

# A100HI Series

## Ultra-High Isolation, 1.5W Single & Dual Output DC/DC Converters



### Key Features:

- 1.5W Output Power
- 8,000 VDC Isolation
- 2  $\mu$ A Leakage Current Max
- Compact DIP Case
- Single & Dual Outputs
- Meets EN55022 Class A
- 1.0 MH MTBF
- Industry Standard Pin-Out



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### Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Input Voltage Range	5 VDC Input	4.5	5.0	5.5	VDC	
	12 VDC Input	10.8	12.0	13.2		
	15 VDC Input	13.5	15.0	16.5		
Input Filter	π (Pi) Filter					
Reverse Polarity Input Current				0.5	A	
Short Circuit Input Power				1,000	mW	

Output						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Output Voltage Accuracy			±2.0	±4.0	%	
Output Voltage Balance	Dual Output, Balanced Loads		±0.5	±2.0	%	
Line Regulation	For Vin Change of 1%		±1.2	±1.5	%	
Load Regulation, (Note 1)	See Model Selection Guide					
Ripple & Noise (20 MHz) (Note 2)			30	40	mV P - P	
Ripple & Noise (20 MHz)	Over Line, Load & Temp.			50	mV P - P	
Ripple & Noise (20 MHz)				15	mV rms	
Output Power Protection		120			%	
Temperature Coefficient			±0.01	±0.02	%/°C	
Output Short Circuit	Continuous					

General						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Isolation Voltage, Rated	60 Seconds	8,000			VDC	
Isolation Test Voltage	Flash Tested For 1 Second	8,800			VDC	
Leakage Current	240 VAC, 60 Hz			2	$\mu$ A	
Isolation Resistance	500 VDC	10			G $\Omega$	
Isolation Capacitance	100 kHz, 1V		10	15	pF	
Switching Frequency		50		100	kHz	

Environmental						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Operating Temperature Range	Ambient	-40		+85	°C	
Operating Temperature Range	Case	-40		+95	°C	
Storage Temperature Range		-55		+125	°C	
Cooling	Free Air Convection					
Humidity	RH, Non-condensing			95	%	

Physical						
Parameter	Conditions	Min.	Typ.	Max.	Units	
Case Size		1.25 x 0.80 x 0.40 Inches (31.8 x 20.3 x 10.2 mm)				
Case Material		Non-Conductive Black Plastic (UL94-V0)				
Weight		0.42 Oz (12g)				

### Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units	
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	2.0			MHours	

### Absolute Maximum Ratings

Parameter	Conditions	Min.	Typ.	Max.	Units	
Input Voltage Surge (1 Sec)	5 VDC Input	-0.7		7.0	VDC	
	12 VDC Input	-0.7		17.0		
	15 VDC Input	-0.7		21.0		
Lead Temperature	1.5 mm From Case For 10 Sec			260	°C	
Internal Power Dissipation	All Models			1,000	mW	

**Caution:** Exceeding Absolute Maximum Ratings may damage the module. These are not continuous operating ratings.

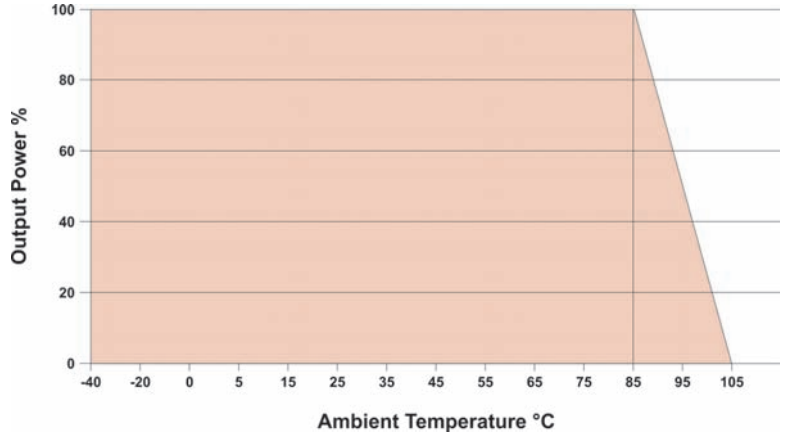
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Model Number	Input		Current (mA)		Reflected Ripple Current (mA, Typ)	Output			Load Regulation (% Max)	Efficiency (% Typ)	Fuse Rating Slow-Blow (mA)
	Voltage (VDC)		Full-Load	No-Load		Voltage (VDC)	Current (mA, Max)	Current (mA, Min)			
	Nominal	Range									
A101HI	5	4.5 - 5.5	400	50	30	5.0	300	0.0	±10	75	1,000
A102HI	5	4.5 - 5.5	400	50	30	12.0	125	0.0	±8	75	1,000
A103HI	5	4.5 - 5.5	400	50	30	15.0	100	0.0	±6	75	1,000
A104HI	5	4.5 - 5.5	400	50	30	±5.0	±150	±0.0	±12	75	1,000
A105HI	5	4.5 - 5.5	400	50	30	±12.0	±63	±0.0	±8	75	1,000
A106HI	5	4.5 - 5.5	400	50	30	±15.0	±50	±0.0	±6	75	1,000
A111HI	12	10.8 - 13.2	167	30	25	5.0	300	0.0	±10	75	250
A112HI	12	10.8 - 13.2	167	30	25	12.0	125	0.0	±8	75	250
A113HI	12	10.8 - 13.2	167	30	25	15.0	100	0.0	±6	75	250
A114HI	12	10.8 - 13.2	167	30	25	±5.0	±150	±0.0	±12	75	250
A115HI	12	10.8 - 13.2	167	30	25	±12.0	±63	±0.0	±8	75	250
A116HI	12	10.8 - 13.2	167	30	25	±15.0	±50	±0.0	±6	75	250
A121HI	15	13.5 - 16.5	133	30	20	5.0	300	0.0	±10	75	250
A122HI	15	13.5 - 16.5	133	30	20	12.0	125	0.0	±8	75	250
A123HI	15	13.5 - 16.5	133	30	20	15.0	100	0.0	±6	75	250
A124HI	15	13.5 - 16.5	133	30	20	±5.0	±150	±0.0	±12	75	250
A125HI	15	13.5 - 16.5	133	30	20	±12.0	±63	±0.0	±8	75	250
A126HI	15	13.5 - 16.5	132	30	20	±15.0	±50	±0.0	±6	75	250

**Notes:**

- When measuring output ripple, it is recommended that an external 0.33 µF ceramic capacitor be placed from the +Vout pin to the -Vout pin for single output units and from each output to common for dual output units. For noise sensitive applications, the use of 1.5 µF capacitors will reduce the output ripple.
- Transient recovery is measured to within a 1% error band for a load step change of 50% to 100%.
- Dual output units may be connected to provide a 10 VDC, 24 VDC or 30 VDC output. To do this, connect the load across the positive (+Vout) and negative (-Vout) outputs and float the output common.
- The converter should be connected to a low ac-impedance source. An input source with a highly inductive impedance may affect the stability of the converter. In applications where the converter output loading is high and input power is supplied over long lines, it may be necessary to use a capacitor on the input to insure start-up. In this case, it is recommended that a low ESR (ESR <1.0Ω at 100 kHz) capacitor be mounted close to the converter. For 5V input units a 2.2 µF is recommended, a 1.0 µF for 12V units and a 0.47 µF for 24V units.
- It is recommended that a fuse be used on the input of a power supply for protection. See the table above for the correct rating.

**Derating Curve**



**Capacitive Load**

Single Output (µF Max)	Dual Output (µF Max)
470	±220

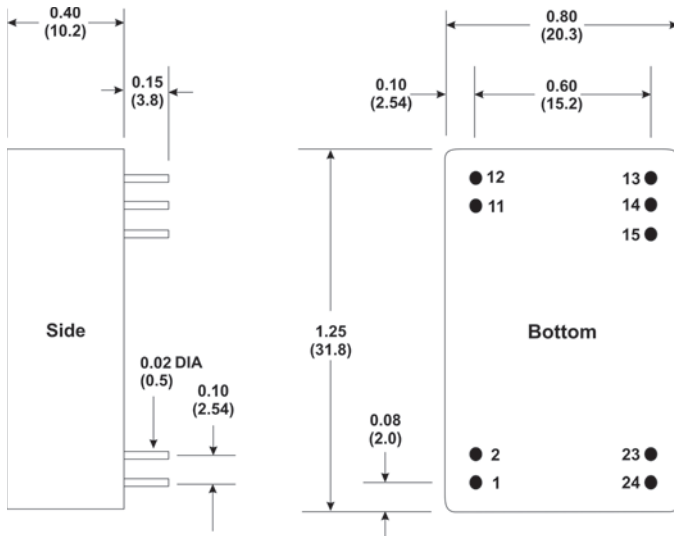
**Pin Connections**

Pin	Single	Dual
1, 2	+Vin	+Vin
11, 12	+Vout	+Vout
13, 14	-Vout	Common
15	No Pin	-Vout
23, 24	-Vin	-Vin

**Mechanical Notes:**

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)

**Mechanical Dimensions**



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