

### Description

The ACE7476YC is a high-efficiency 1 MHz synchronous step-down DC-DC regulator IC capable of delivering up to 4 A output current.

The ACE7476YC operates over a wide input voltage ranging from 2.5 V to 5.5 V and integrate main switch and synchronous switch with very low  $R_{DS(ON)}$  to minimize the conduction loss. Its advanced constant on-time control Fast-PWM scheme simplifies loop compensation and offers excellent load transient response while maintaining a relatively constant 1 MHz switching frequency. Low output voltage ripple and small external inductor and capacitor sizes are achieved with 1 MHz switching frequency.

#### Features

- Low R<sub>DS(ON)</sub> for internal switches (top/bottom) 60mΩ/40mΩ, 4 A peak output current
- 2.5 ~ 5.5 V input voltage range
- 1 MHz switching frequency minimizes the external components
- Hiccup mode protection
- Internal soft start limits the inrush current
- 100% dropout operation
- RoHS compliant and Halogen free
- No latch off output voltage protection
- Compact package with QFN3\*3-16

## Application

- LCD TV
- Set Top Box
- Net PC
- Mini-Notebook PC
- Access Point Router



## **Absolute Maximum Ratings**

Stresses beyond those listed under "Absolute Maximum Rating" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Parameter	Symbol	Rating	Unit
Supply voltage (V+ – V-)	Vs	-0.3 to 6.0	V
Enable, FB voltage		-0.3 to V <sub>IN</sub> +0.6	V
Power dissipation, PD at $T_A = 25^{\circ}C$ ,	PD	2.6	W
Junction-to-ambient thermal resistance	θ <sub>JA</sub>	38	°C/W
Junction-to-case thermal resistance	θ <sub>JC</sub>	8	
Storage temperature range	T <sub>STG</sub>	-65 to 150	°C
Junction temperature range	TJ	150	°C
Lead temperature range	TL	260	°C
HBM, JEDEC: JESD22-A114	ESD	2000	V
MM, JEDEC: JESD22-A115		200	V
Dynamic LX Voltage in 50ns Duration		V <sub>IN</sub> +3 to GND-4	V

# **Recommended Operating Conditions**

The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended Operating conditions are specified to ensure optimal performance to the datasheet specifications. ACE does not recommend exceeding them or designing to Absolute Maximum Ratings.

Parameter	Symbol	Rating	Unit
Supply Voltage	VS	2.7 to 5.5	V
Junction Temperature Range	TJ	-40 to 125	°C
Ambient Temperature Range	TA	-40 to 85	C°



# **Ordering information**



Pb - free
CNA : QFN3\*3-16A
CNB : QFN3\*3-16B



#### 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 sued 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 shoes 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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