DATA SHEET

PCA8521

Infrared remote control transmitter RC5

Product specification

Supersedes data of 1997 Jul 03

File under Integrated Circuits, IC02

1999 Jun 15

Infrared remote control transmitter RC5   PCA8521

FEATURES

- RC5 protocol
- Maximum of:
  - 56 keys (20-pin version)
  - 30 keys (16-pin version).
- Option of multi-system or single system transmitter
  - Multi-system: maximum 8 systems, selection by key
  - Single system: maximum 8 different systems per IC, selection by jumper wire or switch.
- Power-down and key wake-up
- High output current ($\leq$ 45 mA)
- Oscillator frequency of 432 kHz or 4 MHz
- Multiple key protection
- Option of 25% or 33% duty factor
- Contained in DIP16, SO16, DIP20 or SO20 packages.

GENERAL DESCRIPTION

The PCA8521 can be used in infrared remote control transmitters. It generates output pulses, in accordance with the RC5 protocol, when a key is pressed. The IC does not contain a software programmable processor. However, it does contain a ROM in which the codes that have to be transmitted are stored. An example of an application diagram using a 20-pin IC is illustrated in Fig.7. The oscillator frequency may be optionally chosen as 432 kHz or 4 MHz. For 432 kHz additional external capacitors must be connected. The capacitors for a 4 MHz oscillator is integrated. When a key in the key-matrix is pressed a drive line will be connected to a sense line. This causes the oscillator to start and a corresponding code will be generated conforming to the RC5 protocol.

Seven drive lines ($\overline{DR0}$ to $\overline{DR6}$) and eight sense lines (SN0 to SN7) may be connected via the key matrix to scan the keys (see Fig.1).

When two or more keys are activated simultaneously no transmission will take place.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PCA8521FP	DIP16	plastic dual in-line package; 16 leads (300 mil)	SOT38-4
PCA8521FT	SO16	plastic small outline package; 16 leads; body width 7.5 mm	SOT162-1
PCA8521BP	DIP20	plastic dual in-line package; 20 leads (300 mil)	SOT146-1
PCA8521BT	SO20	plastic small outline package; 20 leads; body width 7.5 mm	SOT163-1

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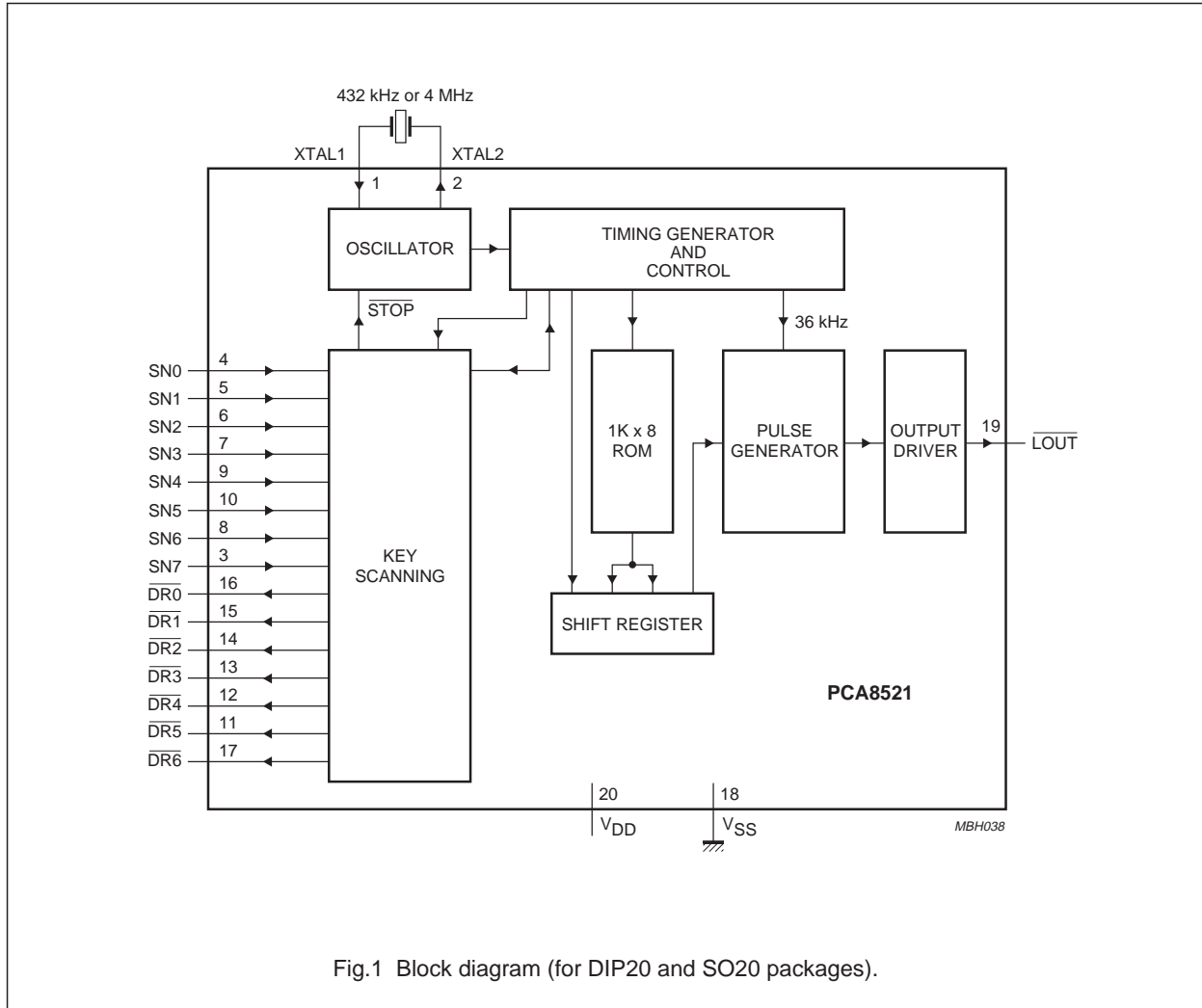
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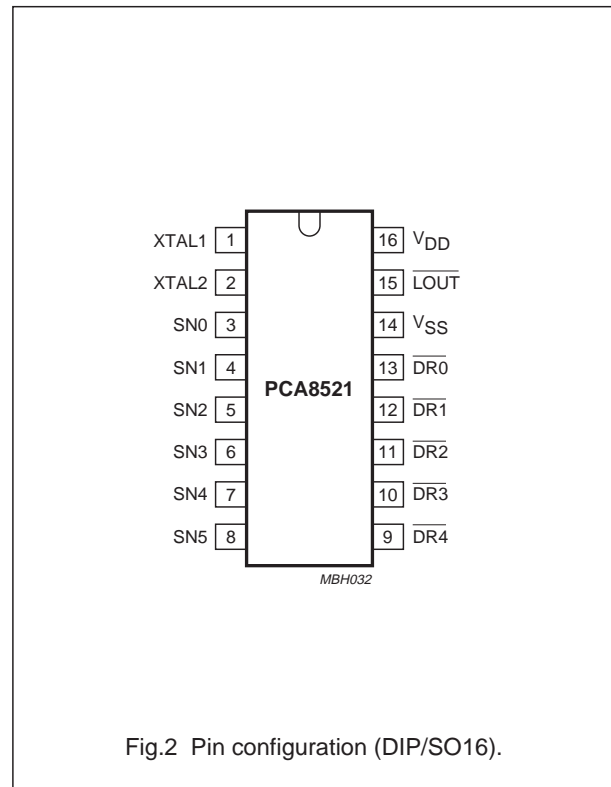**BLOCK DIAGRAM**

Fig.1 Block diagram (for DIP20 and SO20 packages).

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PINNING

16-pin dual in-line and small outline package

SYMBOL	PIN	DESCRIPTION
XTAL1	1	oscillator input
XTAL2	2	oscillator output
SN0	3	sense line 0 for key matrix
SN1	4	sense line 1 for key matrix
SN2	5	sense line 2 for key matrix
SN3	6	sense line 3 for key matrix
SN4	7	sense line 4 for key matrix
SN5	8	sense line 5 for key matrix
$\overline{DR4}$	9	drive line 4 for key matrix (active LOW)
$\overline{DR3}$	10	drive line 3 for key matrix (active LOW)
$\overline{DR2}$	11	drive line 2 for key matrix (active LOW)
$\overline{DR1}$	12	drive line 1 for key matrix (active LOW)
$\overline{DR0}$	13	drive line 0 for key matrix (active LOW)
V_{SS}	14	ground
$\overline{LOUT}$	15	output signal (active LOW)
V_{DD}	16	power supply

Fig.2 Pin configuration (DIP/SO16).

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20-pin dual in-line and small outline package

SYMBOL	PIN	DESCRIPTION
XTAL1	1	oscillator input
XTAL2	2	oscillator output
SN7	3	sense line 7 for key matrix
SN0	4	sense line 0 for key matrix
SN1	5	sense line 1 for key matrix
SN2	6	sense line 2 for key matrix
SN3	7	sense line 3 for key matrix
SN6	8	sense line 6 for key matrix
SN4	9	sense line 4 for key matrix
SN5	10	sense line 5 for key matrix
$\overline{DR5}$	11	drive line 5 for key matrix (active LOW)
$\overline{DR4}$	12	drive line 4 for key matrix (active LOW)
$\overline{DR3}$	13	drive line 3 for key matrix (active LOW)
$\overline{DR2}$	14	drive line 2 for key matrix (active LOW)
$\overline{DR1}$	15	drive line 1 for key matrix (active LOW)
$\overline{DR0}$	16	drive line 0 for key matrix (active LOW)
$\overline{DR6}$	17	drive line 6 for key matrix (active LOW)
V_{SS}	18	ground
$\overline{LOUT}$	19	output signal (active LOW)
V_{DD}	20	power supply

Fig.3 Pin configuration (DIP/SO20).
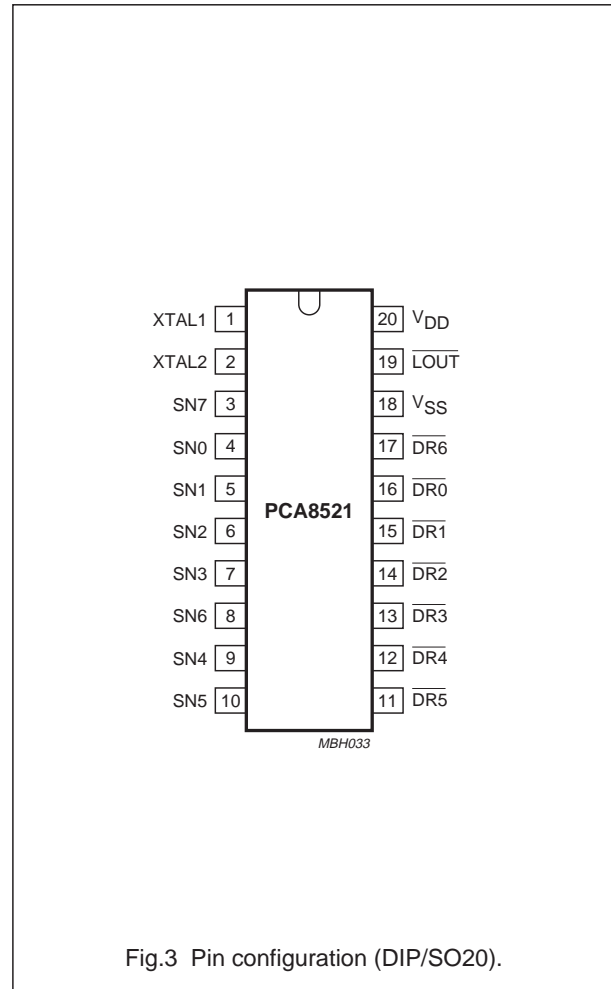
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