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Description

The LFA1W series is a compact 1W isolated DC-DC converter housed in a SIP-7 package, supporting wide nominal input voltages of 5V, 12V, and 24V DC. It provides stable single outputs from 3.3V to 15V with efficiencies up to 86%, high isolation up to 4kVDC, and reliable operation from -40°C to +100°C. Designed to meet UL62368-1, IEC62368-1, and EN55032/34 standards, it is ideal for industrial control, and Tele-communication applications.

Features

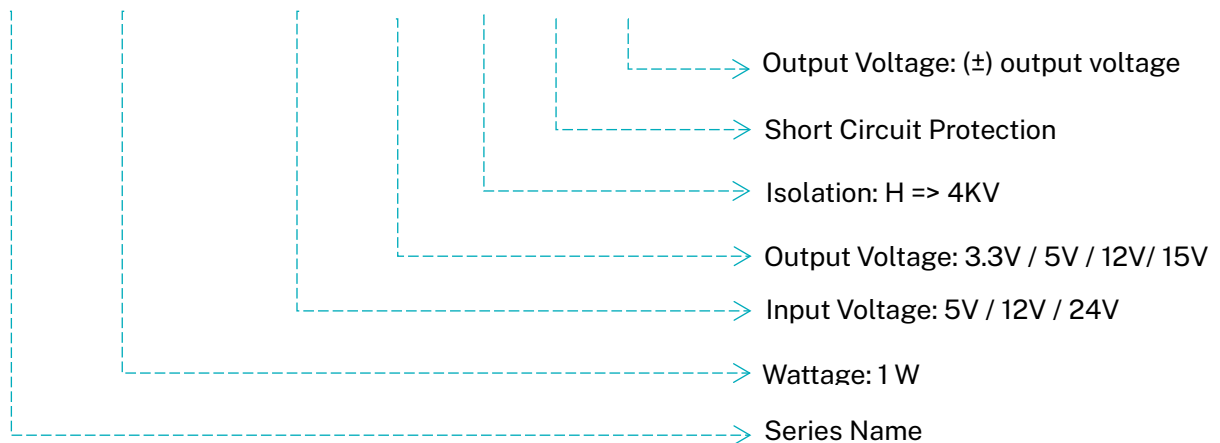
- 1 Watt output power in SIP7 package
- 1:1 input voltage range
- -40°C to +100°C operating temperature
- 3KV-4KV isolation
- Approval UL62368-1/IEC62368-1
- EMC-EN55032/34
- RoHS compliant

Applications

- Industry Control
- Tele-Communication

Model Numbering

LFA 1W - 05 33 H P D



Model Selection Guide

Part No.	Input Voltage	Output Voltage	Output Current @ Full Load	Efficiency ⁽¹⁾		Capacitor Load ⁽²⁾ (Max.)
				Min.	Typ.	
LFA1W-053.3	5 VDC±10%	3.3 VDC	303 mA	71%	74%	1500μF
LFA1W-0505		5 VDC	200 mA	76%	79%	1500μF
LFA1W-0512		12 VDC	84 mA	75%	78%	470μF
LFA1W-0515		15 VDC	67 mA	82%	85%	220μF
LFA1W-053.3D		±3.3VDC	±152mA	72%	75%	±470μF
LFA1W-0505D		±5VDC	±100mA	72%	75%	±470μF
LFA1W-0512D		±12VDC	±42mA	77%	80%	±220μF
LFA1W-0515D		±15VDC	±34mA	77%	80%	±220μF
LFA1W-123.3	12 VDC±10%	3.3 VDC	303 mA	76%	79%	1500μF
LFA1W-1205		5 VDC	200 mA	79%	82%	1500μF
LFA1W-1212		12 VDC	84 mA	77%	80%	470μF
LFA1W-1215		15 VDC	67 mA	78%	81%	220μF
LFA1W-123.3D		±3.3VDC	±152mA	77%	80%	±470μF
LFA1W-1205D		±5VDC	±100mA	73%	76%	±470μF
LFA1W-1212D		±12VDC	±42mA	77%	80%	±220μF
LFA1W-1215D		±15VDC	±34mA	78%	81%	±220μF
LFA1W-243.3	24 VDC±10%	3.3 VDC	303 mA	75%	78%	1500μF
LFA1W-2405		5 VDC	200 mA	76%	79%	1500μF
LFA1W-2412		12 VDC	84 mA	76%	79%	470μF
LFA1W-2415		15 VDC	67 mA	77%	80%	220μF
LFA1W-243.3D		±3.3VDC	±152mA	73%	76%	±470μF
LFA1W-2405D		±5VDC	±100mA	77%	80%	±470μF
LFA1W-2412D		±12VDC	±42mA	77%	80%	±220μF
LFA1W-2415D		±15VDC	±34mA	78%	81%	±220μF

Notes

- #1: The efficiency is test by Nominal input and max. full load @ 25°C.
- #2: The capacitive load is test by minimum input and constant resistive load.
- #3: Add "H" after P/H for isolation 4KVDC.
- #4: Add "P" after P/N for short circuit protection.

Electrical Specification

Model Number	LFA1W-□□
Input	
Filter	Internal capacitors
Input Voltage Range	+10%
Output	
Voltage Accuracy	± 5% max.
Minimum Load	0%
Line Regulation (LL to HL at 100% Load)	1.2% typ. @1% of Vin
Load Regulation (10% to 100% Load)	15% @ Vo=3.3/ 5V 10% @ Vo=12/ 15V
Ripple & Noise	100 mVp-p @ 20MHz BW (@ nominal Vin)
Operating Frequency	50KHz @ 100% load at nominal Vin
Environment	
Operating Temperature	-40-+100 °C
Storage Temperature	-55-+125 °C
Max. Case Temperature	110°C
Relative Humidity	5%-95% RH
Function	
Isolation Voltage	3 KVDC 1min. Input to Output 4KVDC 1min. Input to Output, Add Suffix "H"
Isolation Resistance	10GΩ
Isolation Capacitance	80 pF
MTBF (MIL-HDBK-217F)	17.1*10 ⁶ Hours (25°C)
Short Circuit Protection	Continuous, Add suffix "P"
Vibration	MIL-STD-202G
Safety Approvals	Approval UL62368-1/ IEC62368-1
Physical	
Case Material	UL94V-0 black plastic

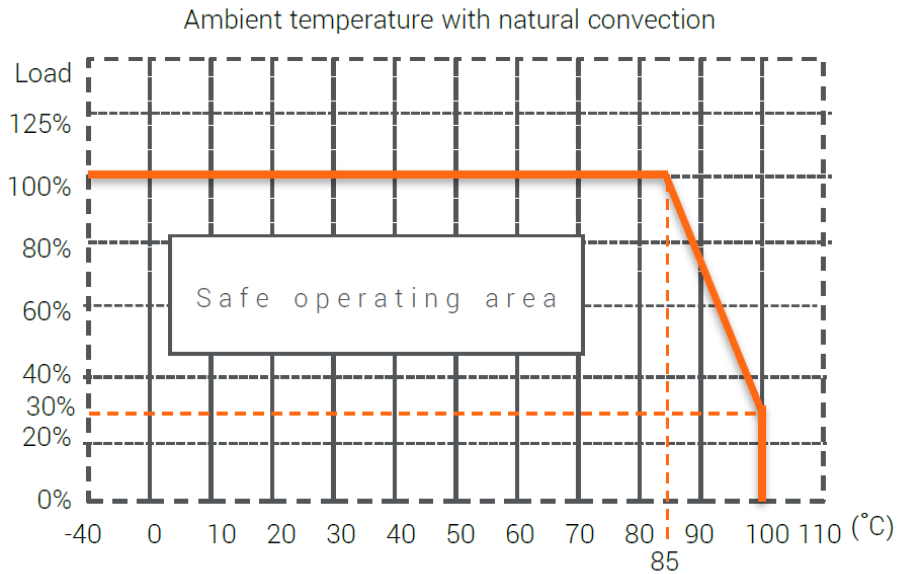
Potting Material	Epoxy (UL94V-0)
Dimension	19.65 x 6.00 x 10.20 mm (Standard)
	19.65 x 7.05 x 10.20 mm (Add suffix "H")
Weight	2.6g (Standard)
	2.8g (Add suffix "H")
Electromagnetic Compatibility	
Electromagnetic Interference	EN 55032 (Class A/B) ⁽¹⁾
Electrostatic Discharge	IEC 61000-4-2, Air±8kV; Contact±6kV (Criteria A)
Radiated Immunity	IEC 61000-4-3, 3V/m (Criteria A)
Electrical Fast Transient ⁽¹⁾	IEC 61000-4-4, ±0.5kV (Criteria A)
Surge Immunity ⁽¹⁾	IEC 61000-4-5, ±0.5kV (Criteria A)
Conducted Immunity	IEC 61000-4-6, 3V/rms (Criteria A)
Magnetic Field Immunity	IEC 61000-4-8, 1A/m (Criteria A)

Notes

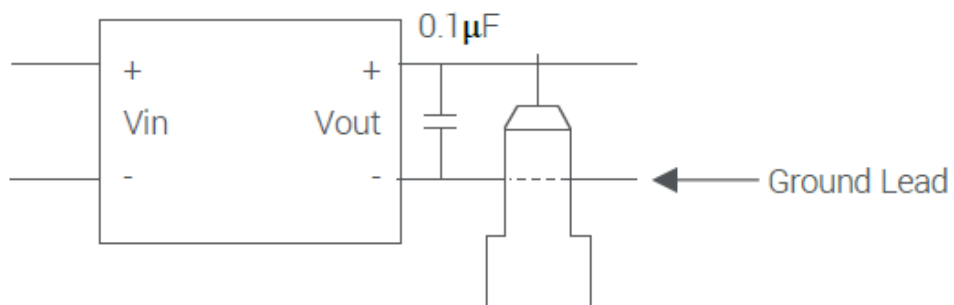
- #1: External input capacitor required 680μF.
- #2: All specifications valid at nominal input voltage, full load and 25°C unless otherwise stated
- #3: Test by nominal input and constant resistive load, the efficiency tolerance is ±3%
- #4: Please contact our technical support for any specific requirement.
- #5: "EMI filtering suggestion" is as following.

Mechanical Specification

Derating Curve

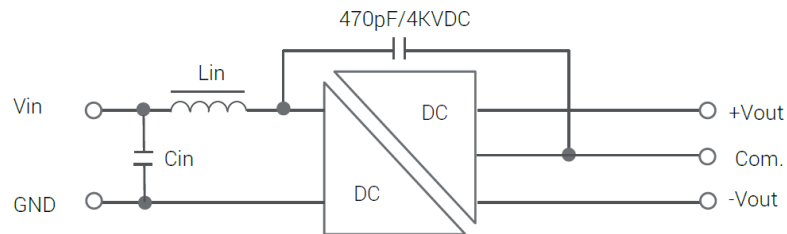
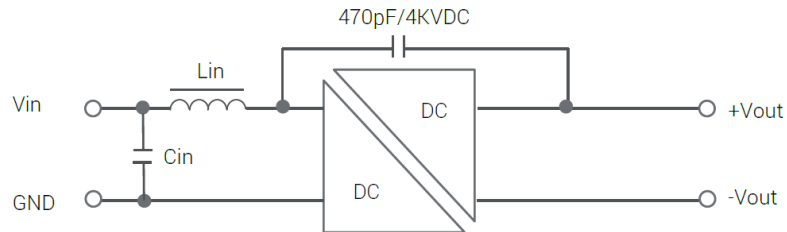


Ripple & Noise Measure Method



Measured with 20MHz bandwidth and 0.1µF ceramic capacitor

EMI Filtering-Suggestion for Class B

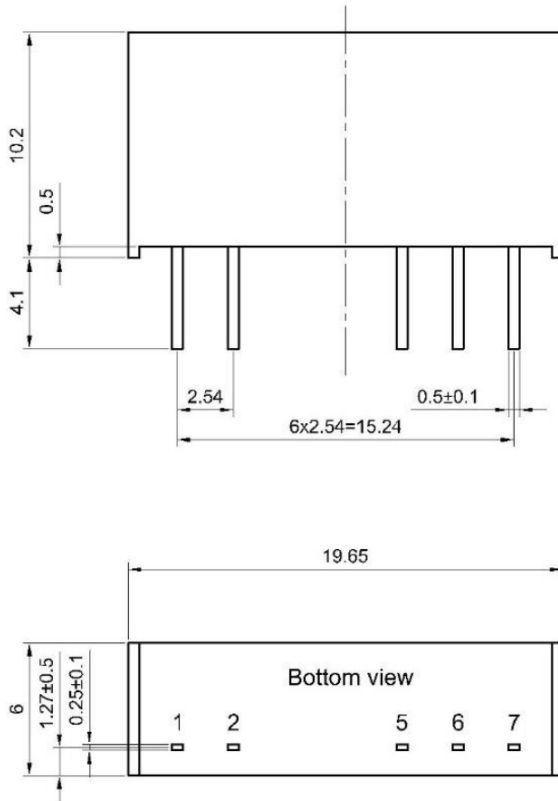


*The external filter for meet EN55032 class A/B.

Part No.	Input Voltage	Inductance / Capacitance (Lin/Cin)	
		Class A	Class B
LFA1W	5V	47 μ H / 2.2 μ F	47 μ H / 10 μ F
	12V	22 μ H / 2.2 μ F	22 μ H / 4.7 μ F
	24V	10 μ H / 2.2 μ F	22 μ H / 4.7 μ F
LFA1W-D	5V	22 μ H / 2.2 μ F	100 μ H / 4.7 μ F
	12V	22 μ H / 2.2 μ F	22 μ H / 4.7 μ F
	24V	10 μ H / 2.2 μ F	47 μ H / 2.2 μ F

Mechanical Dimension & Pinning

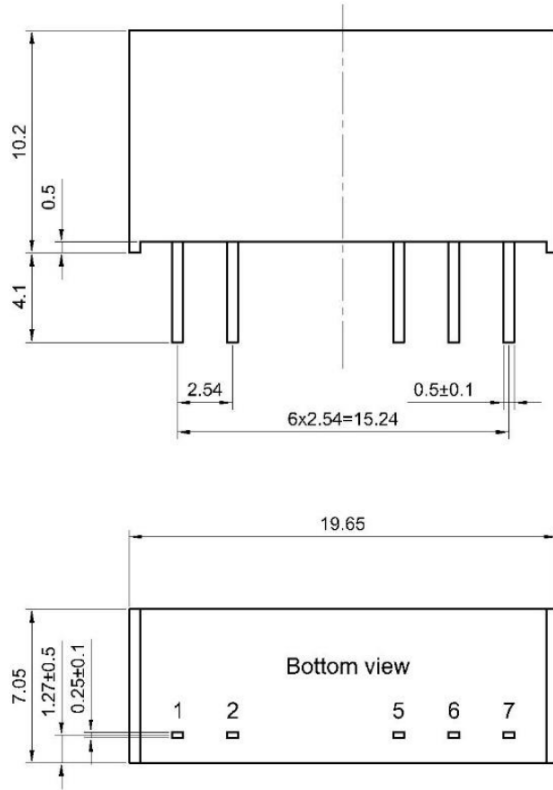
● Standard



Projection : Third angle projection
Unit : mm
Tolerance : ±0.25mm

Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
5	-Vout	-Vout
6	No Pin	COM
7	+Vout	+Vout

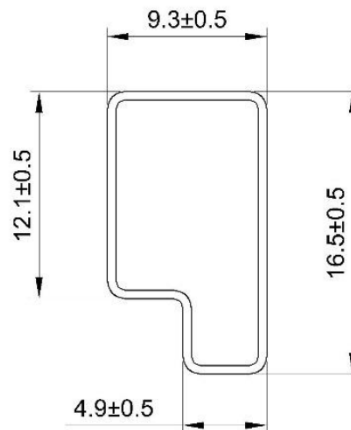
● Suffix "H"



Projection : Third angle projection
Unit : mm
Tolerance : ±0.25mm

Package

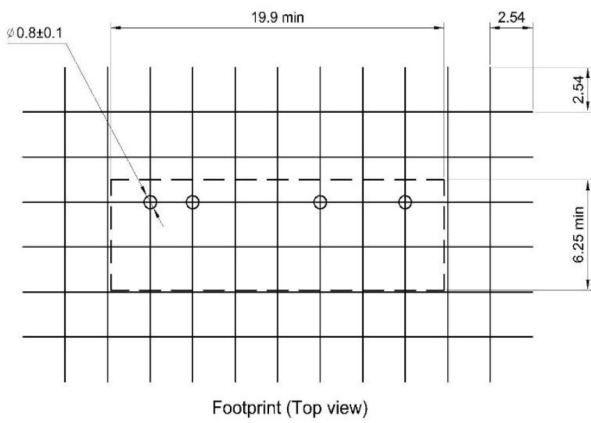
Anti-static liquid tube



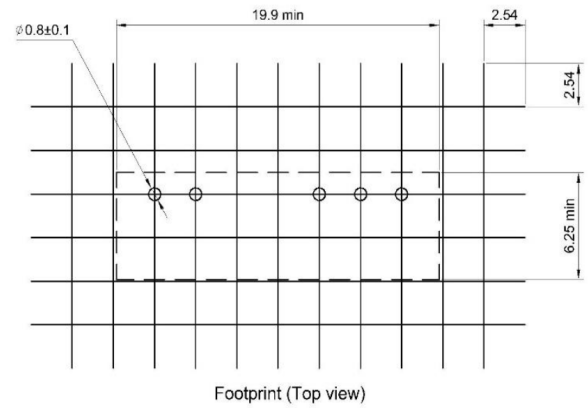
UNIT:mm
1 Tube = 25 pcs
Length:520±2mm

Recommended Footprint

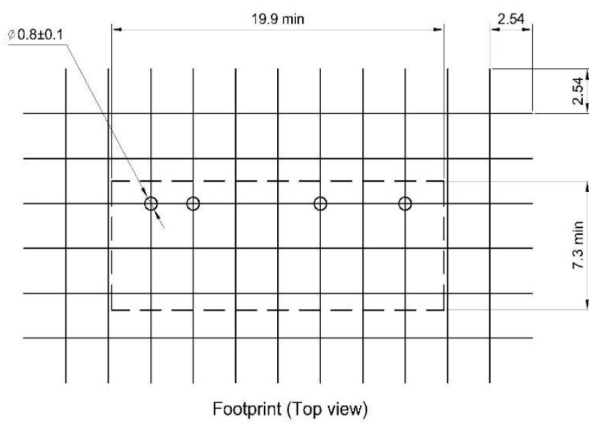
• Standard- Single



• Standard- Dual



• Suffix "H" - Single



• Suffix "H" - Dual

