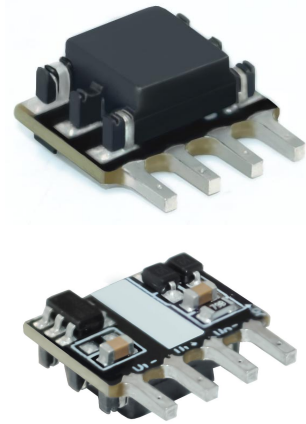


Typical Feature

- ◆ Fixed Input Voltage, isolated & unregulated Output, power 1W
- ◆ Continuous short circuit protection
- ◆ Operating Temperature: -40℃ to +115℃
- ◆ Small SIP package, international standard pin out
- ◆ Isolation Voltage 1500VDC
- ◆ High efficiency up to 84%
- ◆ No load input current as low as 6mA
- ◆ ESD satisfy 4KV contact discharge



Application Filed

PNN1-05S05GN is suitable for pure digital systems, low frequency analog circuits, relay-driven circuits. It is specially designed for applications where an isolated voltage is required in a distributed power supply system.

It could be widely used in the below products:

1. The voltage of the input power supply is relatively stable (voltage change range: $\pm 10\%V_{in}$)
2. Isolation between input and output is required (Isolation Voltage $\leq 1500VDC$);
3. Low requirements for output voltage stability and output ripple noise;

Typical Product List

Part No	Input Voltage	Output Voltage/Current		Max. Capacitive Load(MAX)	Ripple & Noise 20MHz (TYP/MAX)	Efficiency (MIN/TYP)
	(VDC)	Voltage	Current			
	Range	(VDC)	(mA) MAX / MIN			
PNN1-05S05GN	5(4.5-5.5)	5	200/20	10000	50/100	82/84

Note 1: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.

Note 2: The fluctuation range of full load efficiency(% ,TYP) is $\pm 2\%$, full load output efficiency= total output power/module's input power.

Note 3: Ripple & Noise Tested by twisted-pair method, for details please check Ripple& Noise Test Method at back.

Input Specifications

Item	Operating Condition		Min.	Typ.	Max.	Unit
Input Current (Full load/ No load)	5Vdc Input	5Vdc output	-	230/6	250/8	mA
	-		-	15	-	
Reflected Ripple Current	-		-	15	-	
Overshoot Voltage	5.5Vdc Input		-0.7	-	9	VDC
Overshoot Current	-		-	0.8	-	A
Input Filter Type			Capacitor Filter			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Condition		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	-		See Regulation Curve			
Line Regulation	Input voltage change $\pm 1\%$	5Vdc output	-	-	± 1.2	%
Load Regulation	10%-100% load	5Vdc output	-	8	10	%
Temperature Drift Coefficient	Full load		-	-	± 0.03	%/ $^{\circ}\text{C}$
Short Circuit Protection	-		Continuous, Self-recovery			

General Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Insulation Withstand Voltage	Input-output,Test 1min, leakage current≤0.5mA	1500	-	-	VDC
Insulation Resistance	Input-output, Insulation Voltage 500VDC	1000	-	-	MΩ
Isolation Capacitor	Input-output, 100KHz/0.1V	-	20	-	PF
Operating Temperature	Temperature≥105℃, see Temperature Derating Curve	-40	-	115	℃
Case Temperature Rise	Ambient Temperature 25℃	-	15	-	
Storage Temperature	-	-55	-	135	
Reflow Temperature	Peak temperature 270℃≤Tc≤280℃, only one through the oven, peak temperature Tc≤270℃, up to 3 times through the oven;				
Storage Humidity	No condensing	-	-	95	%RH
Switching Frequency	Full load, Input Standard Voltage	-	300	-	KHz
MTBF	MIL-HDBK-217F@25℃	2500			K hours

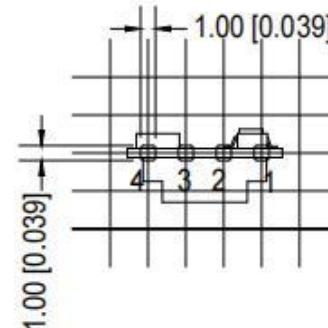
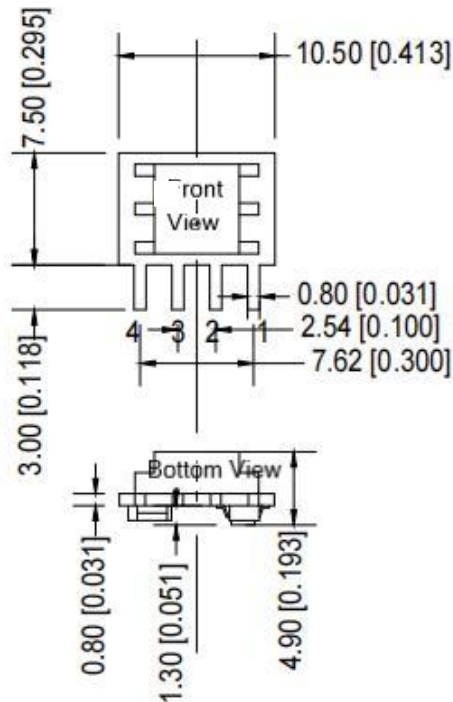
Material Characteristics

Case Material		Not available (Open Frame)
Packing Dimension	DIP package	10.5X4.9 X7.5 mm
Product Weight		0.5g(TYP.)
Cooling Method		Natural air cooling

EMC Character

EMI	CE	CISPR32/EN55032 CLASS B (See EMC recommended circuit)
	RE	CISPR32/EN55032 CLASS B (See EMC recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air $\pm 4\text{kV}$, Contact $\pm 4\text{kV}$ perf. Criteria B

Packing Information



Note:

Unit:mm[inch]

Grid:2.54mm(0.1inch)

General tolerance:±0.50mm(±0.019inch)

Layout is for reference, details please refer to final products

Packing Code

L x W x H

GN

10.5x4.9x7.5mm

Pin-Out

	1	2	3	4
Single(S)	-Vin	+Vin	-Vout	+Vout

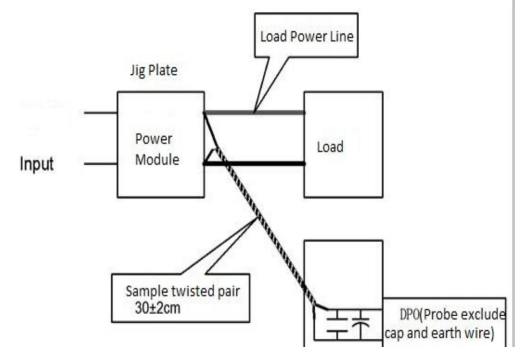
Ripple & Noise Test (Twisted Pair Method 20MHz Bandwidth)

a. 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 4.7uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

b. Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.

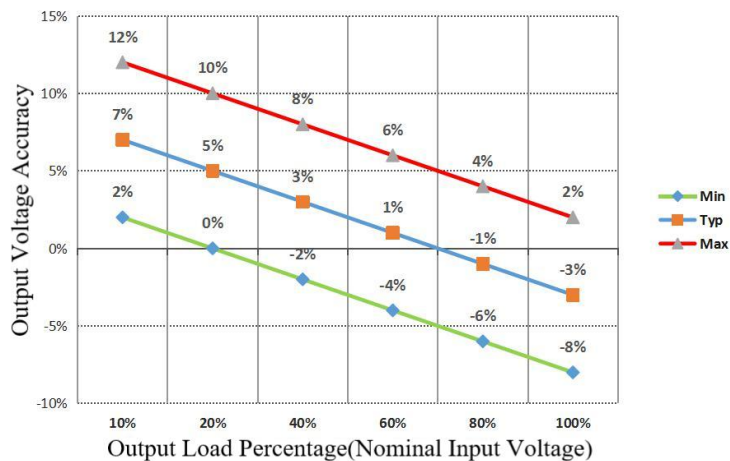
c. Require for output load

In order to ensure that the module can work efficiently and reliably, its lowest output load no less than 10% of the rated load. If the power you need is really small, please ensure a resistor is connected in parallel at the output end.(the sum of the power consumed by the resistor and the power used is ≥ 10% of rated power).

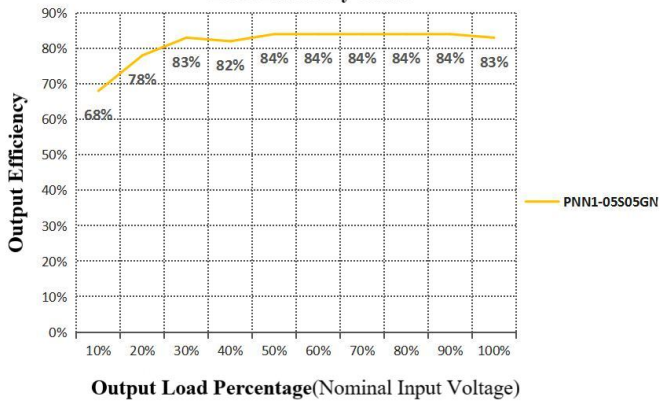


Products Characteristic Curve

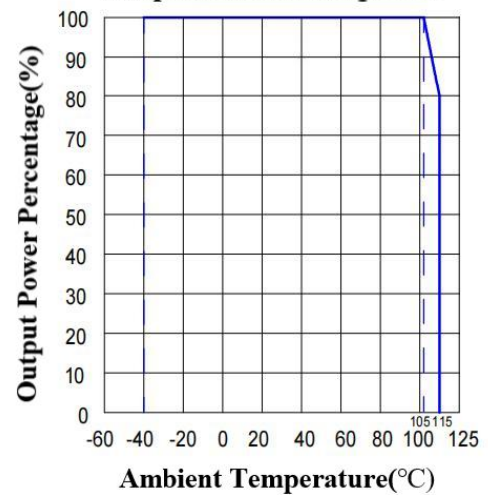
5VDC Output Regulation Curve



Load-Efficiency Curve



Temperature Derating Curve



Application Circuit

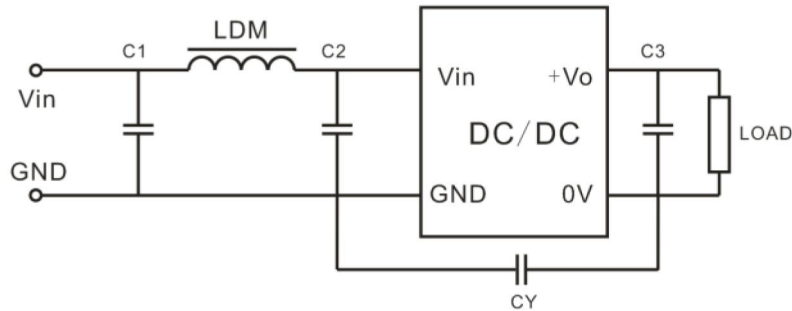
1. Typical Application

In order to ensure the input/output ripple and noise decreased, capacitor filter net could be connected to input and output side, application circuit as below photo 3; choosing suitable filter capacitor is very important, start-up problems may be caused by too large capacitance.



Note 1: Cin is 4.7uF/50V, Cout is 10uF/50V

2. EMC Typical Recommended Circuit



Note 2: C1,C2 is 4.7uF/50V, LDM is 6.8uH, CY is 1nF/250Vac, C3 is 10uF/50V

Note:

1. If the product is operated under the min. required load, the product performance cannot be guaranteed to comply with all performance indexes in this datasheet;
2. The maximum capacitive load is tested under nominal input voltage range and full load condition;
3. Unless otherwise specified, data in this datasheet are tested under conditions of **$T_a=25^{\circ}\text{C}$** , **humidity<75%** when inputting nominal voltage and outputting rated load(pure resistance load);
4. All index testing methods in this datasheet are based on our Company's corporate standards.
5. We can provide customized product service.

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