

DC/DC Converter

1W, Fixed input voltage, unregulated single output



H5025001EA

Features :

I/O isolation test voltage: 3750VAC
 Continuous short-circuit protection
 High efficiency up to 86%
 Capacitive Load: 2200 μ F Max.
 SIP package
 Operating ambient temperature range: -40 $^{\circ}$ C to +85 $^{\circ}$ C
 RoHS Compliant

The part is specially designed for applications where require compactsize, high isolation, and low leakage current power. They are suitable for:

- 1.Where the voltage of the input power supply is stable (voltage variation: $\pm 10\%$ Vin);
- 2.Where isolation is necessary between input and output ;
- 3.Where do not has high requirement of line regulation and the ripple & noise of the output voltage;

Input Specifications						
Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	DC Input		13.5	15	16.5	V
Input Current, no load	Vin=15VDC		—	7	10	mA
Input Current, full load	Vin=15VDC		—	80	89	mA
Surge Voltage (1sec. max.)	DC Input		-0.3	—	21	V
Input Filter			Capacitance filter			
Hot Plug			Unavailable			

Output Specifications						
Item	Operating Conditions		Min.	Typ.	Max.	Unit
DC Output Current	+Vo		—	—	84	mA
	-Vo		—	—	—	mA
DC Output Voltage	+Vo	Vin=15VDC, Pin6 & Pin7 Io=84mA	11.4	12	12.6	VDC
	-Vo		—	—	—	VDC
Output Voltage Accuracy	10%–100% load		See output regulation curve			
Line Regulation	Full voltage input range	+Vo output	—	± 1.1	± 1.5	—
		-Vo output	—	—	—	—
Load Regulation	10%–100% load	+Vo output	—	4	10	%
		-Vo output	—	—	—	%
Temperature Coefficient	Full load		—	± 0.04	± 0.1	%/ $^{\circ}$ C
Ripple & Noise	20MHz bandwidth (parallel cable method)		—	50	100	mVp-p
Short circuit Protection	Continuous, self-recovery					

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General Specifications					
Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input to output, test for 1 minute with 1 mA Max	3750	—	—	VAC
Partial Discharge	Input to output (According to IEC61800-5-1), Leakege charge < 10 pC	—	—	—	V
CMTI	Input to output	—	—	—	KV/us
Insulation Resistance	Input to output,at 500VDC	1000	—	—	Mohm
Isolation capacitor	Input to output,100KHz 0.1V	—	20	—	pF
Operating Temperature	Derating when operating temperature	-40	—	+85	°C
Storage Temperature		-55	—	+125	°C
Storage Humidity	Non-condensing	5	—	95	%
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10s seconds	—	—	300	°C
Case Temperature Rise	Ta=25°C, nominal input voltage, full load	—	30	60	°C
Switching Frequency	full load,noamal input voltage	—	250	—	KHz
Efficiency	15V Input, Full load	82	86	—	%
Capacitive Load	Input to output	—	—	2200	μF
Safety Standard	Safety Standard	GB4943.1			
Safety Class		—			
MTBF	MIL-HDBK-217F@25 °C	3500	—	—	Khours

Physical Specifications	
Casing Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Epoxy	Black ,UL94V-0
Dimensions	19.5*9.80*12.5mm
Weight	4.6g (typ.)
Cooling Method	Free air convection



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Typical Characteristic Curve:

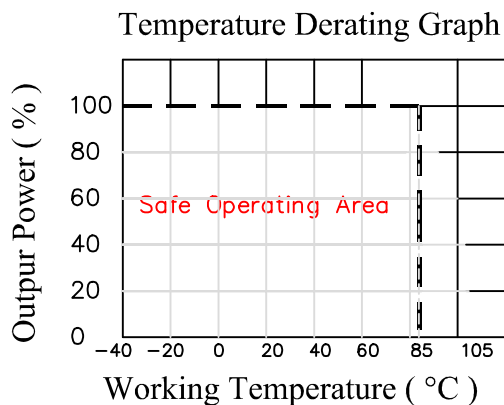


Fig. 01

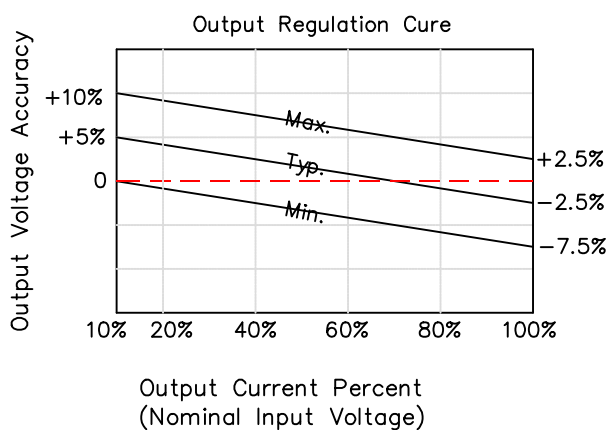
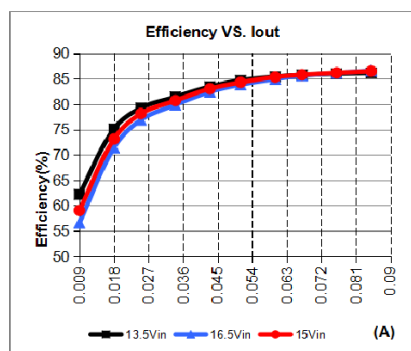
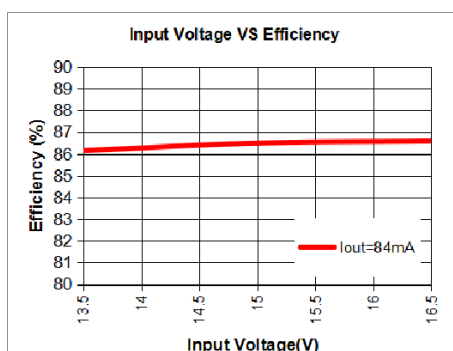


Fig. 02



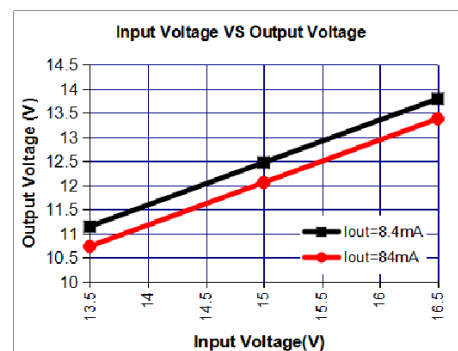
Efficiency VS I_{out}

Fig. 03



Efficiency Vs Input Volatage

Fig. 04



output Volatage Vs Input Volatage

Fig. 05

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Design Reference:

1. Test configurations

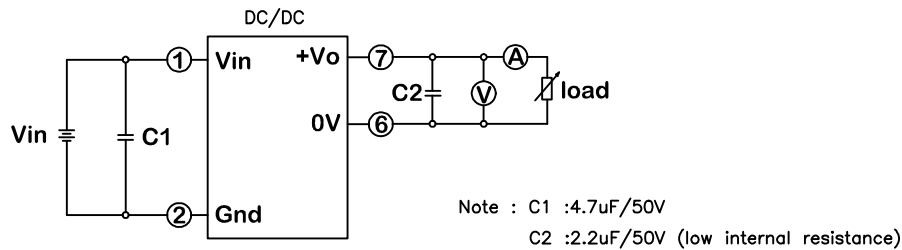


Fig. 06

2. Electrolytic capacitors are recommended for external capacitors at the input or output of the product.

Tantalum capacitors are not, otherwise there is a risk of failure.

3. The products do not support parallel connection of their output for power expansion purpose or hot-plug.

Dimensions and Recommended Layout:

