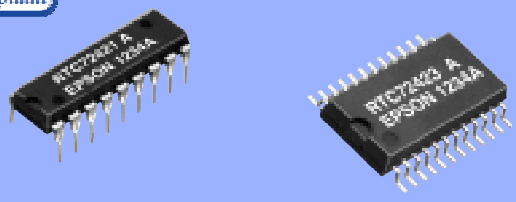
4-bit REAL TIME CLOCK MODULE

RTC-72421/RTC-72423

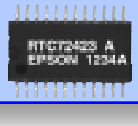
- Built-in crystal unit allows adjustment-free efficient operation.
- 24 h /12 h changeable and leap year automatically adjustable (Gregorian calendar).



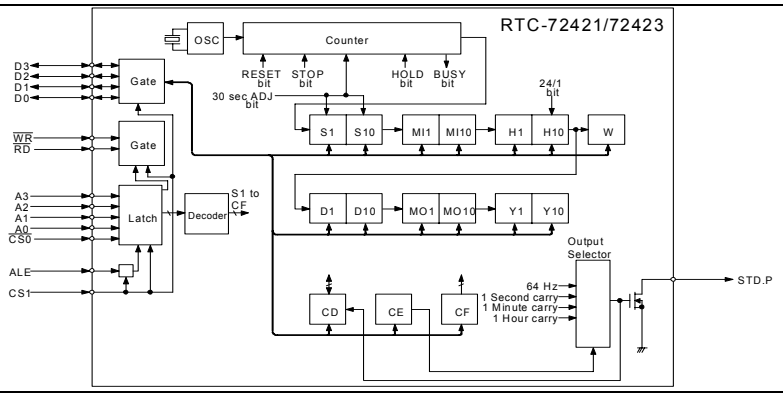
Actual size

RTC-72421

RTC-72423



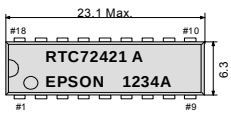
Block diagram



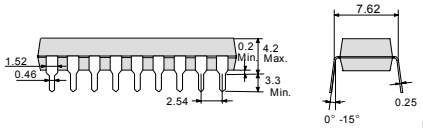
Terminal connection/External dimensions

(Unit:mm)

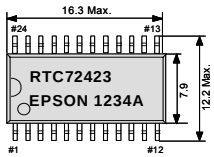
● RTC-72421 (DIP 18-pin)



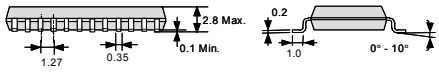
No.	Pin terminal	No.	Pin terminal
1	STD.P	18	V_{DD}
2	/CS_0	17	(V_{DD})
3	ALE	16	(V_{DD})
4	A_0	15	CS_1
5	A_1	14	C_0
6	A_2	13	D_1
7	A_3	12	D_2
8	/RD	11	D_3
9	GND	10	/WR



● 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	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



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	$V_{I/O}$	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	

*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	V
Operating temperature	T_{OPR}	RTC-72421	-10	+70	°C
		RTC-72423	-40	+85	

Stored as bare produc after unpacking

Frequency characteristics

Item	Symbol	Condition		Range	Unit
Frequency precision	Δf /f	T_a=+25 °C V_{DD}=5.0 V	72421A	±10	$\times10^{-6}$
			72421B	±50	
			72423A	±20	
			72423	±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.	$\times10^{-6}$/V
Aging	fa	T_a=+25 °C,V_{DD}=5.0 V,First year		±5.0 Max.	$\times10^{-6}$/year

DC characteristics

Item	Symbol	Condition		Min.	Typ.	Max.	Unit	Applicable terminal
Current consumption	I_{DD1}	CS_1= 0 V Exclude input/ output current	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_I=V_{DD}/0 V		—	—	10/-10	μA	
Input capacity	C_I	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_I=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