



# ACE7240E

## COT Synchronous Step-down Converter, 4A, 2MHz

### Description

The ACE7240E is a high-efficiency, DC-to-DC step-down switching regulator, capable of delivering up to 4A of output current. The devices operate from an input voltage range of 2.5V to 6.0V and provide output voltages from 0.6V to VIN, making the ACE7240E ideal for low voltage power conversions. ACE7240E adopts an adaptive COT control scheme that enables very fast transient response and provides a very smooth transition when the output varies from light load to heavy load. During light load, ACE7240E goes into a PFM mode that saves switching loss to achieve a high efficiency. The adaptive COT control also maintains a constant switching frequency across line and load. Running at a fixed frequency of 2MHz allows the use of small inductance value and low DCR inductors, thereby achieving a higher efficiency. Other external components, such as ceramic input and output caps, can also be small due to higher switching frequency, while maintaining exceptional low-noise output voltages. Internal soft-start control circuitry reduces inrush current. Short-circuit and thermal-overload protection improves design reliability.

### Features

- Up to 95% Efficiency
- Up to 4A Max Output Current
- Adaptive COT Control
- Ultra-fast Load Transient Response
- 2MHz Frequency
- High Efficiency PFM Mode at Light Load
- 50uA Quiescent Current
- 1% Feedback Accuracy
- Adjustable Output Voltage from 0.6V
- Cycle-by-cycle Over Current Protection
- Short Circuit Protection with Hiccup Mode
- Stable with Low-ESR Output Ceramic Capacitors
- Available in SOT-563 Package

### Application

- Set Top Box
- IP CAM
- LCD TV
- Wireless and DSL Modems
- Microprocessors and DSP Core Supplies



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### Absolute Maximum Ratings

Parameter		Value
VIN, FB, EN, OUT, SW Voltage		-0.3V ~ 6.5V
Operating Temperature Range		-40°C to 85°C
Storage Temperature Range		-55°C to 150°C
Thermal Resistance	$\theta_{JA}$	80°C/W
	$\theta_{JC}$	50°C/W
Lead Temperature (Soldering 10sec)		260°C
ESD HBM (Human Body Mode)		4KV
ESD CDM (Charged Device Mode)		1KV

Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.

### Ordering Information

ACE7240E 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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