

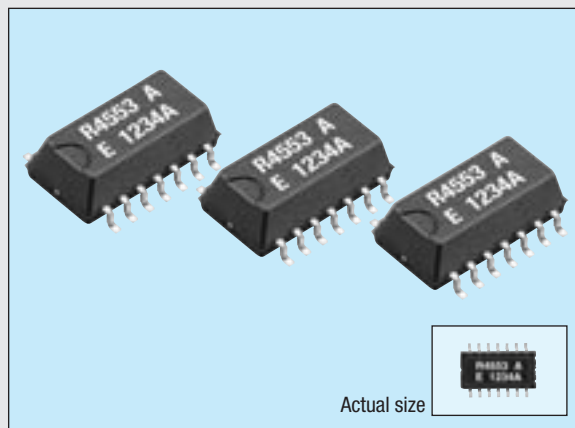
SERIAL-INTERFACE REAL TIME CLOCK MODULE WITH SRAM

RTC-4553

Product number (please refer to page 5)

Q4145535xxxx00

- Built-in 32.768 kHz crystal oscillator with high accuracy.
- Dual Alarm and Timer IRQ function are Available.
- 32.768 kHz clock frequency output. (Nch open drain)
- Low backup current : 0.48 μ A / 3 V (Typ.)
- Wide operating voltage range : 1.7 V to 5.5 V
- Wide timekeeper voltage range : 1.15 V to 5.5 V
- CPU interrupt generation function (cycle time range : 1 month to 0.5 seconds, includes interrupt flags and interrupt syop function)
- Oscillation stop detection function (used to determine presence of internal data)
- Power supply voltage monitoring function (with selectable detection threshold)
- Available for lead (Pb) - free soldering.
- Available for lead (Pb) - free treminal.



The details are mentioned in the application manual.

<http://www.epsondevice.com>

Specifications (characteristics)

Absolute Max. rating

Item	Symbol	Condition	Min.	Max.	Unit
Supply voltage	V _{DD}	V _{DD} to GND		+6.0	V
Input voltage	V _{IN}	S _{IN} , SCK, WR, CS ₀ , CS ₁	-0.3	V _{DD} +0.3	
Output voltage	V _{OUT}	S _{OUT} , T _{POUT}			
Storage temperature	T _{STG}	Stored as bare product after unpacking	-55	+125	°C

Operating range

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Power voltage	V _{DD}	—	2.7	5.0	5.5	V
Clock voltage	V _{CLK}	—	2.0	—	5.5	V
Operating temperature	V _{OPR}	No condensation	-30	—	+70	°C

Frequency characteristics

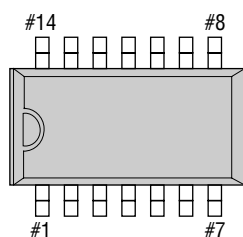
Item	Symbol	Condition	Range	Unit	
Frequency tolerance	$\Delta f/f$	T _a = +25 °C, V _{DD} = 5 V	AA	5 ±5	x 10 ⁻⁶
			A	5 ±10	
			B	5 ±20	
Oscillation start up time	t _{STA}	T _a = +25 °C, V _{DD} = 3.0 V	3.0 Max.	s	
Frequency temperature characteristics	T _{OP}	T _a = -10 °C to +70 °C, V _{DD} = 5 V Reference at +25 °C	+10 -120	x 10 ⁻⁶	
Frequency voltage characteristics	f/V	T _a = Fix, V _{DD} = 2 V to 5.5 V Reference at 5 V	±5		
Aging	fa	T _a = +25 °C, V _{DD} = 5 V, first year		x 10 ⁻⁶ / year	

DC characteristics (GND = 0 V, V_{DD} = 5 V ± 10 %, T_a = -30 °C to +70 °C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Current consumption	I _{DD1}	SCK = 500 kHz	—	—	100	μ A
	I _{DD2}	SCK = 0 Hz	—	1.0	3.0	
Output voltage	V _{OH}	I _{OH} = -400 μ A	V _{DD} -0.4	—	—	V
	V _{OL}	I _{OL} = 1.6 mA	—	—	0.4	
Off leak current	I _{OZH}	V _{OUT} = 5.5 V	-2.0	—	2.0	μ A
	I _{OZL}	V _{OUT} = 0 V	—	—	—	
Input voltage	V _{IH}	—	4/5 V _{DD}	—	—	V
	V _{IL}	—	—	—	1/5 V _{DD}	
Input current	I _{IH}	V _{IN} = 5.5 V	-2.0	—	2.0	μ A
	I _{IL}	V _{IN} = 0 V	—	—	—	

Terminal connection

RTC-4553



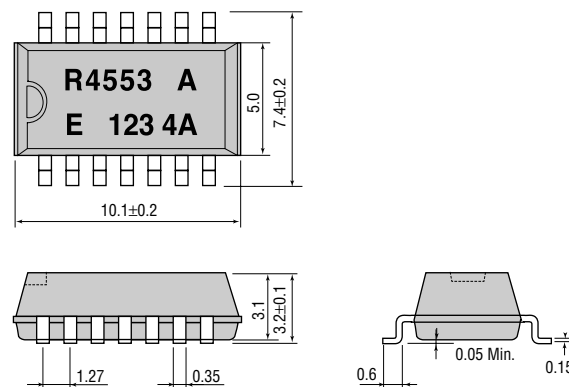
No.	Pin terminal	No.	Pin terminal
1	GND	14	T _{POUT}
2	WR	13	S _{OUT}
3	S _{IN}	12	CS ₁
4	SCK	11	CS ₀
5	L1	10	L5
6	L2	9	L4
7	L3	8	V _{DD}

L1 to L5 are test pin. Do not connect them to any terminals.

External dimensions

(Unit: mm)

RTC-4553 (SOP 14-pin)



Metal may be exposed on the top or bottom of this product. This won't affect any quality, reliability or electrical spec.

Block diagram

