



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

4-bit REAL TIME CLOCK MODULE

RTC-72421 RTC-72423

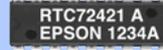
- Built-in crystal unit allows adjustment-free efficient operation.
- 24 h /12 h changeable and leap year automatically adjustable (Gregorian calendar).



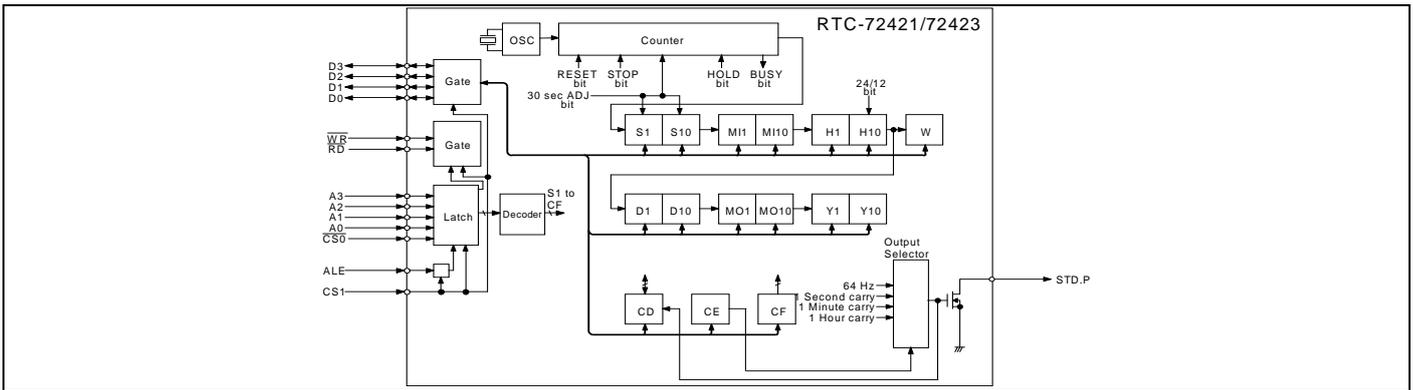
Actual size

RTC-72421

RTC-72423



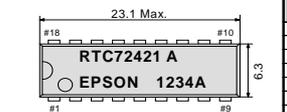
Block diagram



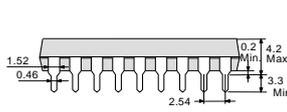
Terminal connection/External dimensions

(Unit:mm)

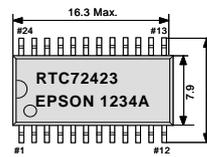
● RTC-72421 (DIP 18-pin)



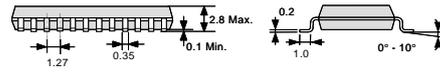
No.	Pin terminal	No.	Pin terminal
1	STD.P	18	V _{DD}
2	/CS ₀	17	(V _{DD})
3	ALE	16	(V _{DD})
4	A ₀	15	CS ₁
5	A ₁	14	C ₀
6	A ₂	13	D ₁
7	A ₃	12	D ₂
8	/RD	11	D ₃
9	GND	10	/WR



● RTC-72423 (SOP 24-pin)



No.	Pin terminal	No.	Pin terminal
1	STD.P	24	V _{DD}
2	/CS ₀	23	(V _{DD})
3	N.C.	22	(V _{DD})
4	ALE	21	N.C.
5	A ₀	20	CS ₁
6	N.C.	19	D ₀
7	A ₁	18	N.C.
8	N.C.	17	N.C.
9	A ₂	16	D ₁
10	A ₃	15	D ₂
11	/RD	14	D ₃
12	GND	13	/WR



Metal may be exposed on the top or bottom of this product. This will not affect any quality, reliability or electrical spec.

Specifications (characteristics)

*Refer to application manual for details.

Absolute Max. rating

Item	Symbol	Condition	Min.	Max.	Unit
Supply voltage	V _{DD}	T _a =+25 °C	-0.3	+7.0	V
Input voltage	V _{IO}	T _a =+25 °C	GND-0.3	V _{DD} +0.3	
Storage temperature *	T _{STG}	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	V _{DD}	—	4.5	5.5	V
Clock voltage	V _{CLK}	—	2.0	5.5	
Operating temperature	T _{OPR}	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	T _a =+25 °C V _{DD} =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 ⁻⁶
		-40 °C to +85 °C(+25 °C)	+10 / -220	
Frequency voltage characteristics	f/V	T _a =+25 °C, V _{DD} =2.0 V to 5.5 V	±5.0 Max.	×10 ⁻⁶ /V
Aging	fa	T _a =+25 °C, V _{DD} =5.0 V, First year	±5.0 Max.	×10 ⁻⁶ /year

DC characteristics

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Applicable terminal
Current consumption	I _{DD1}	CS ₁ = 0 V Exclude input/output current	—	1	10	μA	—
	I _{DD2}	V _{DD} =5 V V _{DD} =2 V	—	0.9	5		
HIGH input voltage (1)	V _{IH1}	—	2.2	—	—	V	All inputs other than CS ₁
LOW input voltage (1)	V _{IL1}	—	—	0.8			
LOW output voltage (1)	V _{OL1}	I _{OL} =2.5 mA	—	—	0.4	V	D ₀ to D ₃
HIGH output voltage	V _{OH}	I _{OH} =-400 μA	2.4	—			
LOW output voltage (2)	V _{OL2}	I _{OL} =2.5 mA	—	—	0.4	μA	STD.P
OFF leak current	I _{OFFLK}	V ₁ =V _{DD} /0 V	—	—	10/-10		
Input capacity	C ₁	Input frequency 1 MHz	—	10	—	pF	Input other than D ₀ to D ₃ , STD.P
			4/5 V _{DD}	—	20		
HIGH input voltage (2)	V _{IH2}	V _{DD} =2.0 V to 5.5 V	—	—	1/5 V _{DD}	V	CS ₁
LOW input voltage (2)	V _{IL2}	—	—	—			
Input leak current (1)	I _{LK1}	V ₁ =V _{DD} /0 V	—	—	1/-1	μA	Input other than D ₀ to D ₃
Input leak current (2)	I _{LK2}	—	—	—	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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