2W SIP4
DC/DC Converter

LHA2W Series

Learn More

Description

The LHA2W series is a compact 2W isolated DC-DC converter housed in a SIP-4 package, supporting wide nominal input voltages of 3.3V, 5V, 12V, and 24V DC. It provides stable single outputs from 3.3V to 24V with efficiencies up to 88%, high isolation up to 3kVDC, and reliable operation from −40°C to +100°C. Designed to meet UL62368-1, UL60950, and EN55032 standards, it is ideal for industrial control, and Tele-communication applications.

Features

- 2 Watt output power
- 1:1 input voltage range
- -40˚C to +100˚C operating temperature
- SIP4 package
- 1KV-3KV isolation
- Approval UL62368-1/UL60950
- EMC-EN55032
- RoHS compliant

Applications

- Industry Control Application
- Tele-Communication

Model Numbering

LHA 2W – 05 33 H P

- P → Short Circuit Protection
- H → Isolation: H => 2KV, H3=> 3KV
- 33 → Output Voltage: 3.3V / 5V / 12V / 15V / 24V
- 05 → Input Voltage: 5V / 12V / 15V / 24V
- 2W → Wattage: 2 W
- LHA → Series Name

Model Selection Guide

Part No.	Input Voltage	Output Voltage	Output Current @ Full Load	Efficiency [1] (Typ.)	Capacitor Load [2] (Max.)
LHA2W-3.33.3	3.3 VDC	3.3 VDC	606mA	77%	1500μF
LHA2W-3.305		5 VDC	400mA	78%	1500μF
LHA2W-3.309		9 VDC	223mA	82%	680μF
LHA2W-3.312		12 VDC	167mA	84%	330μF
LHA2W-3.315		15 VDC	134mA	86%	330μF
LHA2W-3.324		24 VDC	84mA	84%	220μF
LHA2W-053.3	5 VDC	3.3 VDC	606mA	78%	1500μF
LHA2W-0505		5 VDC	400mA	81%	1500μF
LHA2W-0509		9 VDC	223mA	85%	680μF
LHA2W-0512		12 VDC	167mA	86%	330μF
LHA2W-0515		15 VDC	134mA	86%	330μF
LHA2W-0524		24 VDC	84mA	85%	220μF
LHA2W-123.3	12 VDC	3.3 VDC	606mA	79%	1500μF
LHA2W-1205		5 VDC	400mA	84%	1500μF
LHA2W-1209		9 VDC	223mA	85%	680μF
LHA2W-1212		12 VDC	167mA	86%	330μF
LHA2W-1215		15 VDC	134mA	87%	330μF
LHA2W-1224		24 VDC	84mA	86%	220μF
LHA2W-123.3	15 VDC	3.3 VDC	606mA	80%	1500μF
LHA2W-1205		5 VDC	400mA	81%	1500μF
LHA2W-1509		9 VDC	223mA	84%	680μF
LHA2W-1212		12 VDC	167mA	88%	330μF
LHA2W-1215		15 VDC	134mA	85%	330μF
LHA2W-1215		24 VDC	84mA	97%	220μF

LHA2W-243.3	24 VDC	3.3 VDC	606mA	81%	1500μF
LHA2W-2405		5 VDC	400mA	83%	1500μF
LHA2W-2409		9 VDC	223mA	88%	680μF
LHA2W-2412		12 VDC	167mA	87%	330μF
LHA2W-2415		15 VDC	134mA	83%	330μF
LHA2W-2424		24 VDC	84mA	87%	220μF

Notes

#1: The efficiency is test by nominal input and max. full load @ 25℃.

#2: The capacitive load is test by minimum input and constant resistive load.

#3: Add “H” after P/H for isolation 2KVDC, add “H3” after P/H for isolation 3KVDC.

#4: Add “P” after P/N for short circuit protection.

Electrical Specification

Model Number	LHA2W-□□
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/ 5VDC 10% @ Vo=9~24VDC
Ripple & Noise	200 mVp-p @ 20MHz BW at nominal Vin
Operating Frequency	100KHz @ 100% load at nominal Vin
Environment	
Operating Temperature	-40-+100 ˚C
Storage Temperature	-55-+125 ˚C
Relative Humidity	5%-95% RH
Function	
Isolation Voltage	1 KVDC 1min. Input to Output 2KVVDC 1min. Input to Output, add Suffix “H’ 3KVVDC 1min. Input to Output, add Suffix “H3’
Isolation Resistance	10GΩ
Isolation Capacitance	120 pF
MTBF (MIL-HDBK-217F)	$17.9*10^6$ Hours (25˚C) $7.8*10^6$ Hours (85˚C)
Short Circuit Protection	Continuous, Add suffix “P”
Vibration	MIL-STD-202G
Safety Approvals	Approval UL62368-1/ UL60950

Physical	
Case Material	UL94V-0 black plastic
Potting Material	Epoxy (UL94V-0)
Dimension	11.50 x 7.60 x 10.20 mm
Weight	2.0g
Electromagnetic Compatibility	
Conduction Electromagnetic Interference	EN 55032 (Class B)
Radiation Electromagnetic Interference	EN 55032 (Class B)

Notes

#1: All specifications valid at nominal input voltage, full load and 25˚C unless otherwise stated.

#2: The product information and specifications are subject to change without prior notice.

#3: In the datasheet, all test methods are based on our corporation standards.

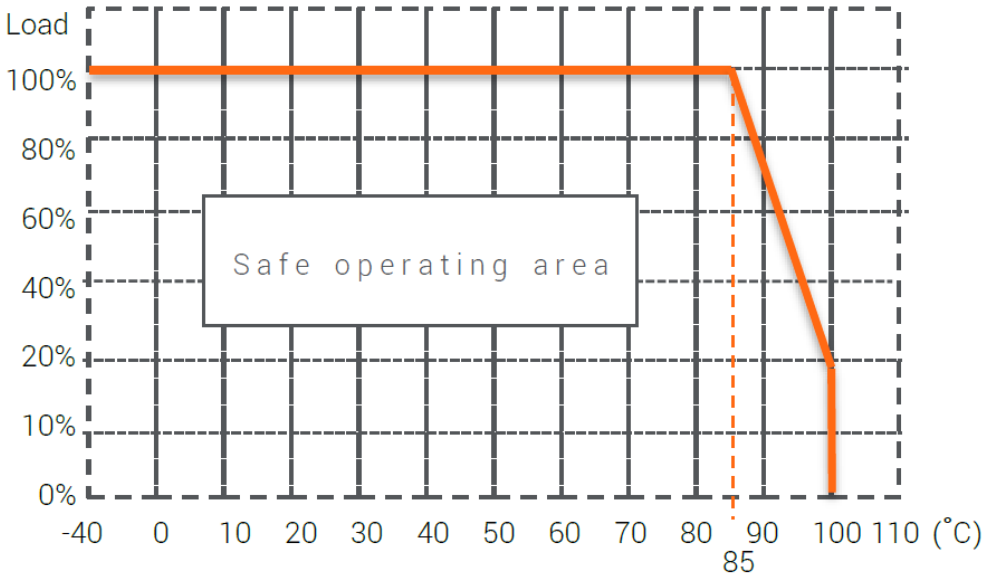
#4: All characteristics are for listed models, and non-standard models may perform differently.
Please contact our technical support for more detail.

#5: Please contact our technical for any specific requirement.

#6: “EMC filtering suggestion” is as following.

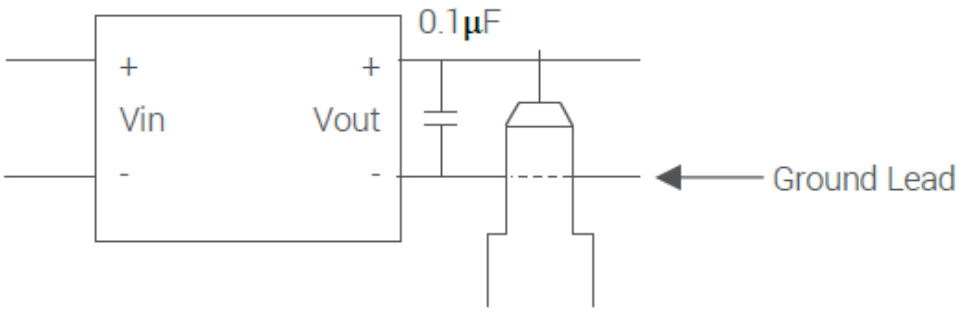
Mechanical Specification

Derating Curve



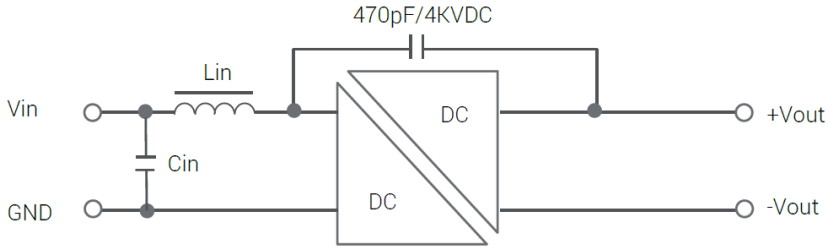
Ambient Temperature with forced air

Ripple & Noise Measure Method



Measured with 20MHz bandwidth and 0.1μF ceramic capacitor

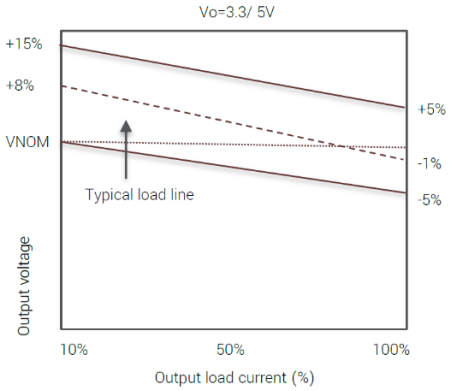
EMI Filtering-Suggestion for Class B

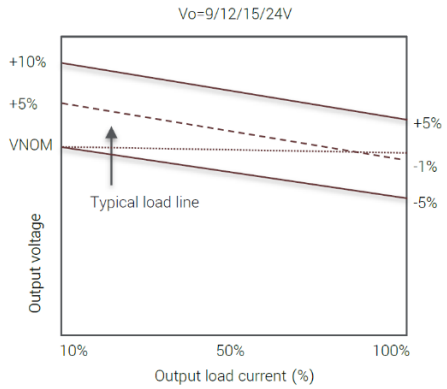


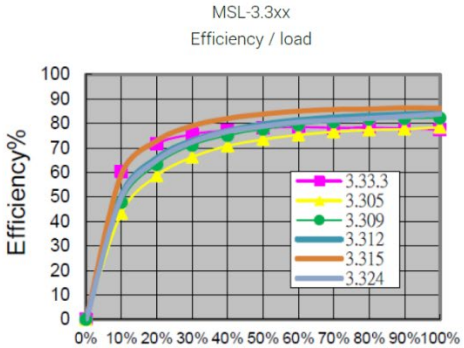
The external filter for EN55032 class B.

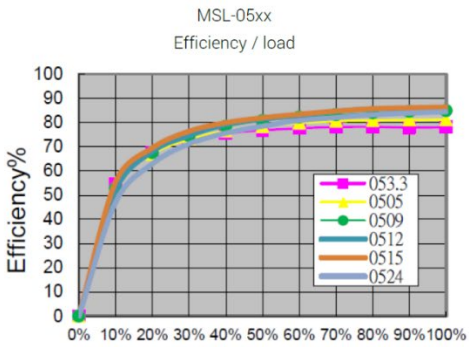
Part No.	Input Voltage	Inductance / Capacitance (Lin/Cin)
LHA2W	3.3V	3.3 µH / 22 µF
	5V	4.7 µH / 10 µF
	12V	22 µH / 4.7 µF
	15V	22 µH / 4.7 µF
	24V	47 µH / 4.7 µF

Tolerance Envelope

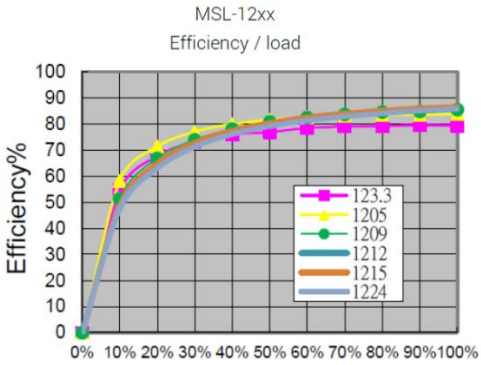


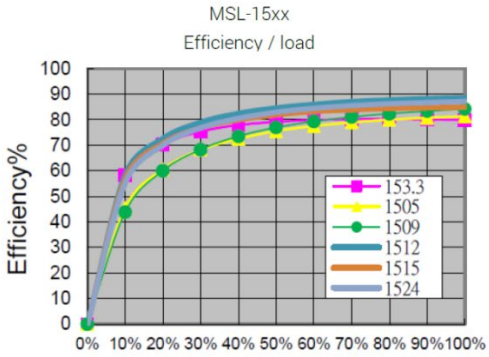


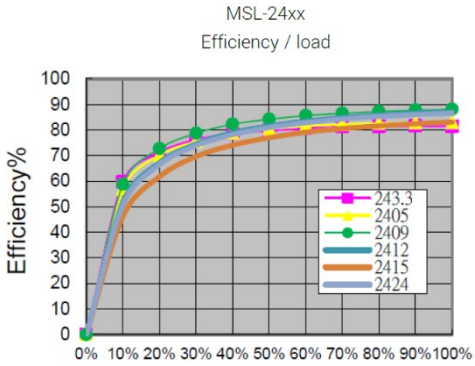




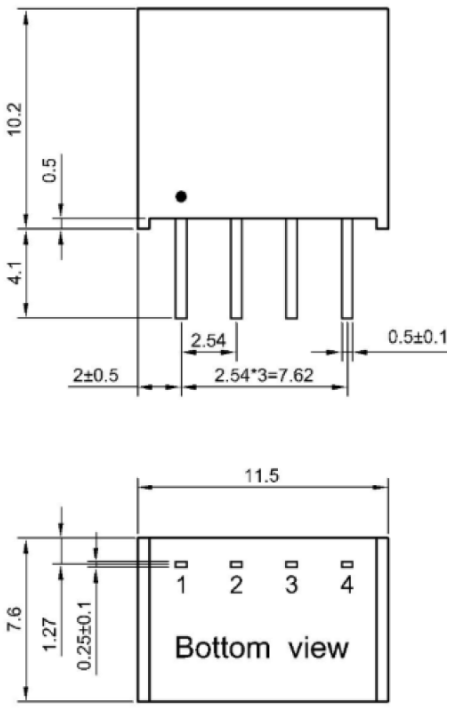
Efficiency Curve







Mechanical Dimension & Pinning

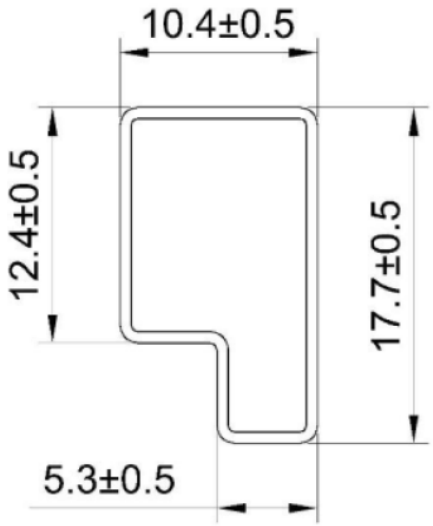


Pin	Single
1	-Vin
2	+Vin
3	-Vout
4	+Vout

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

Package

Anti-static liquid tube



UNIT:mm
1 Tube = 42 pcs
Length:520±2mm