ACE5303X

36V/150mA LDO with 3μA Iq and Ground Reverse Blocking

Description

The ACE5303X is a high voltage low quiescent current linear regulator, with operation voltage up to 36V and current consumption down to 3μA. Unlike conventional ICs, ACE5303X has a unique feature that its parasitic diode from Ground to Vin and Ground to Vout. That means one can apply a positive voltage cross Ground and Vin/Vout as high as 40V without bring any potential damage to the chip.

ACE5303X employes nano-current voltage reference, soft start, error amplifier, over-temperature protection, over-current protection, power transistor modules, and a proprietary loop design to achieve a fast transient response. There is also a robust ESD module between Vin and Ground to ensure a 5KV ESD protection. ACE5303X normally provide 3.3V and 5V output, while other output voltage ranging from 3V~12V can be manufactured on demand. ACE5303X is housed in a TSOT-23-3 package.

Features

- Ground reverse blocking
- OCP and OTP protection
- Wide operation range: 3V~36V
- 3μA quiescent current
- 5KV ESD on Vin terminal
- Line regulation 30ppm

Application

- Battery powered system
- Charger with quick charge input
- Powering MCU for general purpose
- Smart IOTs
- Mobile devices

Absolute Maximum Ratings

Parameter			Value
V_{IN} (1)			-0.3V to 40V
V_{OUT} (1)			-0.3V to 18V
Continuous Power Dissipation (T_A = 25°C) (2)		TSOT-23-3	0.3W
Junction Temperature			-40°C to 125°C
Lead Temperature			260°C
Storage Temperature			-65°C to 150°C
Thermal Resistance (3)	TSOT-23-3	θ_{JA}	200°C/W
		θ_{JC}	90°C/W

Note:

(1). Exceeding these ratings may damage the device.

(2). The maximum allowable power dissipation is a function of the maximum junction temperature T_J(MAX), the junction-to-ambient thermal resistance θ_{JA}, and the ambient temperature T_A. The maximum allowable continuous power dissipation at any ambient temperature is calculated by $P_D(MAX)=(T_J(MAX)-T_A)/\theta_{JA}$. Exceeding the maximum allowable power dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown. Internal thermal shutdown circuitry protects the device from permanent damage.

(3). Measured on JESD51-7, 4-layer PCB.

Ordering Information

ACE5303X XXX XXX + H

- Halogen - free
- Pb - free
- BMS: TSOT-23-3
- Output Voltage: 3.3V/5.0V/9.0V/12.0V

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 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.