



ACE7224Y

High-Efficiency 3A, 24V Input Synchronous Step Down Converter

Description

The ACE7224Y is high-efficiency, high frequency synchronous step-down DC-DC regulator ICs capable of delivering up to 3A output currents. The ACE7224Y family operate over a wide input voltage range from 4.5V to 24V and integrate main switch and synchronous switch with very low $R_{DS(ON)}$ to minimize the conduction loss.

The pure COT architecture with Pseudo fixed switching frequency operation provides fast transient response and eases loop stabilization. Protection features include over-current protection and thermal shutdown.

ACE7224Y always operate in continuous conduction mode, which reduces the output ripple voltage in light load compared to discontinuous conduction mode. The ACE7224Y is stable with extremely low ESR, high capacitance. The ACE7224Y requires a minimal number of readily-available, standard, external components and is available in a space-saving TSOT23-6 package.

Features

- Low $R_{DS(ON)}$ for internal switches (top/bottom) 80m Ω /40m Ω , 3.0A
- 4.5-24V input voltage range
- High-Efficiency Synchronous-Mode
- Internal soft start limits the inrush current
- Over Current protection
- Output short circuit protection with hiccup mode
- Thermal shutdown
- Available in TSOT23-6 packages

Application

- Portable Navigation Device
- Set Top Box
- Portable TV
- LCD TV



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Absolute Maximum Ratings

Parameter		Rating	Unit
Supply Voltage (V+ – V-)		28	V
EN, LX Voltage		VIN+0.3	V
FB Voltage		6	V
BS Voltage		SW+6	W
Package Thermal Resistance	Θ_{JA}	87.9	°C/W
	Θ_{JC}	42.2	
Storage Temperature Range		-65 to 150	°C
Junction Temperature Range		150	°C
Lead Temperature Range		260	°C

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.

Recommended Work Conditions

Parameter	Rating	Unit
Supply Voltage	4.5 to 24	V
Junction Temperature Range	-40 to 125	°C
Ambient Temperature Range	-40 to 85	°C

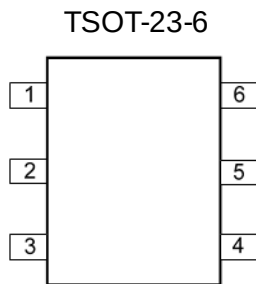
The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended Operating conditions are specified to ensure optimal performance to the datasheet specifications.



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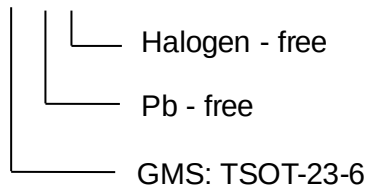
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Packaging Type



Ordering information

ACE7224Y 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.