

DATA SHEET

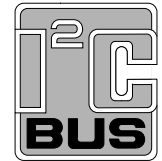


PCF8531

34 × 128 pixel matrix driver

Product specification
File under Integrated Circuits, IC17

1999 Mar 22

34 × 128 pixel matrix driver**PCF8531****FEATURES**

- Single chip LCD controller/driver
- 34 row, 128 column outputs
- Display data RAM 34 × 128 bits
- 128 icons (last row is used for icons)
- Fast mode I²C-bus interface (400 kbits/s)
- Software selectable multiplex rates: 1 : 17, 1 : 26 and 1 : 34
- Icon mode with mux rate 1 : 2
 - Featuring reduced current consumption while displaying icons only.
- On-chip:
 - Generation of V_{LCD} (external supply also possible)
 - Selectable linear temperature compensation
 - Oscillator requires no external components (external clock also possible)
 - Generation of intermediate LCD bias voltages
 - Power-on reset.
- No external components
- Software selectable bias configuration
- Logic supply voltage range $V_{DD1} - V_{SS1}$: 1.8 to 5.5 V
- Supply voltage range for on-chip voltage generator $V_{DD2,3} - V_{SS1,2}$: 2.5 to 4.5 V
- Display supply voltage range $V_{LCD} - V_{SS}$:
 - Normal mode: 4 to 9 V
 - Icon mode: 3 to 9 V.
- Low power consumption, suitable for battery operated systems
- CMOS compatible inputs
- Manufactured in silicon gate CMOS process.

APPLICATIONS

- Telecommunication systems
- Automotive information systems
- Point-of-sale-terminals
- Instrumentation.

GENERAL DESCRIPTION

The PCF8531 is a low power CMOS LCD row/column driver, designed to drive dot matrix graphic displays at multiplex-rates of 1 : 17, 1 : 26 and 1 : 34. Furthermore, it can drive up to 128 icons. All necessary functions for the display are provided in a single chip, including on-chip generation of V_{LCD} and the LCD bias voltages, resulting in a minimum of external components and low power consumption. The PCF8531 is compatible with most microcontrollers and communicates via a two-line bidirectional bus (I²C-bus). All inputs are CMOS compatible.

Note: Icon mode is used to save current. When only icons are displayed, a much lower operating voltage V_{LCD} can be used and the switching frequency of the LCD outputs is reduced. In most applications it is possible to use V_{DD} as V_{LCD} .

Packages

The PCF8531 is available as chip with bumps in tray.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PCF8531U/2/F1	–	chip with bumps in tray	–

Full Data Sheet will appear: on WWW (Internet; details in front section/back of this HB/CD-ROM) or updated Loose leaf

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BLOCK DIAGRAM

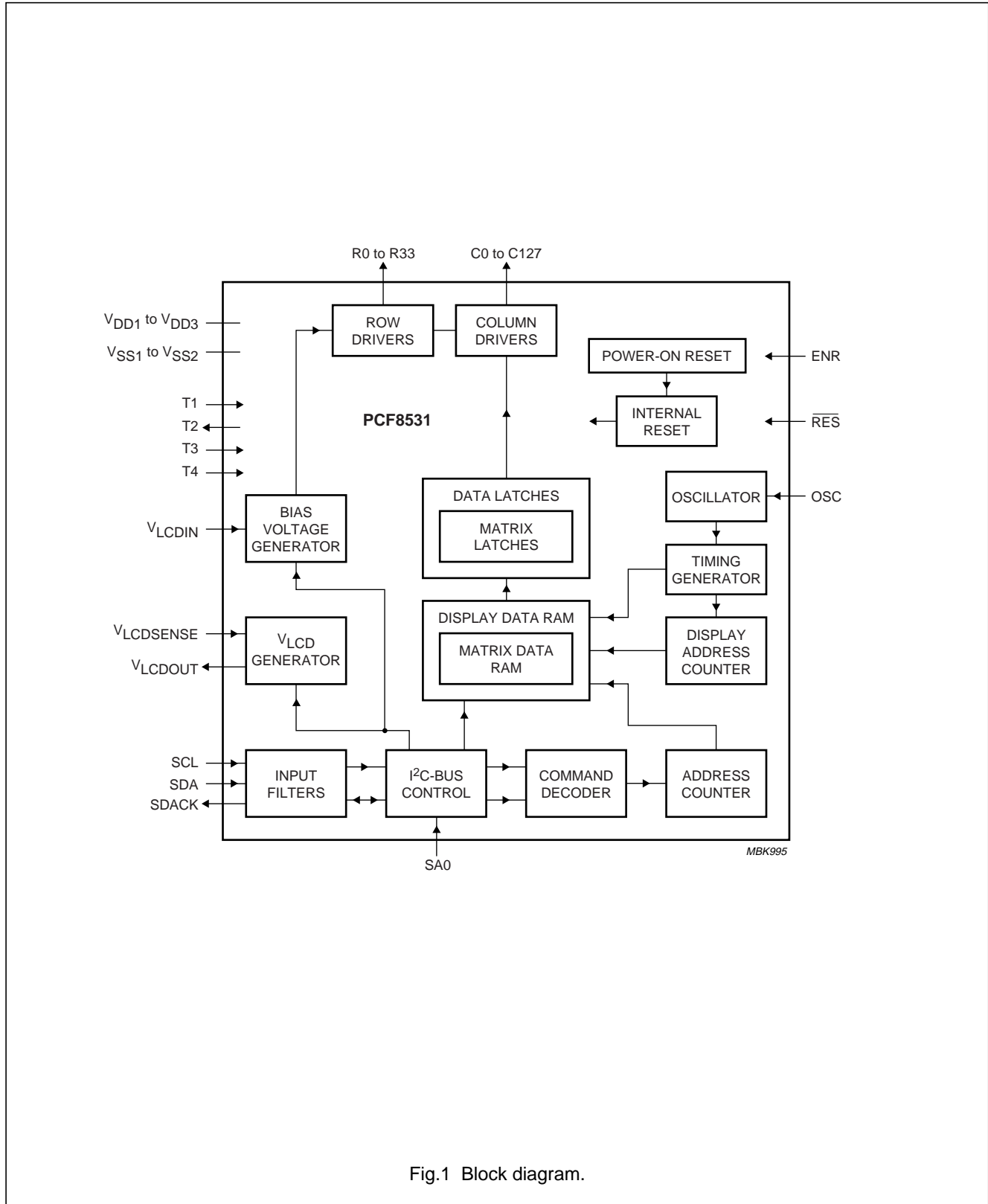


Fig.1 Block diagram.

34 × 128 pixel matrix driver**PCF8531****DEFINITIONS**

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

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