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[Maxim](#) > [Products](#) > [\[Power and Battery Management\]](#)

MAX14515

High-Voltage Liquid Lens Driver

The Smallest Liquid Lens Driver for Small Camera Modules

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Status

Active: In Production.

Description

The MAX14515 high-voltage liquid lens driver features a high-voltage differential output controlled through an I²C interface. The MAX14515 uses a charge-pump-based boost converter and integrated H-bridge to provide a compact lens driver solution with minimal external components to achieve a small overall footprint suitable for small space constraints inside camera modules.

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The MAX14515 features an 8-bit monotonic DAC with a single differential high-voltage output controlled by a 2-wire I²C interface to set the amplitude. The high-voltage outputs are capable of delivering up to 42V_{RMS} (min) into a 220pF liquid lens load at 1.0kHz (min).

The MAX14515 also features two power-saving modes (shutdown mode and sleep mode) to minimize power consumption when the device is inactive. Shutdown mode places the device in a low-power state that resets all registers and disables the I²C interface to reduce current below 500nA (max). In sleep mode, the power-on reset circuit remains active. If no activity is detected on the I²C interface, current consumption is less than 3μA.

The MAX14515 operates over the +2.7V to +5.5V supply voltage range, ideal for portable applications using lithium ion battery sources. The MAX14515 is specified over the -40°C to +85°C extended temperature range and is available in a small (1mm x 2mm) 8-bump WLP package.

Key Features

- Small Footprint for Placement Inside Camera Modules
- 47V_{RMS} Maximum Output (C_{LENS} = 220pF)
- I²C-Compatible Interface for Setting Output Voltage
- 8-Bit Output Voltage Resolution
- Guaranteed Monotonic Output
- ±15kV Human Body Model ESD Protection on Outputs
- Low 500nA (max) Shutdown Current
- +2.7V to +5.5V Input Voltage Range
- Space-Saving, 8-Bump WLP (1mm x 2mm) Package

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Description
Key Features
Applications/Uses
Key Specifications
Diagram

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Data Sheet
Application Notes
[Design Guides](#)
Engineering Journals
[Reliability Reports](#)
Software/Models
Evaluation Kits

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Document Ref.: 19-4240; Rev 0; 2008-08-20
This page last modified: 2008-08-20