



# ACE75563Z

## 2MHz, COT Synchronous Step-down Converter

### Description

The ACE75563Z is a high-efficiency, DC-to-DC step-down switching regulator, capable of delivering up to 2A of output current. The device operates from an input voltage range of 2.5V to 5.5V and provides output voltages from 0.6V to VIN, making the ACE75563Z ideal for low voltage power conversions. ACE75563Z 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. 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

- 2MHz Switching Frequency
- Up to 2A Max Output Current
- Up to 96% Efficiency
- Ultra-fast Load Transient Response
- 1% Feedback Accuracy
- Adaptive COT Control
- Forced PWM Mode
- 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

- IP Camera
- SSD
- LCD TV
- Set Top Box



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### Absolute Maximum Ratings

Parameter		Value
IN, SW, EN, PG Voltage		-0.3V to 7.5V
FB Voltage		-0.3V to 6V
Storage Temperature Range		-55°C to 150°C
Junction Temperature		150°C
Thermal Resistance	$\theta_{JA}$	80°C/W
	$\theta_{JC}$	50°C/W
Lead Temperature (Soldering 10sec)		260°C

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

### Recommended Operating Conditions

Parameter		Value
Ambient Temperature Range		-40°C to 85°C
Junction Temperature Range		-40°C to 125°C

Note: The device is not guaranteed to function outside its operating conditions

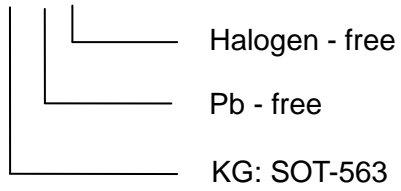


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## Ordering Information

ACE75563Z 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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