



ACE7512YC

Constant-On-Time Synchronous, Step-Down DC-DC Converter

Description

The ACE7512YC is ideal for a wide range of applications, including portable navigation devices, set top boxes and media players. The ACE7512YC is a high-efficiency synchronous step-down DC-DC regulator. The ACE7512YC can achieve up to 2 A continuous output current from a 2.5 V to 5.5 V input voltage with excellent load and line regulation. The output voltage can be regulated to as low as 0.6 V. Constant-on-time control provides a fast transient response and eases loop stabilization. The ACE7512YC includes an automatically entered power save mode to maintain high efficiency down to very light loads for extending the system battery run-time.

Features

- Operating temperature range: -40°C to 85°C
- Fixed frequency COT architecture achieve ultra fast transient response
- Input voltage range: 2.5 V ~ 5.5 V
- Typical quiescent current: 15 μ A
- High switching frequency 1 MHz minimizes the external components
- Low RDS(ON) for internal switches (top / bottom) 100 m Ω / 80 m Ω , 2.0 A
- 100% dropout operation
- Output discharge function
- Power-good output
- Internal soft start limits the inrush current

Application

- Smart phones
- Portable navigation devices
- Media players
- USB dongle
- Set top boxes



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Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
VIN	Input voltage (V+ ~ V-)	-0.3 to 6.5	V
	Enable / FB voltage	-0.3 to VIN + 0.2	V
	Dynamic SW voltage in 10 ns duration	GND - 4 to VIN + 3	V
PD	Power dissipation at TA = 25°C, SOT23-5	0.6	W
TSTG	Storage temperature range	-65 to 150	°C
TJ	Maximum junction temperature	150	°C
TL	Maximum lead temperature	260	°C

Note:

Exceeding the maximum ratings listed under Absolute Maximum Ratings when designing is likely to damage the device permanently. Do not design to the maximum limits because long-time exposure to them might impact the device's reliability. The ratings are obtained over an operating free-air temperature range unless otherwise specified.

Recommended Operating Conditions

Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. The ratings are obtained over an operating free-air temperature range unless otherwise specified.

Symbol	Parameter	Rating	Unit
VIN	Input voltage (V+ ~ V-)	2.5 to 5.5	V
TA	Ambient temperature range	-40 to 85	°C
TJ	Junction temperature range	-40 to 125	°C

ESD Ratings

When a statically-charged person or object touches an electrostatic discharge sensitive device, the electrostatic charge might be drained through sensitive circuitry in the device. If the electrostatic discharge possesses sufficient energy, damage might occur to the device due to localized overheating.

Model	Condition	Value	Unit
HBM	ANSI/ESDA/JEDEC:JS-001	±4000	V
CDM	ANSI/ESDA/JEDEC:JS-002	±2000	V

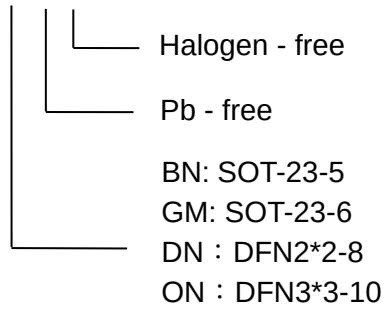


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Ordering Information

ACE7512YC 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 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 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.

ACE Technology Co., LTD.
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