ACE7343F

2A, 1.5MHz, 6V Synchronous Step-Down Converter

Description

The ACE7343F is a current mode monolithic buck switching regulator. Operating with an input range of 2.5V-6V, the ACE7343F delivers 2A of continuous output current with integrated P-Channel and N-Channel MOSFETs. The internal synchronous power switches provide high efficiency. At light loads, the regulator operates in low frequency to maintain high efficiency and low output ripples. Current mode control provides tight load transient response and cycle-by-cycle current limit.

The ACE7343F guarantees robustness with hiccup output short-circuit protection, start-up current run-away protection, input under voltage lockout protection, hot-plug in protection, and thermal protection. The ACE7343F provides output power good indication which is only available in SOT23-6 package.

The ACE7343F is available in 5-pin SOT23-5 or 6-pin SOT23-6 package, which provides a compact solution with minimal external components.

Features

- 2.5V to 6V operating input range
- Up to 2A output current
- Up to 94% peak efficiency
- High efficiency (>85%) at light load
- Internal Soft-Start
- 1.5MHz switching frequency
- Input under voltage lockout
- Hot-plug in protection
- Short circuit protection
- Thermal protection
- Output POK indication (available in SOT23-6 package)
- Available in SOT23-5/SOT23-6 package

Application

- 5V or 3.3V Point of Load Conversion
- Set Top Boxes
- Telecom/Networking Systems
- Storage Equipment
- GPU/DDR Power Supply

Absolute Maximum Rating(1)

Parameter	Value
All Pins	–0.3V to 7.2V
Junction Temperature.(2)(3)	150°C
Lead Temperature	260°C
Storage Temperature	–65°C to 150°C
ESD Susceptibility (Human Body Model)	2kV
Dynamic Vin and SW Voltage	-1.7V for 40ns to 8.5V for 70ns

Recommended Operating Conditions

Parameter			Value
Input Voltage VIN			2.5V to 6V
Output Voltage Vout			0.6V to VIN
Operating Junction Temperature			–40°C to 125°C
Thermal Performance(4)	SOT23-5	θ_{JA}	220°C/W
		θ_{JC}	130°C/W
	SOT23-6	θ_{JA}	220°C/W
		θ_{JC}	130°C/W

Note:

1. Exceeding these ratings may damage the device.
2. The ACE7343F guarantees robust performance from -40°C to 150°C junction temperature. The junction temperature range specification is assured by design, characterization and correlation with statistical process controls.
3. The ACE7343F includes thermal protection that is intended to protect the device in overload conditions. Thermal protection is active when junction temperature exceeds the maximum operating junction temperature. Continuous operation over the specified absolute maximum operating junction temperature may damage the device.
4. Measured on JESD51-7, 4-layer PCB.

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 Electronics 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 shoes 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.