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## AM6GH-NZ



SIP8

Aimtec adds the AM6GH-NZ 6W series to its SIP8 DC/DC converters family. With the 6W new single output series, Aimtec provides better coverage of the SIP8 package product up to 10W.

The AM6GH-NZ provides a 4:1 input voltage range and comes standard with single regulated output voltages of 3.3, 5, 9, 12, 15 and 24VDC & dual regulated output voltages of  $\pm 5$ ,  $\pm 9$ ,  $\pm 12$ ,  $\pm 15$  and  $\pm 24$ VDC with I/O isolation of 1600VDC.

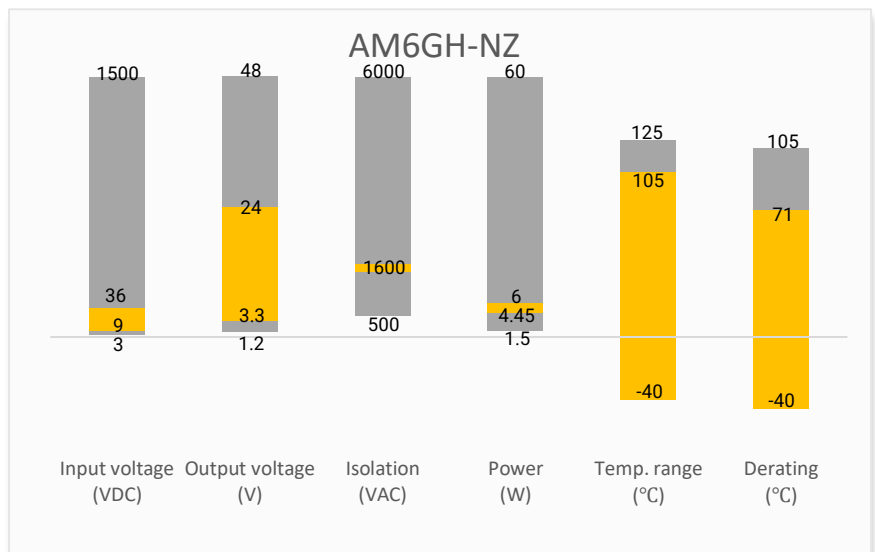
Thanks to its wide  $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$  (single output models) operating temperature range, the AM6GH-NZ is suitable for applications such as industrial control, grid power, instrumentation and telecommunication. In addition to meeting EN62368 certification, protections for input under-voltage, output short circuit, over-current are also included, increasing the overall safety of your new system design.

## Features

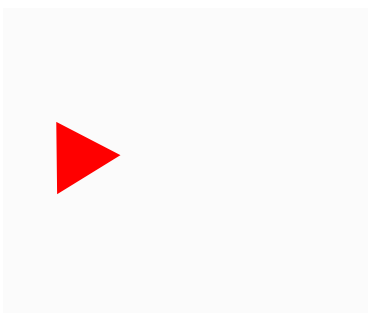


- Wide 4:1 Input Range: 9VDC – 36VDC
- Operating Temp:  $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$
- Low ripple & noise, up to 150mV(p-p) max.
- Efficiency up to 87%
- Output short circuit, over current protection, Input under-voltage protection
- Regulated Output

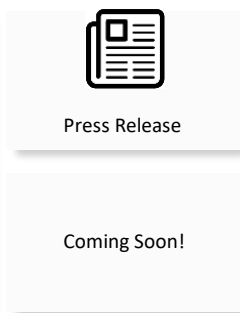
## Summary



## Training



Product Training Video  
(click to open)



Application Notes

## Applications



Power Grid



Industrial



Telecom



Instrumentation

## Models & Specifications

Single Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Max (mA)		Output Current Max (mA)	Maximum Capacitive Load (μF)	Efficiency (%) Full Load
			No Load	Full Load			
AM6GH-2403SNZ	24 (9 ~ 36)	3.3	12	245	1350	1800	78
AM6GH-2405SNZ	24 (9 ~ 36)	5	12	313	1200	1000	82
AM6GH-2409SNZ	24 (9 ~ 36)	9	16	313	667	470	84
AM6GH-2412SNZ	24 (9 ~ 36)	12	16	313	500	470	86
AM6GH-2415SNZ	24 (9 ~ 36)	15	16	313	400	220	87
AM6GH-2424SNZ	24 (9 ~ 36)	24	16	313	250	100	85

Dual Output							
Model	Input Voltage (VDC)	Output Voltage (VDC)	Input Current Max (mA)		Output Current Max (mA)	Maximum Capacitive Load (μF)	Efficiency (%) Full Load
			No Load	Full Load			
AM6GH-2405DNZ	24 (9 ~ 36)	± 5	16	320	± 600	± 470	80
AM6GH-2409DNZ	24 (9 ~ 36)	± 9	16	309	± 333	± 220	83
AM6GH-2412DNZ	24 (9 ~ 36)	± 12	16	309	± 250	± 120	83
AM6GH-2415DNZ	24 (9 ~ 36)	± 15	16	309	± 200	± 100	83
AM6GH-2424DNZ	24 (9 ~ 36)	± 24	16	313	± 125	± 68	82

Input Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage range	See models table			VDC
Filter	Capacitance filter			
Absolute maximum rating	1 sec. max		50	VDC
Reflected ripple current		50		mA pk-pk
Start-up voltage			9	VDC
Under voltage protection		6.5		VDC
On/Off ctrl *	ON – Ctrl pin open or pulled high (3.5~12VDC) OFF – Ctrl pin pulled low to GND (0~1.2VDC), idle current 10mA max.			
* The Ctrl pin voltage is referenced to input GND.				

Isolation Specification				
Parameters	Conditions	Typical	Maximum	Units
Tested I/O voltage	60 sec, 1mA max, Single output	1600		VDC
	60 sec, 1mA max, Dual output	1500		VDC
Resistance	500VDC	≥1000		MΩ
Capacitance	I/O capacitance at 100KHz/0.1V	1000		pF

Output Specification				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	5 ~ 100% load, Single / Dual $V_{out1}$	$\pm 1$	$\pm 2$	%
	5 ~ 100% load, Dual $V_{out2}$	$\pm 2$	$\pm 3$	%
Line regulation	Full load, Single / Dual $V_{out1}$	$\pm 0.5$	$\pm 1$	%
	Full load, Dual $V_{out2}$	$\pm 1$	$\pm 1.5$	%
Load regulation	5 ~ 100% load, Single / Dual $V_{out1}$	$\pm 0.8$	$\pm 1.5$	%
	5 ~ 100% load, Dual $V_{out2}$	$\pm 1.2$	$\pm 2$	%
Cross regulation (Dual output)	25% load step change		$\pm 5$	%
Over current protection		110~230, typ. 160		% Iout
Short circuit protection	Continuous, Auto recovery			
Temperature coefficient	Full load		$\pm 0.03$	%/°C
Ripple & Noise*	20MHz bandwidth, 5 ~ 100% load, Single output	50	100	mV pk-pk
	20MHz bandwidth, 5 ~ 100% load, Dual output	120	150	mV pk-pk
Transient recovery time	25% load step change	450	500	$\mu$ S
Transient response deviation	25% load step change, Output 3.3V / 5V / $\pm 5$ V	$\pm 5$	$\pm 8$	%
	25% load step change, Others	$\pm 3$	$\pm 5$	%

\* At 0 ~ 5% load, the Single / Dual  $V_{out1}$  maximum voltage accuracy is  $\pm 3\%$ , the Dual  $V_{out2}$  maximum voltage accuracy is  $\pm 5\%$   
\*\* Ripple and Noise are measured at 20MHz bandwidth by using a 1 $\mu$ F (M/C) and 22 $\mu$ F (E/C) parallel capacitor and typical input with full load

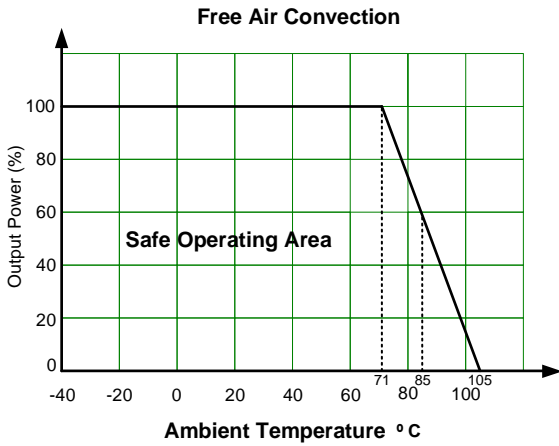
General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load. PWM mode	500		KHz
Operating temperature	See derating graph, Single output	-40 to +105		°C
	See derating graph, Dual output	-40 to +85		°C
Storage temperature		-55 to +125		°C
Soldering temperature	1.5mm from case 10 sec max		300	°C
Cooling	Free air convection			
Humidity	Non-condensing		95	% RH
Case material	Heat resistant black Plastic (flammability to UL 94V-0)			
Vibration	10-150Hz, 5G, 0.75mm along X,Y and Z			
Weight	PCB mountable model	4.6		g
Dimensions (L x W x H)	PCB mountable model	0.87 x 0.37 x 0.47 inches, 22.00 x 9.50 x 12.00mm		
MTBF	> 1 000 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load			

Safety Specifications		
Parameters		
Standards	Designed to meet EN 62368	
	EMC - Conducted and radiated emission	CISPR32/EN55032, CLASS B with EMC recommended circuit B
	Electrostatic Discharge Immunity	IEC 61000-4-2 Contact $\pm 4$ KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC 61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC 61000-4-4 $\pm 2$ KV, Criteria B C with recommended circuit A
	Surge Immunity	IEC 61000-4-5 L-L $\pm 2$ KV, Criteria B with EMC recommended circuit A
	RF, Conducted Disturbance Immunity	IEC 61000-4-6 3Vr.m.s, Criteria A

## Derating

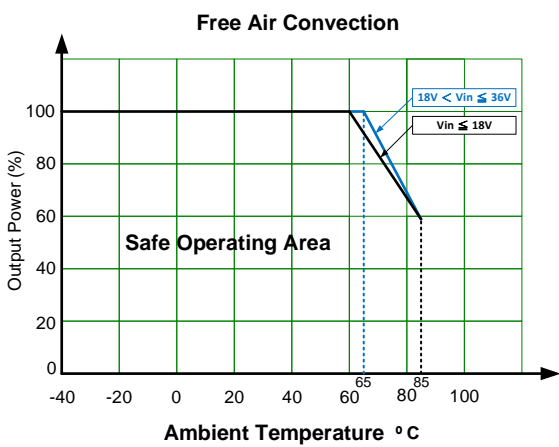


### Single output

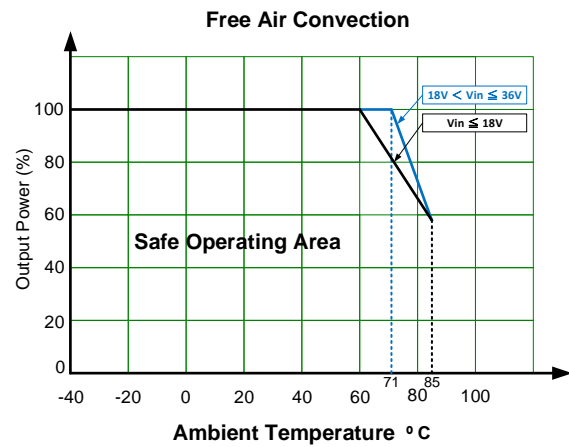


### Dual output

#### 5V output



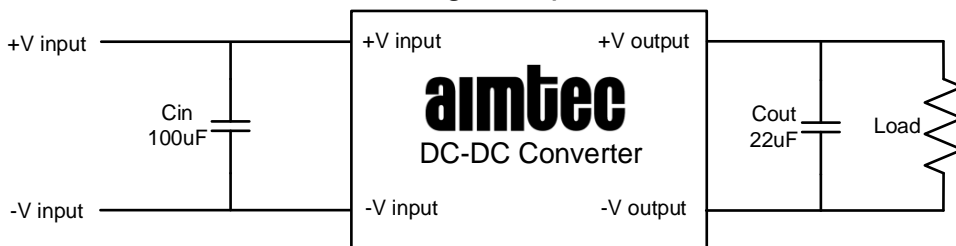
#### 9V / 12V / 15V / 24V output



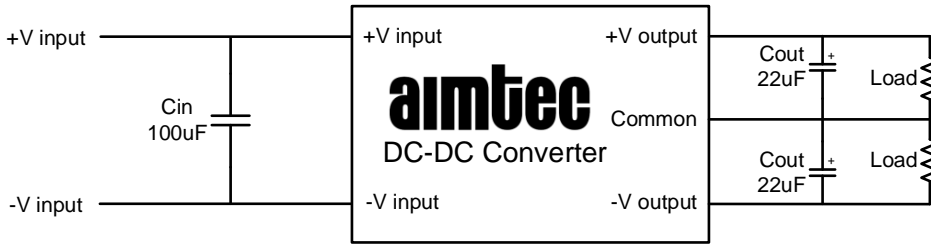
## Typical Application Circuit



### Single output

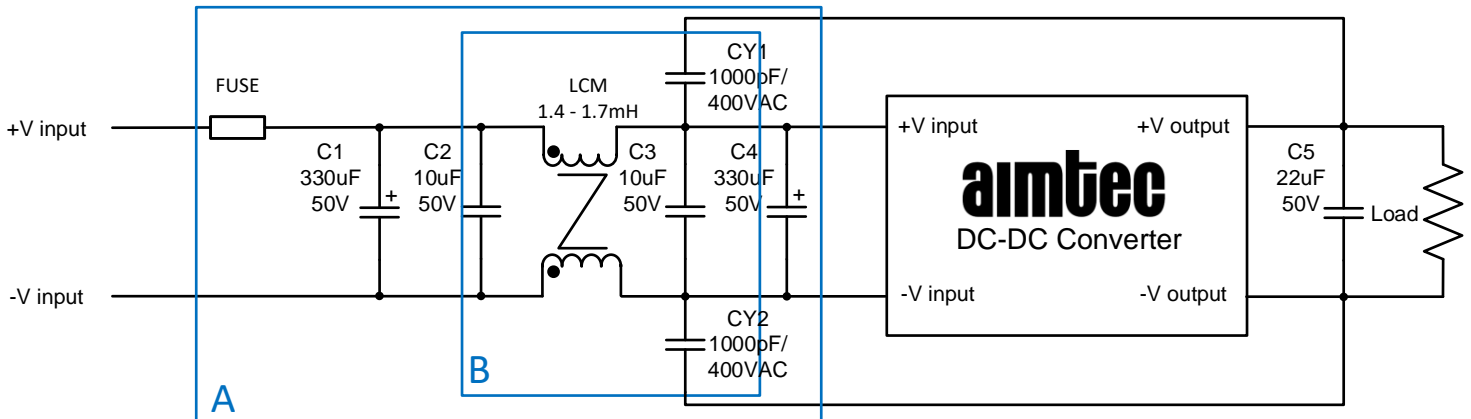


### Dual output

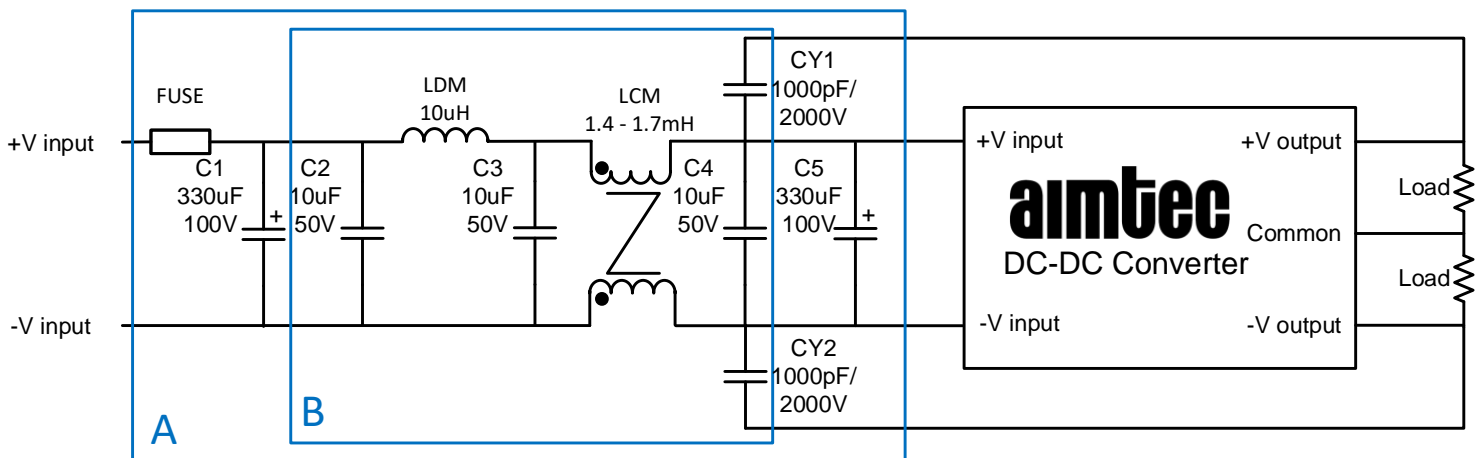


### EMC Recommended Circuit

#### Single output

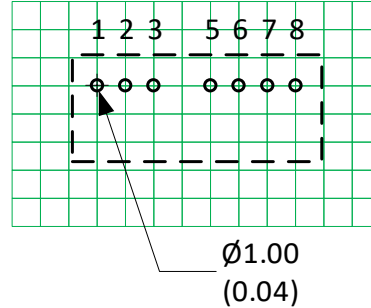
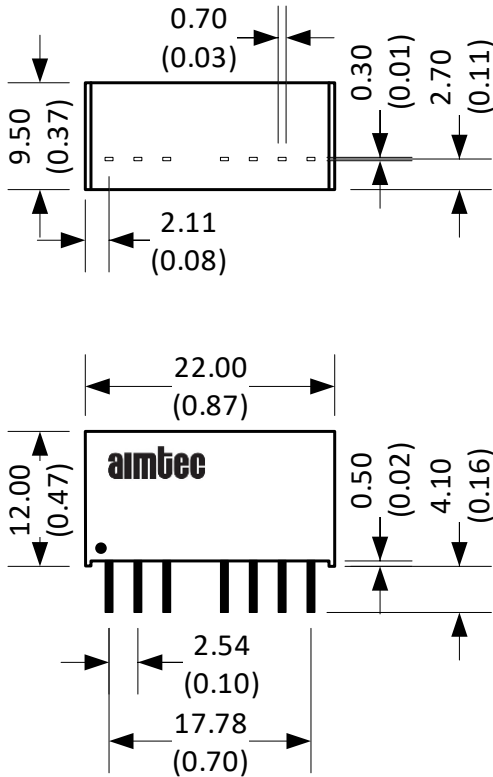


#### Dual output



Fuse : Choose according to actual input current.

## Dimensions



Note : Grid 2.54\*2.54 mm

### Notes:

All dimensions are typical in millimeters (inches).

Pin section tolerances :  $\pm 0.10$  ( $\pm 0.004$ )

General tolerance :  $\pm 0.50$  ( $\pm 0.02$ )

Pin Out Specifications		
Pin	Single	Dual
1	-V Input	-V Input
2	+V Input	+V Input
3	Ctrl	Ctrl
5	NC	NC
6	+V Output	+V Output
7	-V Output	Common
8	NC	-V Output

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