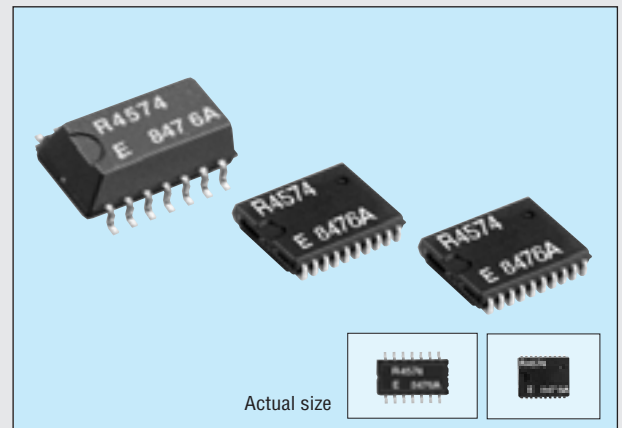


SERIAL RTC MODULE WITH ALARM AND TIMER FUNCTIONS

RTC-4574SA/JE

- Built-in crystal unit allows adjustment-free efficient operation.
- 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 5.5 V.
- Wide range of clock voltage between 1.6 and 5.5 V.
- Low power consumption at 0.5 μ A/3 V. (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} +0.3 V	
Output voltage	V _{OUT1} V _{OUT2}	TIRQ, AIRQ FOUT, DATA		+8.0 V _{DD} +0.3 V	
Storage temperature	T _{STG}	—	-55	+125	°C

Operating range

Item	Symbol	Condition	Min.	Max.	Unit
Power voltage	V _{DD}	—	1.6	5.5	V
Clock voltage	V _{CLK}				
Operating temperature	V _{OPR}				

Frequency characteristics

Item	Symbol	Condition	Range	Unit
Frequency tolerance	$\Delta f/f_0$	T _a =+25 °C, V _{DD} =3 V	5 \pm 23	x 10 ⁻⁶
Frequency temperature characteristics	T _{OP}	T _a =-10 °C to +70 °C, Reference at +25 °C	+10 -120	
Frequency voltage characteristics	f _V	T _a =+25 °C, V _{DD} =1.6 to 5.5 V	\pm 2	x 10 ⁻⁶ /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} =3 V	\pm 5	x 10 ⁹ /year

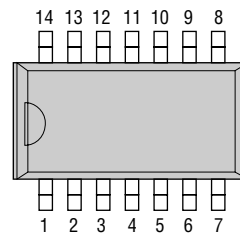
*Equivalent to 1 minute of monthly deviation

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

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Input voltage	V _{IH}	CE ₀ , CE ₁ , CLK, DATA, FCON 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 ₁ , CLK FCON pins	-0.5	—	0.5	μ A
Pulldown R1	R _{DWN1}	V _{DD} =5 V	75	150	300	k Ω
Pulldown R2	R _{DWN2}	V _{DD} =3 V	150	300	600	
Output voltage 1	V _{OH1}	V _{DD} =5 V	I _{OH} =-1 mA	4.5	5.0	V
	V _{OH2}	V _{DD} =5 V	DATA, FOUT pins	2.0		
	V _{OH3}		V _{DD} =3 V	I _{OH} =-100 μ A DATA, FOUT pins	2.9	
Output voltage 2	V _{OL1}	V _{DD} =5 V	I _{OL} =1 mA	GND	GND+0.5	V
	V _{OL2}	V _{DD} =5 V			DATA, FOUT pins	
	V _{OL3}		V _{DD} =3 V		I _{OL} =-100 μ A DATA, FOUT pins	
	V _{OL4}	V _{DD} =5 V	I _{OL} =1 mA		GND+0.25	
	V _{OL5}	V _{DD} =3 V	AIRQ, TIRQ pins		GND+0.4	
Leakage current	I _{OZ}	V _O =GND or V _{DD} , DATA, AIRQ, TIRQ pins	-0.5	—	0.5	μ A
Standby current 1	I _{DD1}	V _{DD} =5 V	CE ₀ , CE ₁ =GND	1.0	2.0	μ A
Standby current 2	I _{DD2}	V _{DD} =3 V	DATA, AIRQ, TIRQ pins	0.5	1.0	

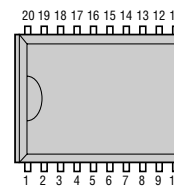
Terminal connection

RTC-4574SA



No.	4574SA	4574JE
1	GND	V _{DD}
2	FOUT	FOUT
3	N.C	CE ₀
4	N.C	AIRQ
5	N.C	TIRQ
6	N.C	CLK
7	V _{DD}	DATA
8	CE ₀	CE ₁
9	AIRQ	FCON
10	TIRQ	GND
11	CLK	N.C
12	DATA	N.C
13	CE ₁	N.C
14	FCON	N.C
15		N.C
16		N.C
17		N.C
18		N.C
19		N.C
20		N.C

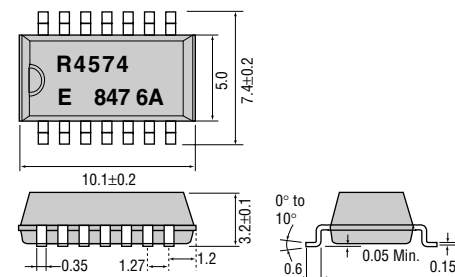
RTC-4574JE



External dimensions

(Unit: mm)

RTC-4574SA (SOP 14-pin)



RTC-4574JE (VSOJ 20-pin)

