

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).



Product Number (Please contact us)  
RTC-72421 : Q42724212xxxx00  
RTC-72423 : Q42724232xxxx00



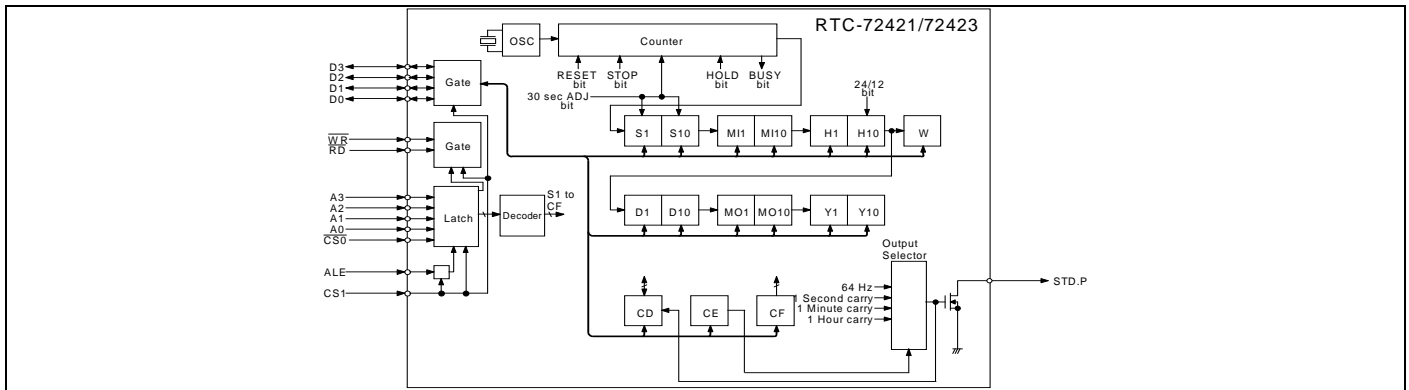
Actual size

RTC-72421

RTC-72423



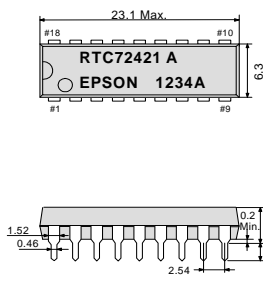
Block diagram



Terminal connection/External dimensions

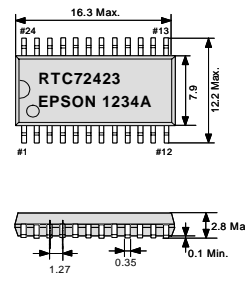
(Unit:mm)

● 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	CS0
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

The metal case inside of the molding compound may be exposed on the top or bottom of this product. This purely cosmetic and does not have any effect on quality, reliability or electrical specs.

Specifications (characteristics)

\*Refer to application manual for details.

Absolute Max. rating

Item	Symbol	Conditions	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	Conditions	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	Conditions	Range	Unit
Frequency precision	Δf / f	Ta=+25 °C VDD=5.0 V	72421A	±10
			72421B	±50
			72423A	±20
			72423B	±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)	
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	Conditions	Min.	Typ.	Max.	Unit	Applicable terminal
Current consumption	I <sub>DD1</sub>	CS1= 0 V Exclude input/output current	—	1	10	μA	—
	I <sub>DD2</sub>	VDD=5 V VDD=2 V	—	0.9	5		
HIGH input voltage (1)	V <sub>IH1</sub>	—	2.2	—	—	V	All inputs other than CS1
LOW input voltage (1)	V <sub>IL1</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 1 MHz	—	10	—	pF	Input other than D0 to D3, STD.P
			—	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		

## PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.




## WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

### ► Explanation of the mark that are using it for the catalog

	<p>► Pb free.</p>
	<p>► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)</p>
	<p>► The products have been designed for high reliability applications such as Automotive.</p>

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