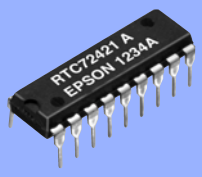
REAL TIME CLOCK MODULE (4-bit)

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).

RoHS Compliant

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

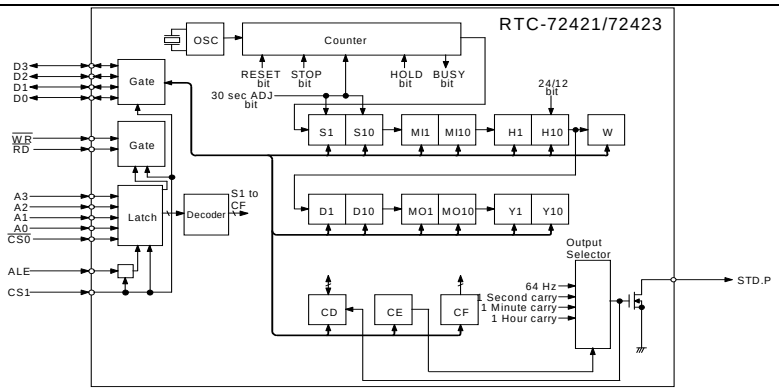


Actual size

RTC-72421

RTC-72423

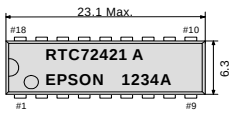
Block diagram



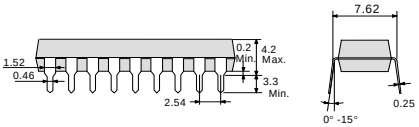
Terminal connection/External dimensions

(Unit:mm)

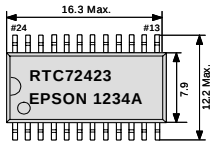
● **RTC-72421 (DIP 18-pin)**



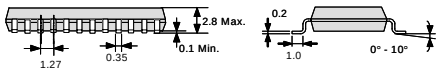
No.	Pin terminal	No.	Pin terminal
1	STD.P	18	V_{DD}
2	/CS_0	17	(V_{DD})
3	ALE	16	(V_{DD})
4	A_0	15	CS_1
5	A_1	14	C_0
6	A_2	13	D_1
7	A_3	12	D_2
8	/RD	11	D_3
9	GND	10	/WR



● **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	A1	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



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	V_{DD}	T_a=+25 °C	-0.3	+7.0	V
Input voltage	$V_{I/O}$	T_a=+25 °C	GND-0.3	V_{DD}+0.3	V
Storage temperature *	T_{STG}	RTC-72421	-55	+85	°C
		RTC-72423	-55	+125	°C

*Stored as bare product after unpacking

Operating range

Item	Symbol	Conditions	Min.	Max.	Unit
Power voltage	V_{DD}	—	4.5	5.5	V
Clock voltage	V_{CLK}	—	2.0	5.5	V
Operating temperature	T_{OPR}	RTC-72421	-10	+70	°C
		RTC-72423	-40	+85	°C

Stored as bare produc after unpacking

Frequency characteristics

Item	Symbol	Conditions		Range	Unit
Frequency precision	Δf /f	T_a=+25 °C V_{DD}=5.0 V	72421A	±10	×10^{-6}
			72421B	±50	
			72423A	±20	
			72423B	±50	
Frequency temperature characteristics	TOP	-10 °C to +70 °C (+25 °C)		+10 / -120	
		-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	Conditions		Min.	Typ.	Max.	Unit	Applicable terminal
Current consumption	I_{DD1}	CS_1= 0 V Exclude input/ output current	V_{DD}=5 V	—	1	10	μA	—
	I_{DD2}		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	V	STD.P
OFF leak current	I_{OFFLK}	V_1=V_{DD}/0 V		—	—	10/-10	μA	
Input capacity	C_1	Input frequency 1 MHz		—	10	—	pF	Input other than D_0 to D_3
					20			D_0 to D_3, STD.P
HIGH input voltage (2)	V_{IH2}	V_{DD}=2.0 V to 5.5 V		4/5 V_{DD}	—	—	V	CS_1
LOW input voltage (2)	V_{IL2}			—	—	1/5 V_{DD}		
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		D_0 to D_3

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

Pb Free	►Pb free.
RoHS Compliant	►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.)
For Automotive	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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