ACE7303R

3 A/30 V, Sync DC-DC BUCK Converter

Description

ACE7303R is a sync BUCK DC-DC converter IC, which integrates two NMOSFET power switches with low on-resistance. And R_{DSON} of high side and low side switches are 110mΩ and 45mΩ respectively. This product is capable of delivering 3A load current. In light load condition, ACE7303R works in the PFM mode which has good efficiency performance. When load current goes heavy, ACE7303R works in a quasi PWM mode. At this time, it has a constant switching frequency of 500kHZ. ACE7303R incorporates OTP, input UVLO, cycle by cycle current limit protection and output short circuit protection to improve reliability.

Features

- Input Voltage Range：4.7V ~ 30V
- Shutdown Current：10uA
- Quiescent Current：120uA
- RDSON(LSD/HSD): 45mΩ/110mΩ
- Switching Frequency：500kHz
- Reference Voltage：0.6V ± 2%
- Cycle by Cycle Peak Current Limit：5.5A
- Short Circuit Protection: Hiccup Mode
- Overtemperature Protection：160°C
- Available in ESOP-8 Package

Applications

- Set Top Box
- LCD TV
- Digital TV
- DSL Modem

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
VIN Pin Voltage Range	V_{IN}	-0.3 ~ 32	V
LX Pin Voltage Range	V_{LX}	-0.3 ~ 32	V
Voltage Between BOOT Pin and SW Pin	V_{BOOT_SW}	-0.3 ~ 6	V
EN Pin Voltage Range	V_{EN}	-0.3 ~ 32	V
FB Pin Voltage Range	V_{FB}	-0.3 ~ 32	V
Internal Power Dissipation	P_D	1.98	W
Thermal Resistance (Junction to Air)	θ_{JA}	63	°C/W
Operating Temperature Range	T_A	-40 to 85	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C
Maximum Junction Temperature	T_J	-40 to 160	°C

Note:

(1). Stresses at or above those listed under Absolute Maximum Ratings may cause permanent damage to the product.

(2). The maximum allowable power dissipation is a function of the maximum junction temperature TJ (MAX), the junction-to-ambient thermal resistance θJA, and the ambient temperature TA. The maximum allowable continuous power dissipation at any ambient temperature is calculated by PD(MAX)=(TJ(MAX)-TA)/θJA.

(3). The θJA values given in this table are for comparison with other packages only and cannot be used for design purposes. They do not represent the performance achieved in real-world applications.

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Input Voltage	V_{IN}	4.7	12	30	V
Output Voltage	V_{OUT}	0.6	3.3	12	V
Inductor Value	L	1.2	3.3	10	uH
Output Capacitor	C_{OUT}	20	30		uF
Operating Ambient Temperature	T_A	-40		85	ºC

Ordering Information

ACE7303R XX + H

- Halogen - free
- Pb - free
- IM: ESOP-8

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.