



# ACE7358F

## High Efficiency, 1.2MHz, 52V Input, 0.8A Asynchronous Step Down Regulator

### Description

The ACE7358F develops a high efficiency asynchronous step down DC/DC regulator capable of delivering 0.8A output current. The IC adopts current mode adaptive constant off time control. The ACE7358F operates over a wide input voltage range from 4.5V to 52V and integrates main switch with very low  $R_{DS(ON)}$  to minimize the conduction loss. Low output voltage ripple and small external inductor and capacitor sizes are achieved with 1.2MHz switching frequency.

### Features

- Low  $R_{DS(ON)}$  for Internal N-channel Power FET: 700m $\Omega$
- 4.5-52V Input Voltage Range
- 0.8A Output Current Capability
- 1.2MHz Pseudo Constant Switching Frequency
- Internal Soft-start Limits the Inrush Current
- Hic-cup Mode Output Short Circuit Protection
- EN ON/OFF Control with Accurate Threshold
- Cycle by Cycle Peak Current Limit
- 0.6V $\pm$ 1 % Reference Voltage
- SOT23-6 Package

### Applications

- Non-Isolated Telecommunication Buck Regulator
- Secondary High Voltage Post Regulator
- Automotive Systems

### Absolute Maximum Ratings (Note1)

Parameter	Value
Supply Input Voltage	52V
BST-SW	4V
All Other Pins	$V_{IN}+0.3V$
Power Dissipation, $P_D@T_A=25^\circ C$	1W
Package Thermal Resistance (Note 2)	$\theta_{JA}$ 100 $^\circ C/W$
	$\theta_{JC}$ 25 $^\circ C/W$
Junction Temperature	150 $^\circ C$
Lead Temperature (Soldering, 10sec.)	260 $^\circ C$
Storage Temperature Range	-65 $^\circ C$ to 150 $^\circ C$

Note 1: Stresses beyond the "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Note 2:  $\theta_{JA}$  is measured in the natural convection at  $T_A=25^\circ C$  on a two-layer Evaluation Board.



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## Recommended Operating Conditions (Note 3)

Parameter	Value
Supply Input Voltage	4.5V to 52V
Junction Temperature Range	-40°C to 125°C
Ambient Temperature Range	-40°C to 85°C

Note 3: The device is not guaranteed to function outside its operating conditions.



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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.