



# ACE72655LA

## 5.5V Synchronous Step-Down DC/DC Converter

### Description

The ACE72655LA is a high-efficiency, DC/DC step-down switching regulators, capable of delivering up to 5.5A of output current. The device operates from an input voltage range of 2.3V to 5.5V and provides an output voltage from 0.55V to 3.3V. The ACE72655LA works at a nominal fixed frequency of 4MHz which allows the use of small external components, such as ceramic input and output capacitors, as well as small inductors, while still providing low output ripples. Efficiency is maximized through the integrated 11.5mΩ/6.5mΩ MOSFETs. Using PFM mode in light load and PWM mode in heavy load makes the ACE72655LA keep high efficiency in full range. Low noise output along with excellent efficiency makes ACE72655LA an ideal replacement for large power consuming linear regulators. The ACE72655LA includes under-voltage lockout, current limiting, short-circuit protection and thermal shutdown protection. The ACE72655LA is available in small DFN3\*2-9 package which size is 3\*2\*0.75mm.

### Features

- 2.3V to 5.5V input voltage
- 4MHz switching frequency
- 5.5A continuous output current
- Accurate reference: 0.5V
- High efficiency: up to 98%
- Low dropout 100% duty operation
- PFM mode in light load
- Integrated soft-start
- Fast load transient response
- Hiccup short-circuit protection
- Output discharge function
- (Input) under-voltage lockout
- Over current protection
- Over temperature protection
- Available in DFN3\*2-9 package

### Application

- Low-voltage, high-density power systems
- IOT
- Communications infrastructure



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### Absolute Maximum Ratings

Parameter	Min	Max	Units
DC supply voltage, VIN	-0.3	7.0	V
SW	-0.3	VIN +0.3	V
SW (10ns transient)	-4.0	8.0	V
Voltage on other pins, FB, EN, PG, VOUT	-0.3	VIN +0.3	V
Storage temperature range	-40	150	°C
Junction temperature	-40	150	°C
Electrostatic discharge (HBM)	-4000	4000	V
Electrostatic discharge (CDM)	-2000	2000	V

Note: Operation of the device outside of these parameters may cause permanent damage.

### Recommended Work Conditions

Parameter	Symbol	Min	Typ	Max	Units
Supply voltage	VIN	2.3		5.5	V
Output current	IOUT	0		5.5	A
Output inductor	L		220		nH
Input capacitor	CIN		2*10		μF
Output capacitor	COUT		3*22		μF
Operating temperature, junction	TJ	-40		125	°C

### Thermal Resistance Information

Parameter	Symbol	Typ	Units
Junction-to-ambient thermal resistance	θJA	30.5	°C/W
Junction-to-case thermal resistance	θJC	16.7	°C/W

Note: Junction to ambient thermal resistance is a function of board layout and ambient air flow condition. This data is based on four layers PCB (30mm\*30mm; 70μm Cu top signal layer) in still air box in accordance with JEDEC standard JESD51 on natural convection.

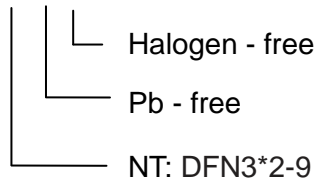


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### Ordering Information

ACE72655LA XX + H





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### Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Technology Co., LTD. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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