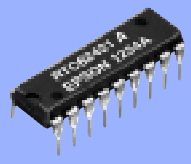
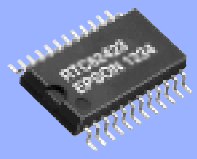
4-bit REAL TIME CLOCK MODULE

RTC-62421 / RTC-62423

- Built-in crystal unit allows adjustment-free efficient operation.
- 24 h /12 h changeable and leap year automatically adjustable (Gregorian calendar).
- Pins and functions are compatible with the MSM6242 series.



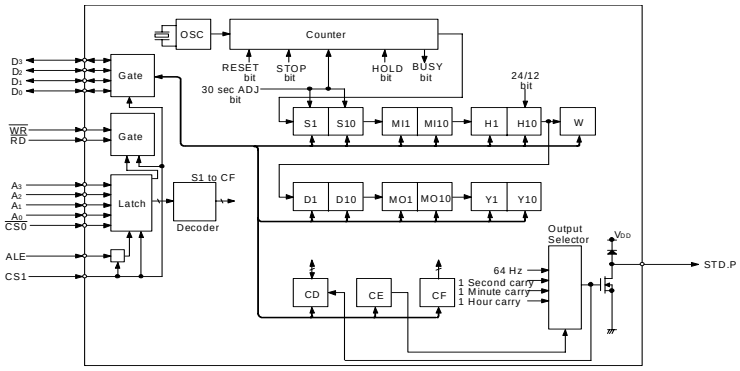


Actual size

RTC-62421

RTC-62423

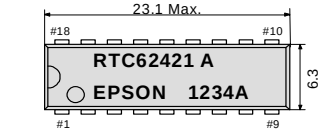
Block diagram



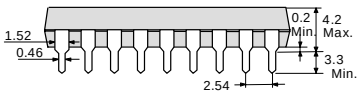
Terminal connection/External dimensions

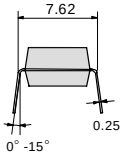
(Unit:mm)

● RTC-62421 (DIP 18-pin)

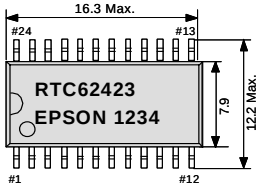


No.	Pin terminal	No.	Pin terminal
1	STD.P	18	V_{DD}
2	/CS_0	17	(V_{DD})
3	ALE	16	(V_{DD})
4	A_0	15	CS_1
5	A_1	14	C_0
6	A_2	13	D_1
7	A_3	12	D_2
8	/RD	11	D_3
9	GND	10	/WR

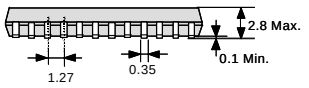


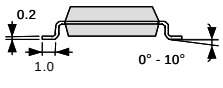


● RTC-62423 (SOP 24-pin)



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	
Storage temperature *	T_{STG}	RTC-62421	-55	+85	°C
		RTC-62423	-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}	Stored as bare product after unpacking	-40	+85	°C

Frequency characteristics

Item	Symbol	Condition		Range	Unit
Frequency precision	Δf /f	T_a=+25 °C V_{DD}=5.0 V	62421A	±10	$\times10^{-6}$
			62421B	±50	
			62423A	±20	
			62423	±50	
Frequency temperature characteristics	T_{OP}	-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}=4.5 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	V_{DD}=5 V	—	15	30	μA	—
	I_{DD2}		V_{DD}=2 V		1	1.8		—
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		STD.P
OFF leak current	I_{OFFLK}	V_I=V_{DD}/0 V			—	10/-10	μA	
Input capacity	C_I	Input frequency 1 MHz			5	—	pF	Input Pins
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

“3D STRATEGY” EPSON TOYOCOM

In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a “3D (three device) strategy” designed to drive both horizontal and vertical growth. We will to grow our three device categories of “Timing Devices”, ”Sensing Devices” and “Optical Devices”, and expand vertical growth through a combination of products from these categories.

Quartz devices have become crucial in the network environment where products are increasingly intended for broadband, ubiquitous applications and where various types of terminals can transfer information almost immediately via LAN and WAN on a global scale. Epson Toyocom Corporation addresses every single aspect within a network environment. The new corporation offers “Digital Convergence” solutions to problems arising with products for consumer use, such as, core network systems and automotive systems.

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Epson Toyocom, 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.
In the future, new group companies will be expected to acquire the certification around the third year of operations.

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

Epson Toyocom quickly began working to acquire company-wide ISO 9000 series certification, and has acquired ISO 9001 or ISO 9002 certification for all targeted products manufactured in Japanese and overseas plants.
Epson Toyocom has acquired QS-9000 certification, which is of a higher level.
Also, TS 16949 certification, which is also of a higher level, has been acquired.

QS-9000 is an enhanced standard for quality assurance systems formulated by leading U.S.automobile manufacturers based on the international ISO 9000 series.

ISO/TS 16949 is a global standard based on QS-9000, a severe standard corresponding to the requirements from the automobile industry.