



ACE7224AY

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

Description

The ACE7224AY is high-efficiency, high frequency synchronous step-down DC-DC regulator ICs capable of delivering up to 3A output currents. The ACE7224AY 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 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.

The ACE7224AY 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
- 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-) | | 25 | V |
| EN, LX Voltage | | $V_{IN}+0.3$ | 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.

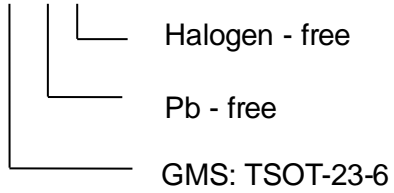


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Ordering information

ACE7224AY XXX+ 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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