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### 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

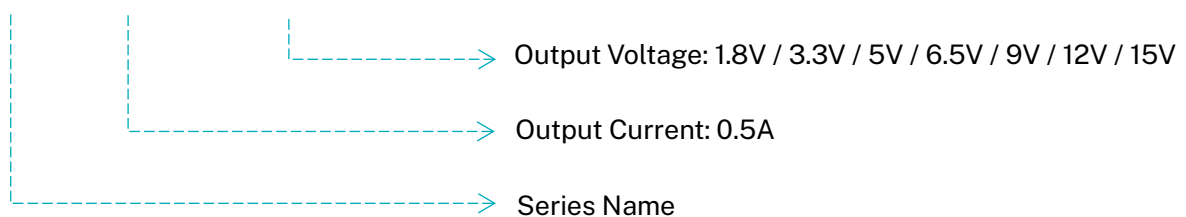
- Switching regulator, non-isolated DC-DC converter
- Pin out compatible with LM78xx linear
- Efficiency up to 96.5%
- -40°C to +85°C Operating Temperature
- Continuous short circuit protection
- EN62368-1 safety approval

### 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 <sup>(1)</sup> (Max.)	Efficiency <sup>(2)</sup> (Typ.)		Capacitor Load <sup>(3)</sup> (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

<b>Model Number</b>	LAA0.5-□
<b>Input</b>	
Input Voltage Range	4.75–36V
No-Load Input Current Input	2-7A
<b>Output</b>	
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
<b>Environment</b>	
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
<b>Function</b>	
Short-Circuit Protection	Continuous, automatic recovery
MTBF (MIL-HDBK-217F)	3300K Hours (25°C)
Safety Approvals	EN62368-1
<b>Physical</b>	
Case Material	Plastic case
Cooling Method	Free air convention
Dimension	11.60 x 7.60 x 10.20 mm
Weight	1.85 g
<b>Electromagnetic Compatibility</b>	
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 <sup>(1)</sup>	IEC 61000-4-4, ±2kV (Criteria A)
Surge Immunity <sup>(1)</sup>	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

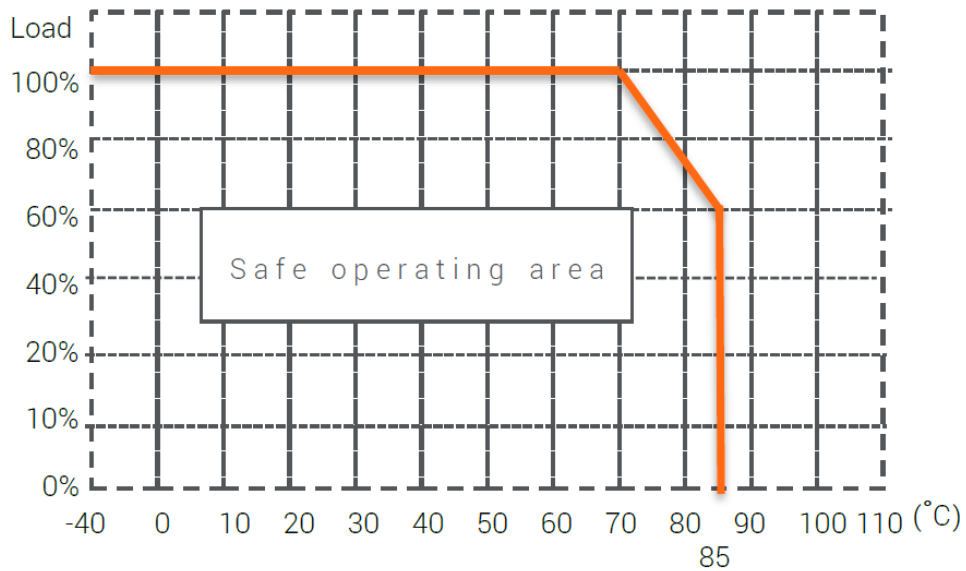
#1: External circuit for testing (1500µF Electrolytic capacitor and TVS).

#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.

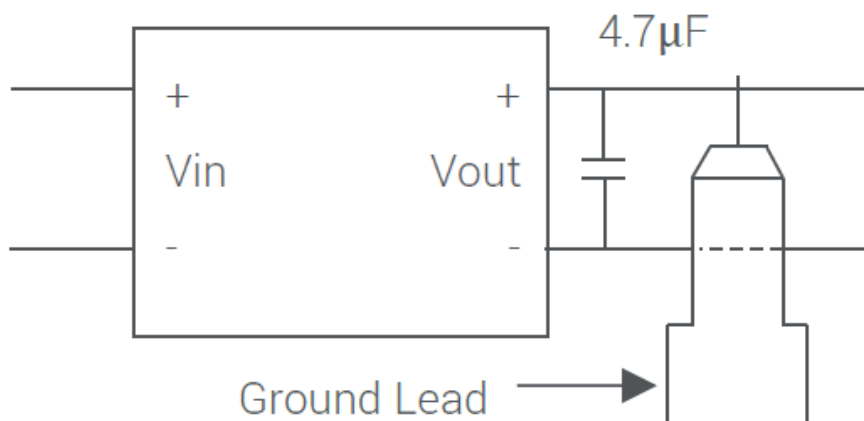
**Mechanical Specification**

**Derating Curve**

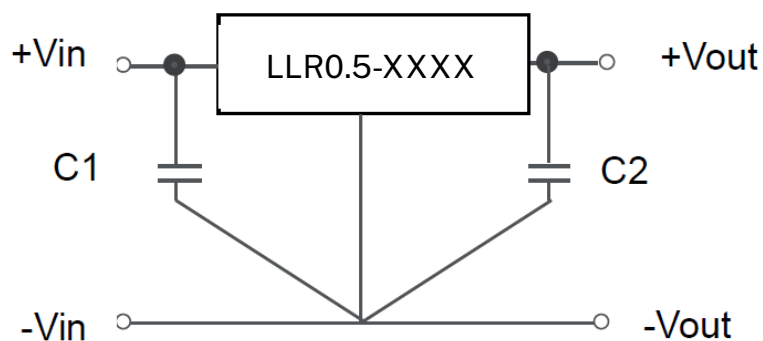


Ambient temperature with natural convection

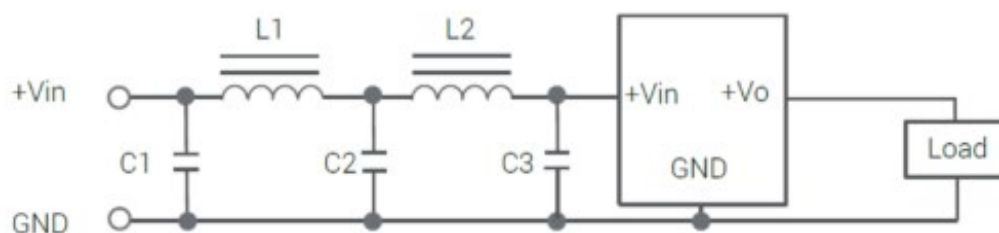
**Ripple & Noise Measure Method**



#### Standard Application Circuit

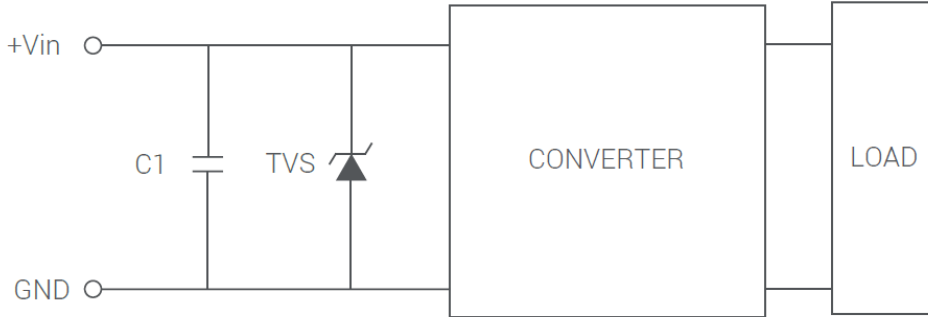


#### EMI Filtering-Suggestion



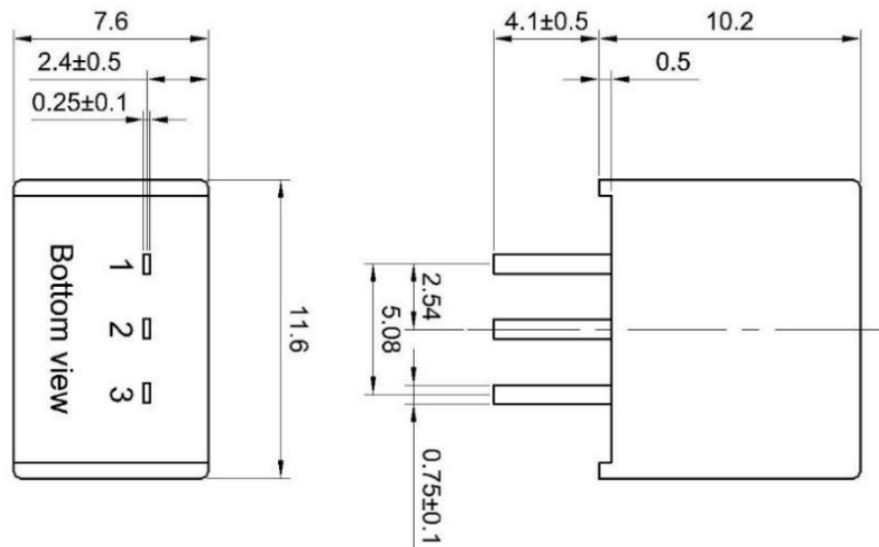
Class	C1	L1	C2	L2	C3
Class A	1206 4.7 $\mu$ F 50V MLCC	10 $\mu$ H	1206 4.7 $\mu$ F 50V MLCC	-	-
Class B	1210 10 $\mu$ F 50V MLCC	22 $\mu$ H	1210 10 $\mu$ F 50V MLCC	200 $\mu$ H (Common choke)	1210 10 $\mu$ F 50V MLCC

#### EFT & Surge External Input Capacitor Required



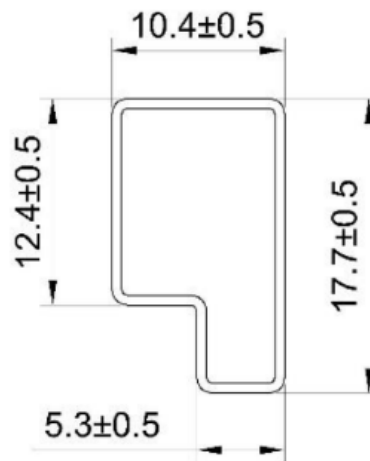
C1	TVS
1500 $\mu$ F / 50V	5.0SMLJ40A

#### Mechanical Dimension & Pinning



Projection : Third angle projection  
Unit : mm  
Tolerance :  $\pm 0.25$ mm

Pin	Single
1	+Vin
2	GND
3	+Vout

**Package****Anti-static liquid tube**

UNIT:mm

1 Tube = 42 pcs  
Length :  $520 \pm 2$ mm**Recommended Footprint**