

# 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

Infrared remote control transmitter RC5

PCA8521

BLOCK DIAGRAM

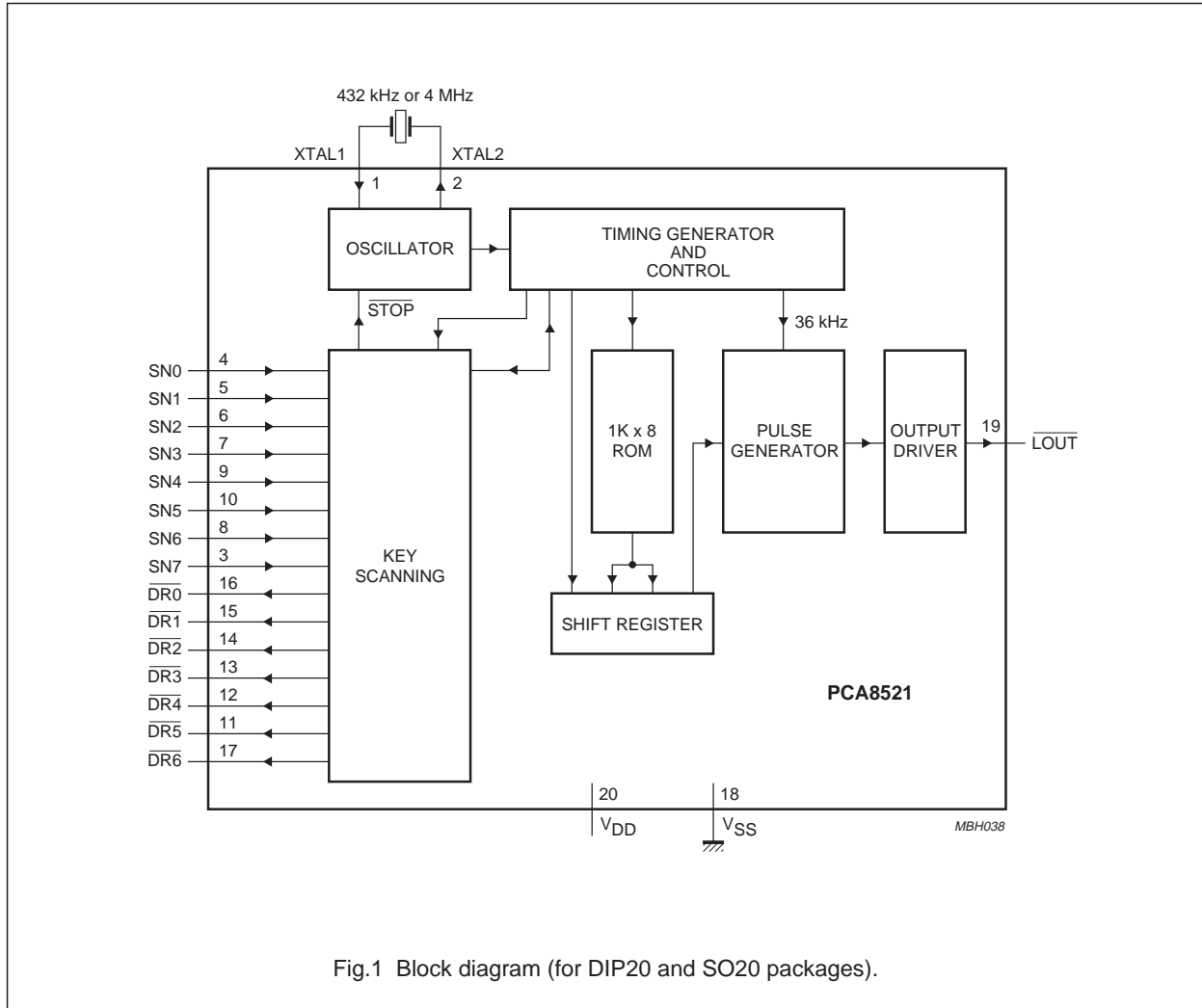


Fig.1 Block diagram (for DIP20 and SO20 packages).

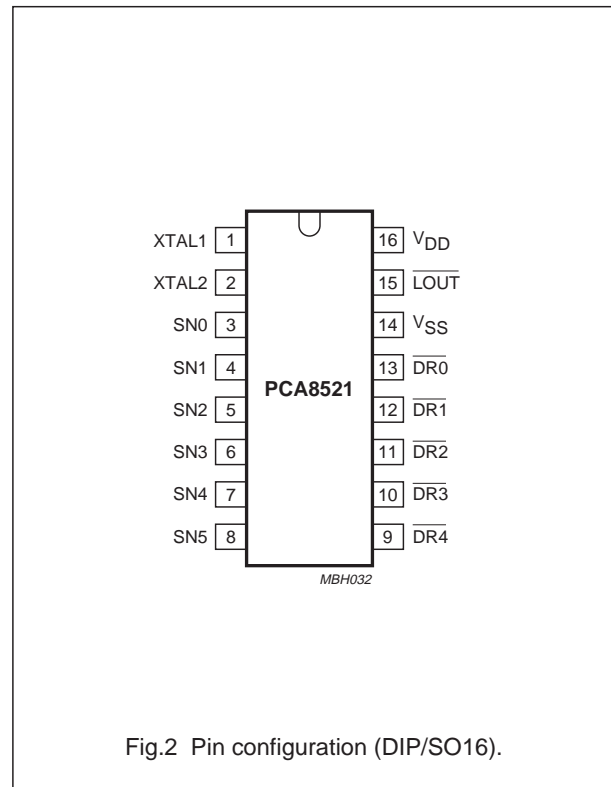
## Infrared remote control transmitter RC5

## PCA8521

## 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
$\overline{\text{DR4}}$	9	drive line 4 for key matrix (active LOW)
$\overline{\text{DR3}}$	10	drive line 3 for key matrix (active LOW)
$\overline{\text{DR2}}$	11	drive line 2 for key matrix (active LOW)
$\overline{\text{DR1}}$	12	drive line 1 for key matrix (active LOW)
$\overline{\text{DR0}}$	13	drive line 0 for key matrix (active LOW)
$V_{SS}$	14	ground
$\overline{\text{LOUT}}$	15	output signal (active LOW)
$V_{DD}$	16	power supply

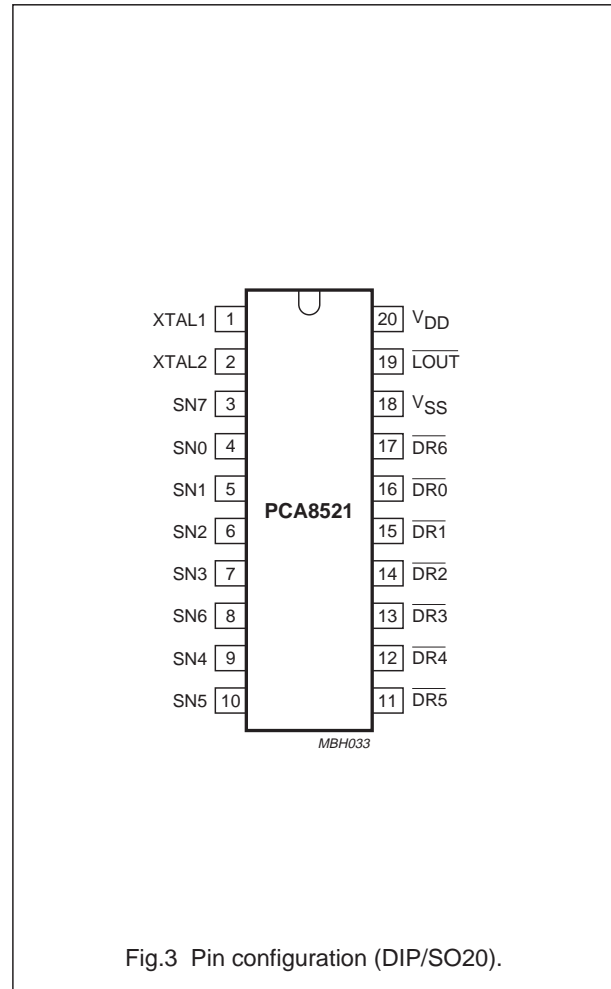


## Infrared remote control transmitter RC5

## PCA8521

## 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
$\overline{\text{DR5}}$	11	drive line 5 for key matrix (active LOW)
$\overline{\text{DR4}}$	12	drive line 4 for key matrix (active LOW)
$\overline{\text{DR3}}$	13	drive line 3 for key matrix (active LOW)
$\overline{\text{DR2}}$	14	drive line 2 for key matrix (active LOW)
$\overline{\text{DR1}}$	15	drive line 1 for key matrix (active LOW)
$\overline{\text{DR0}}$	16	drive line 0 for key matrix (active LOW)
$\overline{\text{DR6}}$	17	drive line 6 for key matrix (active LOW)
$V_{SS}$	18	ground
$\overline{\text{LOUT}}$	19	output signal (active LOW)
$V_{DD}$	20	power supply



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.