

Learn More



Description

The LAA0.5 series is a compact 0.5A non-isolated DC-DC converter housed in a SIP-3 package, supporting wide nominal input voltages of 4.75V to 36V DC. It provides stable single outputs from 1.8V to 15V with efficiencies up to 96.5% and reliable operation from -40°C to +85°C. Designed to meet EN62368-1 standards, it is ideal for Regulator requirements, MCU applications, telecom applications.

Features

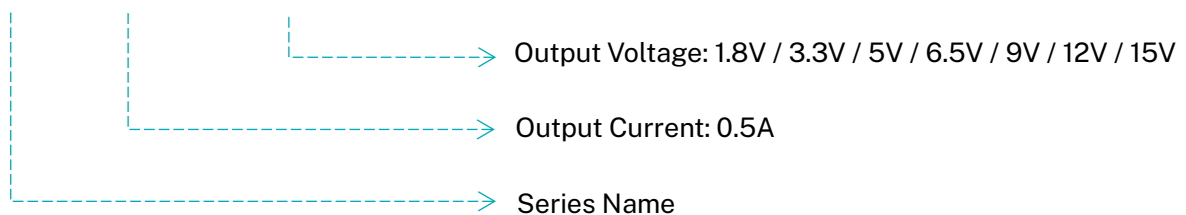
- Switching regulator, non-isolated DC-DC converter
- Pin out compatible with LM78xx linear
- Efficiency up to 96.5%
- -40°C to +85°C Operating Temperature
- Continuous short circuit protection
- EN62368-1 safety approval

Applications

- Regulator requirements
- MCU applications
- telecom applications

Model Numbering

LAA 0.5 - 1.8



Model Selection Guide

Part No.	Input Voltage	Output Voltage	Output Current @ Full Load	Ripple & Noise ⁽¹⁾ (Max.)	Efficiency ⁽²⁾ (Typ.)		Capacitor Load ⁽³⁾ (Max.)
					Min. Vin	Max. Vin	
LAA0.5-1.8	4.75-36 VDC	1.8 VDC	500 mA	50mVp-p	90.0%	73.0%	470μF
LAA0.5-3.3	4.75-36 VDC	3.3 VDC	500 mA	50mVp-p	94.5%	82.5%	470μF
LAA0.5-05	6.5-36 VDC	5.0 VDC	500 mA	50mVp-p	95.5%	86.0%	470μF
LAA0.5-6.5	8-36 VDC	6.5 VDC	500 mA	60mVp-p	96.5%	87.5%	470μF
LAA0.5-09	11-36 VDC	9.0 VDC	500 mA	70mVp-p	96.5%	90.0%	470μF
LAA0.5-12	15-36 VDC	12 VDC	500 mA	70mVp-p	96.5%	91.0%	330μF
LAA0.5-15	18-36 VDC	15 VDC	500 mA	70mVp-p	96.5%	93.5%	270μF

Notes

#1: At the lowest input voltage, the loading is less 15%(75mA), the R&N will be 150mVp-p (max.).

#2: The efficiency is test by max./ min. input voltage and full load @ 25°C.

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

#4: All specifications valid at nominal input voltage, full load and 25°C after warm-up time unless otherwise stated.

Electrical Specification

Model Number	LAA0.5-□
Input	
Input Voltage Range	4.75–36V
No-Load Input Current Input	2–7A
Output	
Voltage Accuracy	± 3% max.
Minimum Load	1%
Line Regulation	± 0.2% to ± 0.4% @ LL to HL at full load
Load Regulation (10% to 100% full load)	± 0.8% to ± 1% @ 1.8V ± 0.4% to ± 0.6% @ others output voltage
Operating Frequency	410KHz @ 100% load at Nominal Vin
Environment	
Operating Temperature	-40–+85 °C with derating
Storage Temperature	-55–+125 °C
Max. Case Temperature	100°C
Relative Humidity	5%-95% RH
Temperature Coefficient	0.02%/°C
Vibration	MIL-STD-202G
Function	
Short-Circuit Protection	Continuous, automatic recovery
MTBF (MIL-HDBK-217F)	3300K Hours (25°C)
Safety Approvals	EN62368-1
Physical	
Case Material	Plastic case
Cooling Method	Free air convention
Dimension	11.60 x 7.60 x 10.20 mm
Weight	1.85 g
Electromagnetic Compatibility	
Electromagnetic Interference	EN 55032 (Class A/B)
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, ±2kV (Criteria A)
Surge Immunity ⁽¹⁾	IEC 61000-4-5, ±2kV (Criteria A)
Conducted Immunity	IEC 61000-4-6, 3V/rms (Criteria A)
Magnetic Field Immunity	IEC 61000-4-8, 1A/m (Criteria A)

Notes

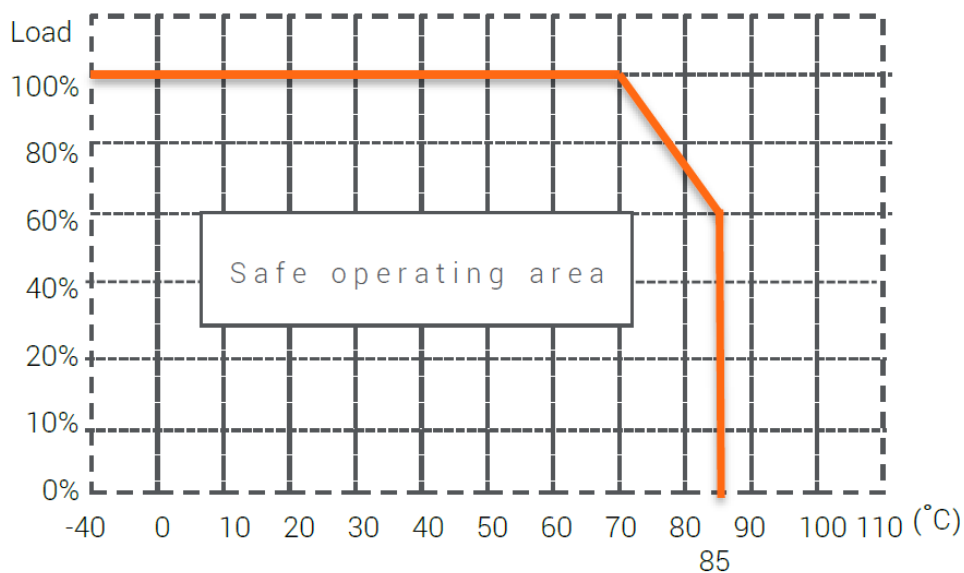
#1: External circuit for testing (1500μF Electrolytic capacitor and TVS).

#2: All specifications valid at 24V input, full load and 25°C after warm-up time unless otherwise stated.

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

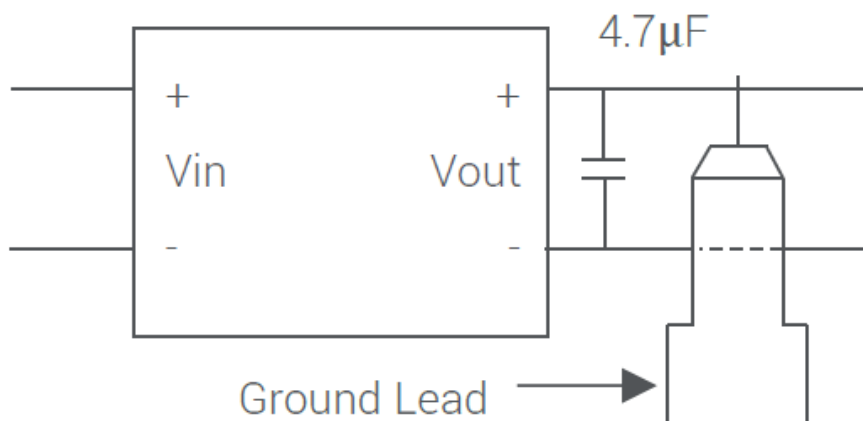
Mechanical Specification

Derating Curve

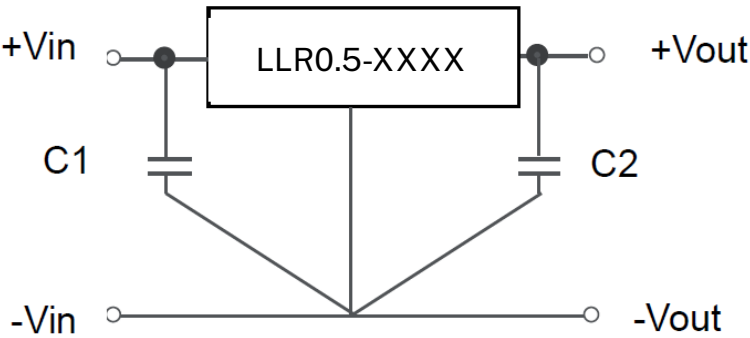


Ambient temperature with natural convection

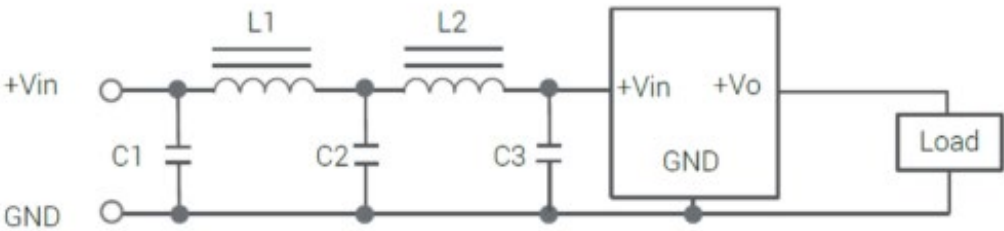
Ripple & Noise Measure Method



Standard Application Circuit

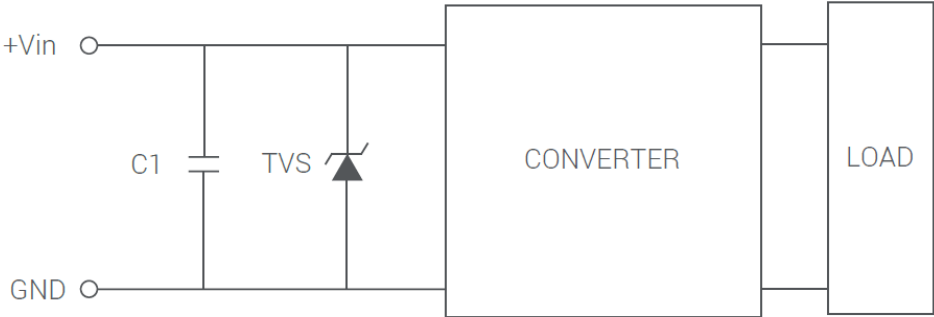


EMI Filtering-Suggestion



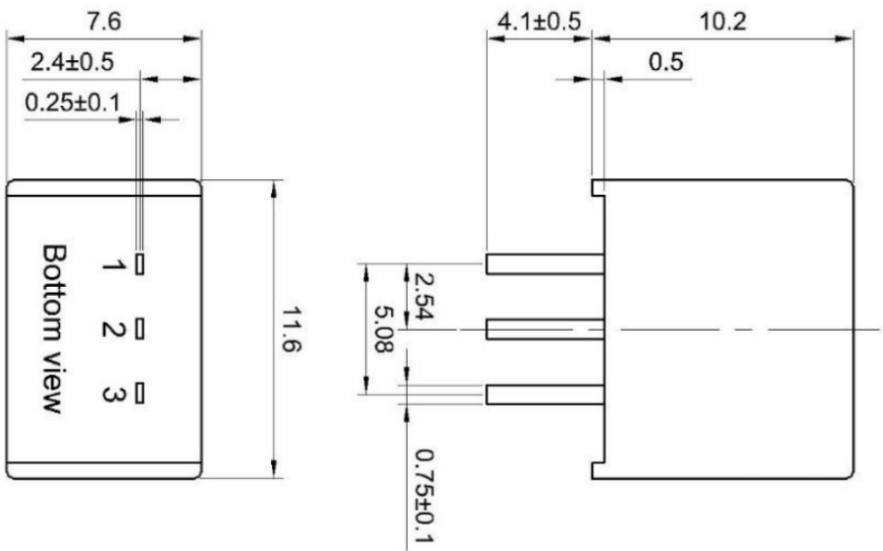
Class	C1	L1	C2	L2	C3
Class A	1206 4.7μF 50V MLCC	10μH	1206 4.7μF 50V MLCC	-	-
Class B	1210 10μF 50V MLCC	22μH	1210 10μF 50V MLCC	200μH (Common choke)	1210 10μF 50V MLCC

EFT & Surge External Input Capacitor Required



C1	TVS
1500μF / 50V	5.0SMLJ40A

Mechanical Dimension & Pinning

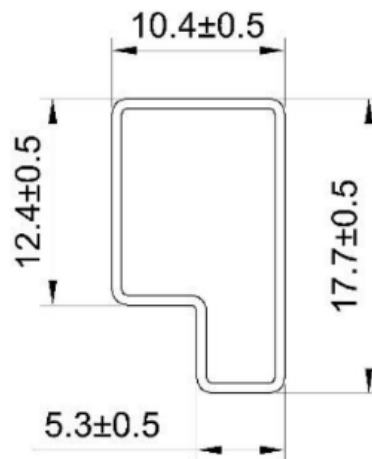


Projection : Third angle projection
Unit : mm
Tolerance : ±0.25mm

Pin	Single
1	+Vin
2	GND
3	+Vout

Package

Anti-static liquid tube



UNIT:mm

1 Tube = 42 pcs

Length : 520 ± 2 mm

Recommended Footprint

