



ACE7161UI

Step-Up LED Driver with PWM to Constant Current Dimming Mode

Description

ACE7161UI is a serial white LED driver, featuring an architecture of 86% high-efficiency current mode boost converter, driving up to 10 serial LEDs or a 3x13(3LEDs in rows) LED matrix. And it adopts PWM to Constant Current dimming control mode, with wide frequency range from 200Hz to 200kHz (The dimming frequency above 10kHz is recommended). The serial configuration assures the very most brightness consistency of the whole LED array.

ACE7161UI works on 1.1MHz switching frequency, which can maximize current output of 1.3A limit and achieve high current conversion efficiency and result in external compact component size. Additionally, the total external component number is minimized due to the integrated low-side power MOSFET.

ACE7161UI integrates multiple protection features, such as LED open-circuit protection, thermal shutdown protection and cycle-by-cycle input current limit protection. And the built-in soft start circuit limits inrush current when the circuit starts.

Features

- Drive up to 10 serial LEDs
- PWM to Constant Current dimming mode
- Integrated 38V high current switch (1.3A limit)
- Wide VIN Input Range: 2.7V~5.5V
- Dimming scheme up to 100:1 range
- Up to 86% PWM converter Efficiency
- Low 200mV feedback voltage
- LED open-circuit (OVP) protection: 36V
- High switching frequency: 1.1MHz
- For Compact Solution Size
- Integrated Soft start
- < 1 μ A shutdown current
- Compact SOT23-6, TSOT23-6, DFN2*2-6 Package
- Green compliant
- -40 to 85 °C Temperature range

Applications

- LED backlighting
- Mobile Phones
- Handheld Devices
- Digital Photo Frames
- Automotive Navigation



Absolute Maximum Ratings

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.

Parameter	Rating	Unit	
Supply Voltage / V_{IN}	-0.3 to 6.0	V	
High Voltage Nodes / LX	-0.3 to 38	V	
Other pins / FB, EN	-0.3 to $V_{IN} + 0.3$	V	
Operating Temperature Range / T_J	-40 to 150	°C	
Storage Temperature Range / T_S	-65 to 150	°C	
Lead Temperature Range / T_{LEAD}	300	°C	
Thermal Resistance / θ_{JA}	SOT23-6/TSOT23-6	190	°C/W
	DFN2*2-6	140	
Maximum Power Dissipation at $T_A < 25^\circ\text{C}$	0.526	W	
ESD	HBM, JEDEC: JESD22-A114	4	kV
	CDM, JEDEC: JESD22-C101	2	kV

Recommended Operating Conditions

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.

Parameter	Rating	Unit
Supply Voltage	2.7 to 5.5	V
Operating Temperature Range	-40 to 85	°C

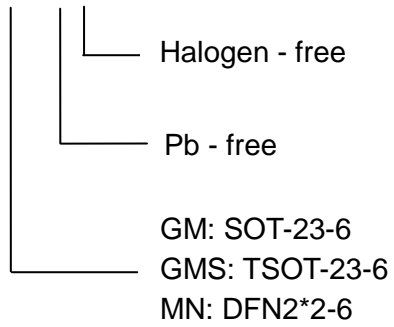


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Ordering information

ACE7161UI XX + 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.