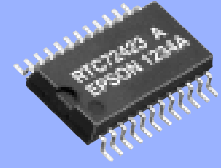
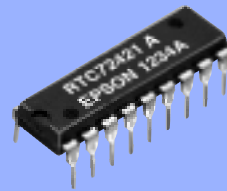


4-bit REAL TIME CLOCK MODULE

RTC-72421  
RTC-72423

- Built-in crystal unit allows adjustment-free efficient operation.
- 24 h / 12 h changeable and leap year automatically adjustable (Gregorian calendar).



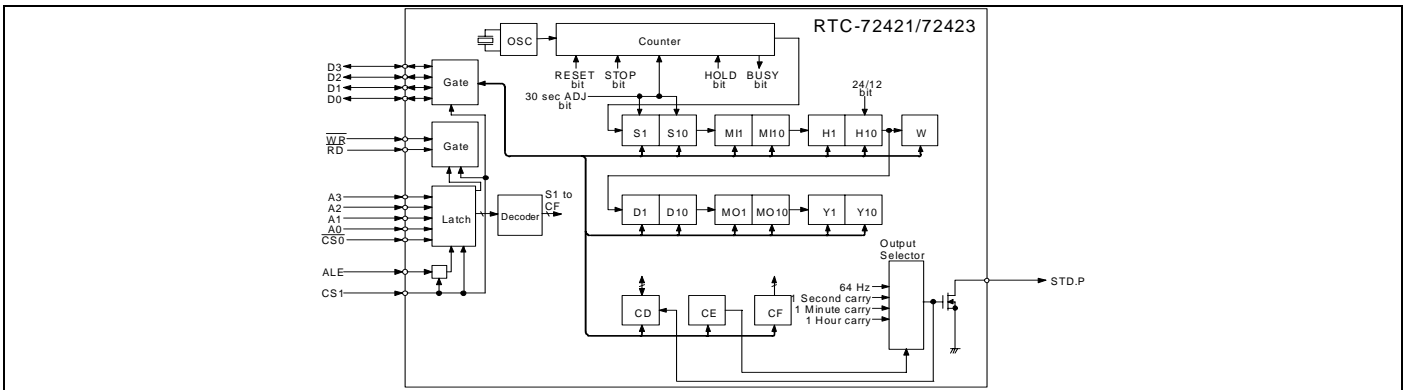
Actual size

RTC-72421

RTC-72423



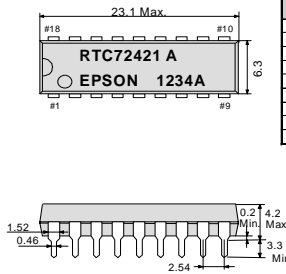
Block diagram



Terminal connection/External dimensions

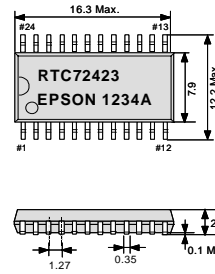
(Unit:mm)

● RTC-72421 (DIP 18-pin)



| No. | Pin terminal | No. | Pin terminal |
|-----|--------------|-----|--------------|
| 1   | STD.P        | 18  | VDD          |
| 2   | /CS0         | 17  | (VDD)        |
| 3   | ALE          | 16  | (VDD)        |
| 4   | A0           | 15  | CS1          |
| 5   | A1           | 14  | CS1          |
| 6   | A2           | 13  | D1           |
| 7   | A3           | 12  | D2           |
| 8   | /RD          | 11  | D3           |
| 9   | GND          | 10  | /WR          |

● RTC-72423 (SOP 24-pin)



| No. | Pin terminal | No. | Pin terminal |
|-----|--------------|-----|--------------|
| 1   | STD.P        | 24  | VDD          |
| 2   | /CS0         | 23  | (VDD)        |
| 3   | N.C.         | 22  | (VDD)        |
| 4   | ALE          | 21  | N.C.         |
| 5   | A0           | 20  | CS1          |
| 6   | N.C.         | 19  | D0           |
| 7   | A1           | 18  | N.C.         |
| 8   | N.C.         | 17  | N.C.         |
| 9   | A2           | 16  | D1           |
| 10  | A3           | 15  | D2           |
| 11  | /RD          | 14  | D3           |
| 12  | GND          | 13  | /WR          |

Specifications (characteristics)

\*Refer to application manual for details.

Absolute Max. rating

| Item                  | Symbol | Condition | Min.    | Max.    | Unit |
|-----------------------|--------|-----------|---------|---------|------|
| Supply voltage        | VDD    | Ta=+25 °C | -0.3    | +7.0    | V    |
| Input voltage         | VIO    | Ta=+25 °C | GND-0.3 | VDD+0.3 |      |
| Storage temperature * | TSTG   | RTC-72421 | -55     | +85     | °C   |
|                       |        | RTC-72423 | -55     | +125    |      |

\*Stored as bare product after unpacking

Operating range

| Item                  | Symbol | Condition | Min. | Max. | Unit |
|-----------------------|--------|-----------|------|------|------|
| Power voltage         | VDD    | —         | 4.5  | 5.5  | V    |
| Clock voltage         | VCLK   | —         | 2.0  | 5.5  |      |
| Operating temperature | TOPR   | RTC-72421 | -10  | +70  | °C   |
|                       |        | RTC-72423 | -40  | +85  |      |

Stored as bare product after unpacking

Frequency characteristics

| Item                                  | Symbol | Condition                        | Range      | Unit                    |
|---------------------------------------|--------|----------------------------------|------------|-------------------------|
| Frequency precision                   | Δf / f | Ta=+25 °C<br>VDD=5.0 V           | 72421A     | ±10                     |
|                                       |        |                                  | 72421B     | ±50                     |
|                                       |        |                                  | 72423A     | ±20                     |
|                                       |        |                                  | 72423      | ±50                     |
| Frequency temperature characteristics | TOP    | -10 °C to +70 °C (+25 °C)        | +10 / -120 | ×10 <sup>-6</sup>       |
|                                       |        | -40 °C to +85 °C (+25 °C)        | +10 / -220 |                         |
| Frequency voltage characteristics     | f/V    | Ta=+25 °C, VDD=2.0 V to 5.5 V    | ±5.0 Max.  | ×10 <sup>-6</sup> /V    |
| Aging                                 | fa     | Ta=+25 °C, VDD=5.0 V, First year | ±5.0 Max.  | ×10 <sup>-6</sup> /year |

DC characteristics

| Item                   | Symbol             | Condition                                | Min.    | Typ.    | Max. | Unit | Applicable terminal       |
|------------------------|--------------------|--|---------|---------|------|------|---------------------------|
| Current consumption    | I <sub>DD1</sub>   | CS1= 0 V<br>Exclude input/output current | —       | 1       | 10   | μA   | —                         |
|                        | I <sub>DD2</sub>   | VDD=5 V<br>VDD=2 V                       | —       | 0.9     | 5    |      | —                         |
| HIGH input voltage (1) | V <sub>IHI</sub>   | —  | 2.2     | —       | —    | V    | All inputs other than CS1 |
| LOW input voltage (1)  | V <sub>ILI</sub>   | —  | —       | 0.8     | —    |      |                           |
| LOW output voltage (1) | V <sub>OL1</sub>   | I <sub>OL</sub> =2.5 mA                  | —       | 0.4     | —    | V    | D0 to D3                  |
| HIGH output voltage    | V <sub>OH</sub>    | I <sub>OH</sub> =-400 μA                 | 2.4     | —       | —    |      |                           |
| LOW output voltage (2) | V <sub>OL2</sub>   | I <sub>OL</sub> =2.5 mA                  | —       | 0.4     | —    | μA   | STD.P                     |
| OFF leak current       | I <sub>OFFLK</sub> | V1=VDD/0 V                               | —       | 10/10   | —    |      |                           |
| Input capacity         | C1                 | Input frequency<br>1 MHz                 | —       | 10      | —    | pF   | Input other than D0 to D3 |
|                        |                    |  | —       | 20      | —    |      |                           |
| HIGH input voltage (2) | V <sub>IH2</sub>   | VDD=2.0 V to 5.5 V                       | 4/5 VDD | —       | —    | V    | CS1                       |
| LOW input voltage (2)  | V <sub>IL2</sub>   | —  | —       | 1/5 VDD | —    |      |                           |
| Input leak current (1) | I <sub>LK1</sub>   | V1=VDD/0 V                               | —       | 1/1     | —    | μA   | Input other than D0 to D3 |
| Input leak current (2) | I <sub>LK2</sub>   | —  | —       | 10/10   | —    |      |                           |