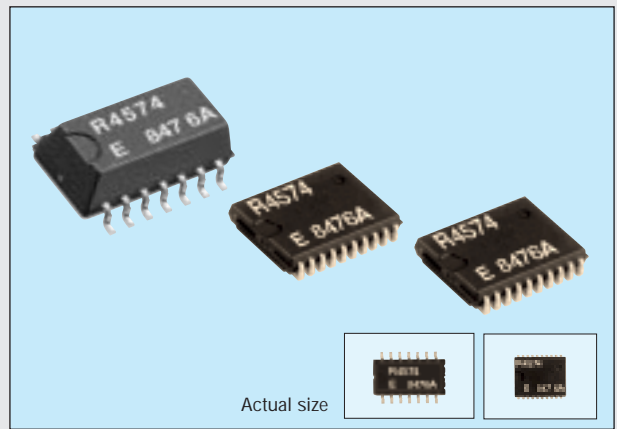


SERIAL RTC MODULE WITH ALARM AND TIMER FUNCTIONS

RTC-4574SA/JE

- Built-in 32.768KHz crystal oscillator with frequency adjusted.
- Serial interface which can be controlled by three signal lines.
- Alarm interrupt function for day of week, day, hour, and minute.
- Regular cycle interrupt function which can be set up between 1/4096 second and 255 minutes.
- Dedicated interrupt output of the two systems (alarm and regular cycle) which allows software masking.
- Ability to detect stopping of oscillation and time update.
- Automatic adjustment for leap year.
- Wide range of interface voltage between 1.6 and 5.5V.
- Wide range of clock voltage between 1.6 and 5.5V.
- Low power consumption at 0.5μA/3V. (Typ.)
- Available in two small packages: SOP14-pin and VSOJ20-pin. This is mostly suited for high density mounting.



Specifications (characteristics)

Absolute Max. rating

Item	Symbol	Condition	Min.	Max.	Unit
Supply voltage	V _{DD}	—	-0.3	+7.0	V
Input voltage	V _{IN}	Input Pin	GND-0.3	V _{DD} +0.3V	
Output voltage	V _{OUT1}	T _{IRQ} , A _{IRQ}		+8.0	
	V _{OUT2}	F _{OUT} , DATA		V _{DD} +0.3V	
Storage temperature	T _{STG}	—	-55	+125	°C

Operating conditions

Item	Symbol	Condition	Min.	Max.	Unit
Power voltage	V _{DD}	—	1.6	5.5	V
Clock voltage	V _{CLK}				
Operating temperature	V _{OPR}				
			-40	+85	°C

Oscillation characteristics

Item	Symbol	Condition	Range	Unit
Frequency tolerance	Δf/fo	T _a =25°C, V _{DD} =3V	5±23*	ppm
Frequency temperature characteristics	T _{OP}	T _a =-10 to +70°C, Reference at 25°C	+10 -120	
Frequency voltage characteristics	f _V	T _a =25°C, V _{DD} =1.6 to 5.5V	±2	ppm/V
Oscillation start up time	t _{STA}	T _a =25°C, V _{DD} =1.6 V	3	s
Aging	f _a	T _a =25°C, V _{DD} =3V	±5	ppm/year

*Equivalent to 1 minute of monthly deviation

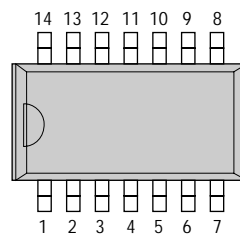
DC characteristics

(V_{DD}=1.6 to 5.5V, T_a=-40 to +85°C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit		
Input voltage	V _{IH}	CE ₀ , CE ₁ , CLK, DATA, F _{CON} pins	0.8V _{DD}	—	V _{DD}	V		
	V _{IL}		0		0.2V _{DD}			
Input leakage current	I _{LK}	V _I =GND or V _{DD} CE ₀ , CE ₁ , CLK, F _{CON} pins	-0.5		0.5	μA		
Pulldown R1	R _{DWN1}	V _{DD} =5V	75	150	300	kΩ		
Pulldown R2	R _{DWN2}	V _{DD} =3V						
Output voltage 1	V _{OH1}	V _{DD} =5V	GND	—	4.5	5.0		
	V _{OH2}	V _{DD} =3V			DATA, F _{OUT} pins		2.0	3.0
	V _{OH3}				I _{OH} =-100μA DATA, F _{OUT} pins		2.9	
Output voltage 2	V _{OL1}	V _{DD} =5V	GND	—	GND	GND+0.5		
	V _{OL2}	V _{DD} =3V				DATA, F _{OUT} pins	GND+0.8	
	V _{OL3}					I _{OH} =-100μA DATA, F _{OUT} pins	GND+0.1	
	V _{OL4}	V _{DD} =5V				I _{OH} =-1mA	GND+0.25	
	V _{OL5}	V _{DD} =3V				A _{IRQ} , T _{IRQ} pins	GND+0.4	
Leakage current	L _{OZ}	V _O =GND or V _{DD} , DATA, A _{IRQ} , T _{IRQ} pins	-0.5		0.5	μA		
Standby current 1	I _{DD1}	V _{DD} =5V		1.0	2.0	μA		
Standby current 2	I _{DD2}	V _{DD} =3V		0.5	1.0			

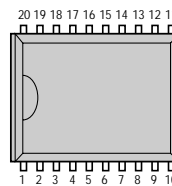
Terminal connection

RTC-4574SA



No.	4574SA	4574JE
1	GND	V _{DD}
2	F _{OUT}	F _{OUT}
3	N.C	CE ₀
4	N.C	A _{IRQ}
5	N.C	T _{IRQ}
6	N.C	CLK
7	V _{DD}	DATA
8	CE ₀	CE ₁
9	A _{IRQ}	F _{CON}
10	T _{IRQ}	GND
11	CLK	N.C
12	DATA	N.C
13	CE ₁	N.C
14	F _{CON}	N.C
15		N.C
16		N.C
17		N.C
18		N.C
19		N.C
20		N.C

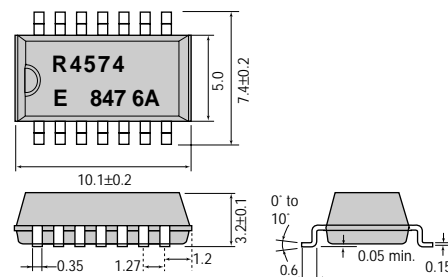
RTC-4574JE



External dimensions

(Unit: mm)

RTC-4574SA (SOP 14-pin)



RTC4574JE (VSOJ 20-pin)

