

1W Isolated DC-DC Converter

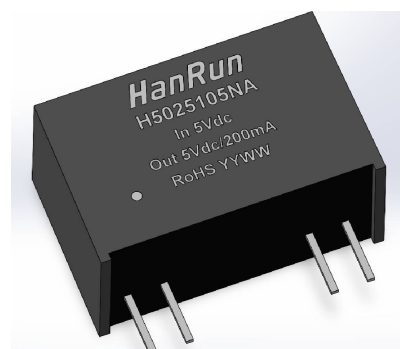
Fixed input voltage, regulated single output



H5025105NA

Features :

I/O isolation test voltage: 5000VAC
Continuous short-circuit protection
HanRun Transformer
Capacitive Load: 2400 μ F Max.
Industry standard pin-out
No-load input current as low as 4mA
Operating ambient temperature range: -40 $^{\circ}$ C to +85 $^{\circ}$ C
Designed to Comply with EN 62368-1, IEC 62368-1
RoHs Compliant



This model is specially designed for distributed power supply systems where an isolated voltage is required. They are suitable for occasions of : pre-interference isolation, ground interference elimination, pure digital circuit, voltage isolation conversion, general low frequency analog circuit, relay drive circuit, etc.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	DC Input	4.75	5	5.25	VDC
Input Current (no load)	nominal Input Voltage , no load	-	4	5.5	mA
Input Current	nominal Input Voltage , 100% load	-	254	267	mA
Reflected Ripple Current	nominal input voltage, 100% load	-	15	-	mA
Surge Voltage (1sec. max.)	nominal input voltage, 100% load,	-0.3	-	9	V
Input Filter		Capacitance filter			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
DC Output Current		20	-	200	mA
Output Voltage Accuracy		-	-	± 3	%
Line Regulation	Input voltage change: $\pm 1\%$	-	-	± 2.5	%
Load Regulation	nominal input voltage, 10%~100% load,	-	-	± 3	%
Temperature Coefficient	100% load	-	± 0.02	-	%/ $^{\circ}$ C
Ripple & Noise *	20MHz bandwidth (parallel cable method)	-	30	75	mVp-p
Short circuit Protection		Continuous, self-recovery			

Note:* The "parallel cable" method is used for Ripple and Noise test.

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General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input to output, test for 60S with 1 mA Max	5000	-	-	VAC
Insulation Resistance	Input to output, at 500VDC	1000	-	-	MΩ
Isolation capacitance	Input to output, 100KHz 0.1V	-	10	-	pF
Capacitive Load	nominal input voltage, Full load	-	-	2400	uF
Efficiency	nominal input voltage, full load,	70	80	-	%
Storage Humidity	Non-condensing	5	-	95	%RH
Storage Temperature		-55	-	+125	°C
Case Temperature Rise	Ta=25°C, nominal input voltage, full load	-	25	-	°C
Operating Temperature	Derating when operating temperature ≥ 71°C, (see Fig. 1)	-40	-	+85	°C
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10s seconds	-	-	300	°C
Switching Frequency	nominal input voltage, full load,	-	360	-	KHz
Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			
Safety Standard		IEC 62368-1			
MTBF		3500	-	-	Khours

Physical Specifications

Casing Material	Black plastic; flame-retardant and heat-resistant (UL94 V-0)
Dimensions	19.5*9.80*12.5mm
Weight	4.6g (typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B
	RE	CISPR32/EN55032 CLASS B
Immunity	ESD	IEC/EN61000-4-2 Air ±8kV, Contact ±6kV perf. Criteria B

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Typical Characteristic Curve:

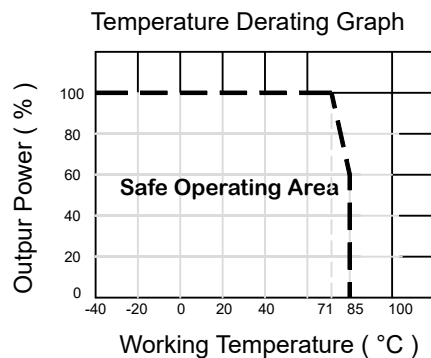
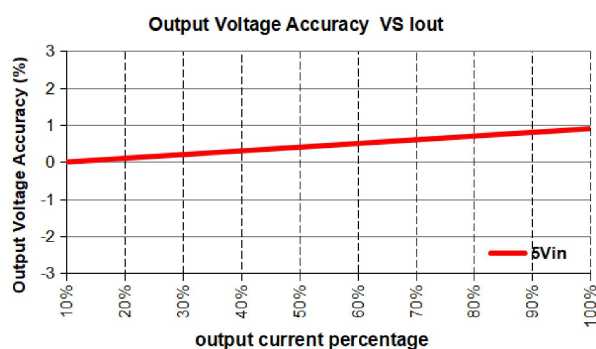
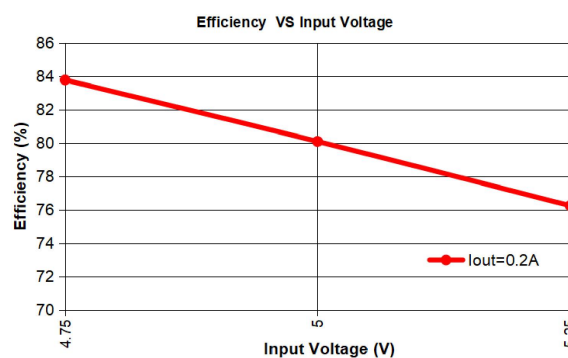
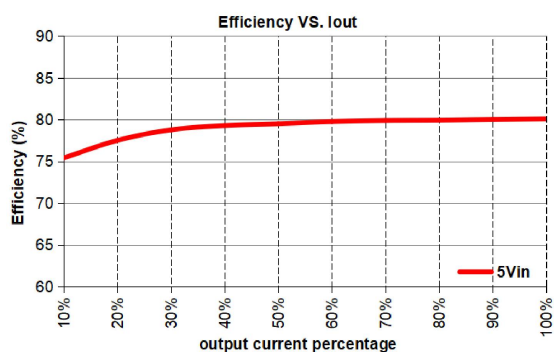


Fig.1



1W Isolated DC-DC Converter

Fixed input voltage, regulated single output



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Design Reference:

1. Input and / or output ripple can be further reduced, by connecting a filter capacitor from the input and / or output terminals to ground as shown .

Choosing suitable filter capacitor values is very important for a smooth operation of the modules, particularly to avoid start-up problems caused by capacitor values that are too high .

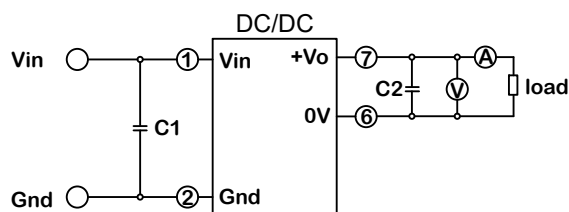


Fig. 03

Item	values	Rated voltage
C1	4.7uF	16V
C2	10uF	16V

Table 1: Recommended input and output capacitor values

2. EMC typical recommended circuit

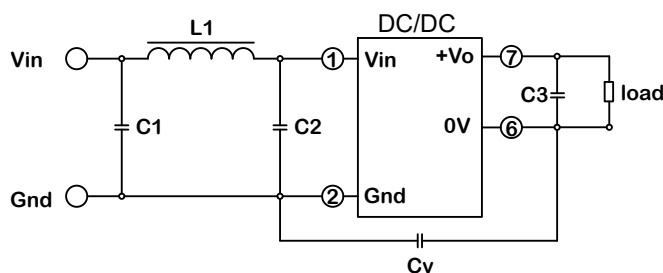


Fig.4

Item	values	Rated voltage
C1/C2	4.7uF	16V
Cy	100pF	4KV
C3	10uF	16V
L1	6.8uH	-

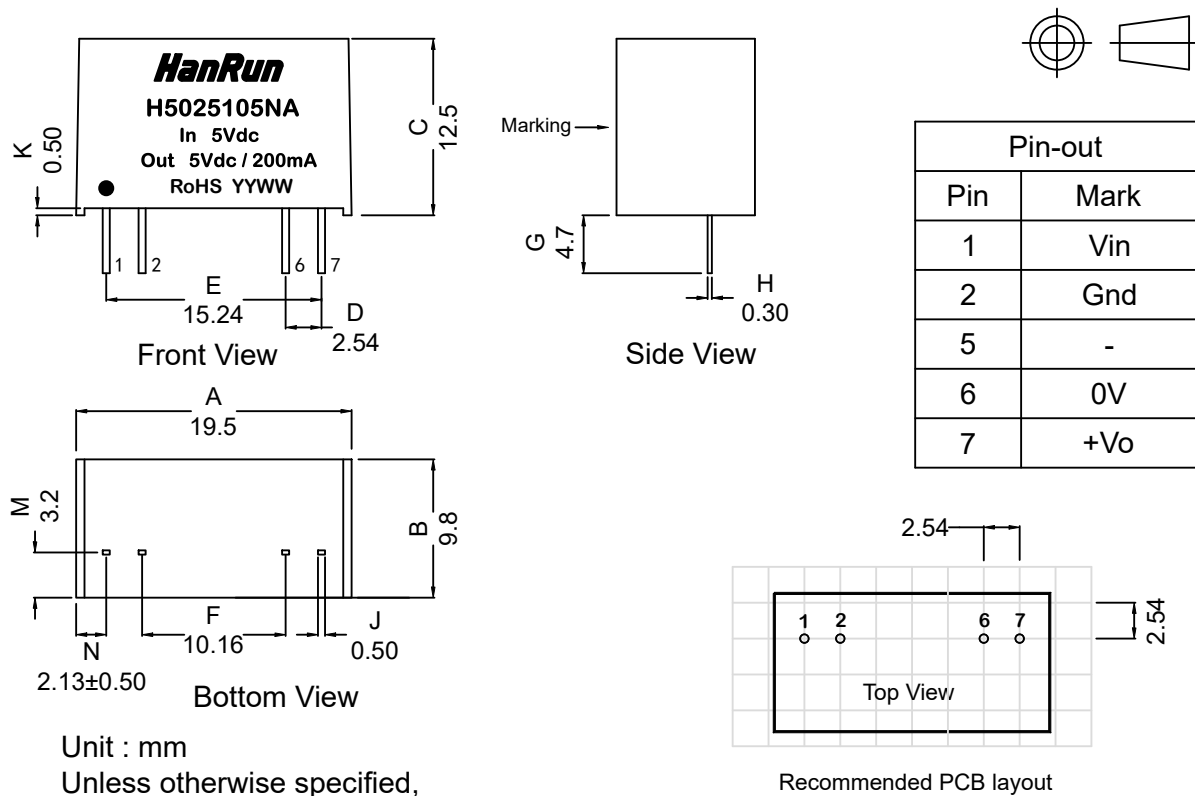
Table 2: Recommended EMC filter values

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Dimensions and Recommended Layout:



Unit : mm
Unless otherwise specified,
Tolerance: .x ± 0.5 , .xx ± 0.25