

## Features

- 12 output channels, usable as row or column driver
- 3V to 100V line drive, up to 200V<sub>pp</sub> panel drive
- Cascadable
- Each output is a high voltage multiplexer, selecting one of 9 high-voltage levels
- 4-bit PWM gray levels
- Full Color operation
- Ultra low energy consumption (6nJ @ 100V switch transition)
- Max. source/ sink current = 4mA/ 1.5mA
- Short-circuit protected
- Response time < 2μs
- 3-5V power supply
- JLCC68 package

## General description

Helimix is a 12-channel row/column high-voltage driver IC with ultra low power consumption.

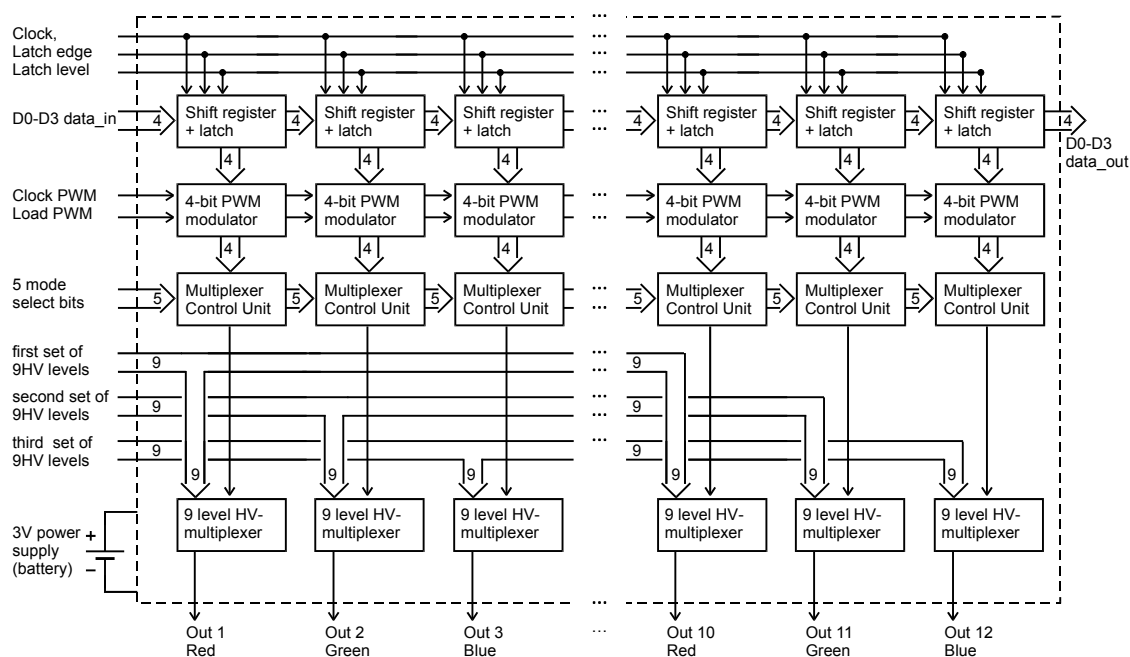
Each output is a 100V high-voltage analogue multiplexer selecting one of 9 high-voltage levels. This allows maximum flexibility in waveform generation, including low-speed conventional and high-speed multi-phase dynamic driving schemes.

The shift register can be cascaded to drive flat panel displays of any resolution. Full-color operation is provided with different high-voltage levels for the 3 basic colors.

Ultra low power consumption is achieved by the 'dynamic charge control' technique. E.g.: using a ChLCD with low-speed conventional driving scheme (featuring PWM gray levels, initial global display reset, 6-level waveforms max. amplitude of 95V, 15 ms line time and image frame rate of 1s), the average internal power dissipation equals 1.3μW per output.

Additional features include global display reset, charge recycling, bipolar or unipolar driver operation and the possibility to convert the PWM gray levels into AM gray levels in the case of a purely capacitive display.

Helimix is ideal for a variety of non-volatile (bistable) reflective flat-panel displays, especially in battery-powered applications.



## IMPORTANT NOTICE

"Preliminary" product information describes products that are ready for production, but for which full characterization data is not yet available. "Advance" product information describes products that are in development and subject to development changes. IMEC vzw believes that the information contained in this document is accurate and reliable. However, the information is subject to change without notice and is provided "AS IS" without warranty of any kind (Express or implied). You are advised to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including those pertaining to warranty, patent infringement, and limitation of liability. No responsibility is assumed by IMEC vzw for the use of this information, including use of this information as the basis for manufacture or sale of any items, or for infringement of patents or other rights of third parties. This document is the property of IMEC vzw and by furnishing this information, IMEC vzw grants no license, express or implied under any patents, mask work rights, copyrights, trademarks, trade secrets or other intellectual property rights. IMEC vzw owns the copyrights of the information contained herein and gives consent for copies to be made of the information only for use within your organization with respect to "IMEC information". This consent does not extend to other copying such as copying for general distribution, advertising or promotional purposes, or for creating any work for release.

IMEC vzw shall not be held liable for any damages, which may result out of the use of IMEC information. Use of IMEC information implies the acceptance by user of all responsibility and liability connected with the use of IMEC information.