

Series AM2DC-Z

2 Watt | DC-DC Converter



FEATURES:

- RoHS compliant SIP7 package
- High efficiency up to 82%
- I/O Isolation 6000 VDC
- Low coupling capacity
- Physical clearance of Isolation barrier 6mm
- Safety barrier 100% production tested
- Rated working voltage of 250 Vrms
- Continuous Short Circuit Protection



Models Single output

Model	Input Voltage (V)	Output Voltage (V)	Output Current Max (mA)	Max Capacitive Load (uF)	Efficiency (%)
AM2DC-0503SH60Z	5	3.3	600	1000	73
AM2DC-0505SH60Z	5	5	400	470	78
AM2DC-0509SH60Z	5	9	222	470	80
AM2DC-0512SH60Z	5	12	167	220	80
AM2DC-0515SH60Z	5	15	133	220	82
AM2DC-1203SH60Z	12	3.3	600	1000	73
AM2DC-1205SH60Z	12	5	400	470	78
AM2DC-1209SH60Z	12	9	222	470	80
AM2DC-1212SH60Z	12	12	167	220	80
AM2DC-1215SH60Z	12	15	133	220	82
AM2DC-1503SH60Z	15	3.3	600	1000	73
AM2DC-1505SH60Z	15	5	400	470	78
AM2DC-1509SH60Z	15	9	222	470	80
AM2DC-1512SH60Z	15	12	167	220	80
AM2DC-1515SH60Z	15	15	133	220	82
AM2DC-2403SH60Z	24	3.3	600	1000	73
AM2DC-2405SH60Z	24	5	400	470	78
AM2DC-2409SH60Z	24	9	222	470	80
AM2DC-2412SH60Z	24	12	167	220	80
AM2DC-2415SH60Z	24	15	133	220	82

Models Dual output

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Max Capacitive Load (uF)	Efficiency (%)
AM2DC-0503DH60Z	5	±3.3	±300	±470	73
AM2DC-0505DH60Z	5	±5	±200	±220	78
AM2DC-0509DH60Z	5	±9	±111	±220	80
AM2DC-0512DH60Z	5	±12	±83	±100	80
AM2DC-0515DH60Z	5	±15	±67	±100	82
AM2DC-051509DH60Z	5	+15/-9	+67/-111	+100/-220	72
AM2DC-1203DH60Z	12	±3.3	±300	±470	73
AM2DC-1205DH60Z	12	±5	±200	±220	78
AM2DC-1209DH60Z	12	±9	±111	±220	80
AM2DC-1212DH60Z	12	±12	±83	±100	80
AM2DC-1215DH60Z	12	±15	±67	±100	82
AM2DC-121509DH60Z	12	+15/-9	+67/-111	+100/-220	72
AM2DC-1503DH60Z	15	±3.3	±300	±470	73
AM2DC-1505DH60Z	15	±5	±200	±220	78
AM2DC-1509DH60Z	15	±9	±111	±220	80
AM2DC-1512DH60Z	15	±12	±83	±100	80
AM2DC-1515DH60Z	15	±15	±67	±100	82
AM2DC-151509DH60Z	15	+15/-9	+67/-111	+100/-220	72

Models

Dual output (continued)

Model	Input Voltage (V)	Output Voltage (V)	Output Current max (mA)	Max Capacitive Load (uF)	Efficiency (%)
AM2DC-2403DH60Z	24	±3.3	±300	±470	73
AM2DC-2405DH60Z	24	±5	±200	±220	78
AM2DC-2409DH60Z	24	±9	±111	±220	80
AM2DC-2412DH60Z	24	±12	±83	±100	80
AM2DC-2415DH60Z	24	±15	±67	±100	82
AM2DC-241509DH60Z	24	+15/-9	+67/-111	+100/-220	72

Input Specifications

Parameters	Nominal	Typical	Maximum	Units
Voltage range	5	4.5-5.5		VDC
	12	10.8-13.2		
	15	13.5-16.5		
	24	21.6-26.4		
Filter	Capacitor			
Startup time	Vnom, constant resistive load	20		ms
Absolute Maximum Rating	5 Vin		0-7	VDC
	12 Vin		0-15	
	15 Vin		0-18	
	24 Vin		0-28	
Peak Input Voltage time			100	ms
Quiescent Current	5 Vin	70		mA
	12 Vin	40		
	15 Vin	30		
	24 Vin	20		
Input Reflected Ripple current	See the suggested circuit	20		mA p-p

Isolation Specifications

Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage (rated for 1 min)	60 sec		6000	VDC
Rated working voltage	Reinforced Insulation, 1 x MOPP	250		V rms
	Reinforced Insulation, 2 x MOPP	125		
Resistance		>1000		MOhm
Capacitance		10		pF

Output Specifications

Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy		±3		%
Short Circuit protection	Continuous			
Short circuit restart	Auto recovery			
Line voltage regulation	For 1% change of V in	±1.2		%
Load voltage regulation	From 10 to 100% load	±10		%
Cross Regulation (dual output)	25% to 100% one load & 100% other load	±4		%
Temperature coefficient		±0.03		%/°C
Ripple and Noise*	20MHz Bandwidth		100	mV p-p

*Output ripple and noise are measured with external connection of 10uF electrolytic capacitor and 1uF ceramic capacitor.

General Specifications

Parameters	Conditions	Typical	Maximum	Units
Switching frequency	100% load, depending of the model	50 - 100		KHz
Creepage and Clearance Distance	Input to Output	>6		mm
Operating temperature	Full Load without Derating	-40 to +85		°C
Storage temperature		-40 to +125		°C
Maximum case temperature			100	°C
Cooling	Free air convection			
Humidity			95	% RH
Case material	Non-conductive black plastic, epoxy encapsulated (UL94V-0 rated)			
Soldering temperature	1.5mm from case for 10 sec.		260	°C
Weight	4.2			g
Dimensions (L x W x H)	0.77 x 0.39 x 0.49 inches 19.56 x 9.80 x 12.50 mm			
MTBF	>2 390 000 hrs (MIL-HDBK-217 F at +25 °C)			

NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

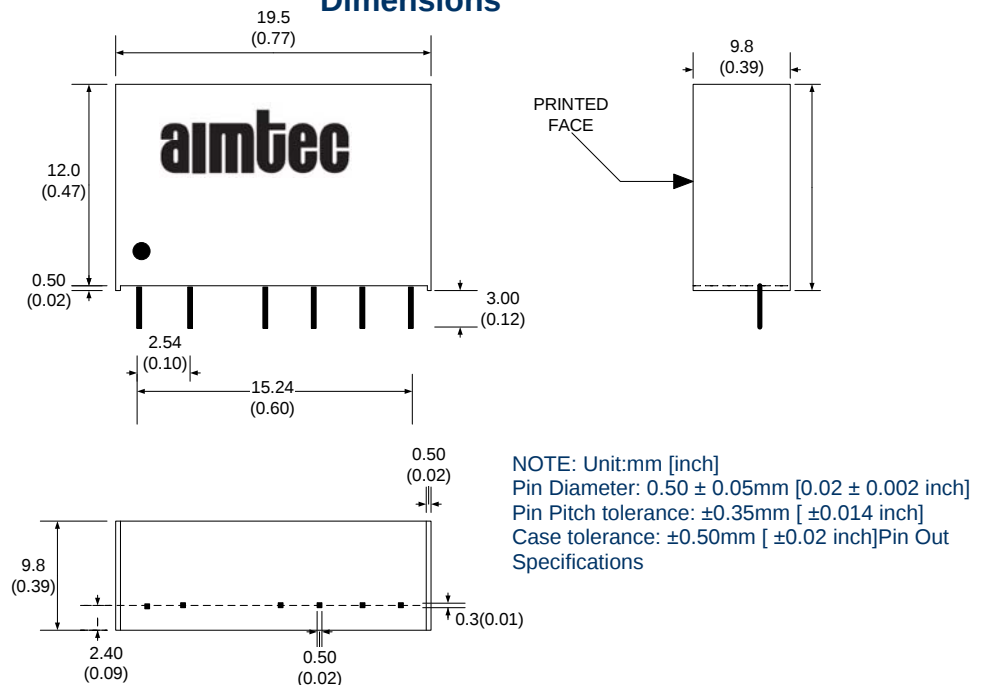
Safety Specifications

Parameters	
Standards	EN 55022: 2010, Class B EN 55024: 2010 IEC 61000-4-2: 2008, Criteria A IEC 61000-4-3: 2010, Criteria A IEC 61000-4-4: 2012, Criteria A (with external circuit) IEC 61000-4-6: 2008, Criteria A IEC 61000-4-8: 2009, Criteria A Designed to meet IEC/EN 60950-1 & IEC/EN 60601-1

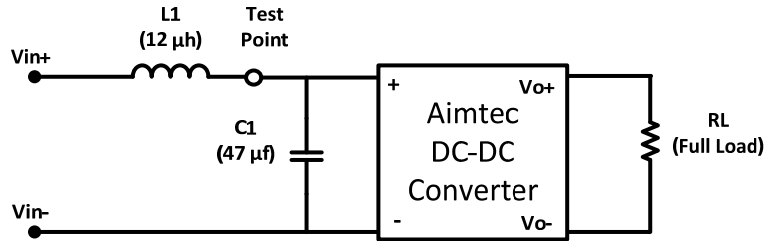
Pin Out Specifications

Pin	6000 VDC	
	Single	Dual
1	+ V Input	+ V Input
2	- V Input	- V Input
5	- V Output	- V Output
6	No pin	Common
7	+ V Output	+ V Output

Dimensions

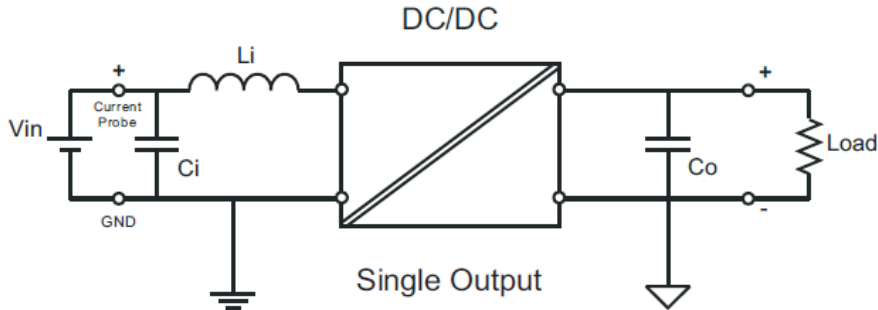


Input Reflected Ripple Current Test Circuit



* Tested at full load, and nominal input

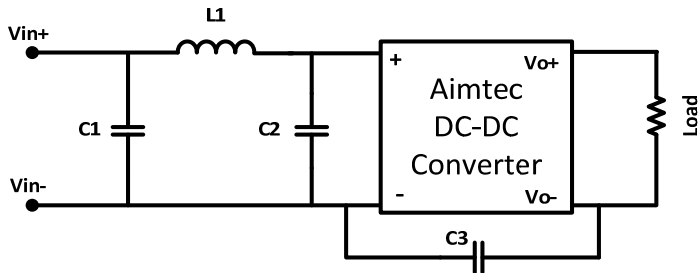
Recommended Application circuit for reducing the output ripple and noises:



Recommended Output Capacitor to reduce the converter's ripple and noises for single output models is 4.7 μ F to 100 μ F and for dual output models is 4.7 μ F to 68 μ F connected to both outputs.

L_i with value of 12 μ H and C_i with value 10 μ F to 100 μ F are recommended to be connected to the input of the converter for EMI improvement.

EMI Filter Circuit recommendation



Vin	C1	L1	C2	C3
5, 12, 15 V	470 μ F / 100V	18 μ H		
24 V	470 μ F / 100V	18 μ H	2.2 μ F / 100V	470 pF / 2kV

* Electrolytic type

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. 2. Product labels shown, including safety agency certifications on labels, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemicals at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.