

ATTN: Epson America Customers and Partners

SEIKO EPSON CORPORATION
Sales & Marketing Division.
MD Sales & Marketing Department.
MICRODEVICES Operations Division.
MD Production Control & Procurement Dept.

SUB: RX4111CE/RX8111RX Specification Revision

Dear Valued Customer:

Thank you for choosing SEIKO EPSON CORP. Timing Products as your preferred choice. As part of our commitment to delivering exceptional quality, SEIKO EPSON CORP. continuously strives to enhance the characteristics and performance of our products.

In this regard, we would like to inform you of changes regarding the specification of the temperature range of RTC Models RX4111CE and RX8111CE. We are updating the specification of with an extension of the operating temperature range from -40~+85°C to -40~+105°C.

1. Products Affected

Product Name	P/N	New P/N
RX4111CE A	X1B0004310001 xx	No Change
RX4111CE B	X1B0004310002 xx	No Change
RX8111CE A	X1B0004210001 xx	No Change
RX8111CE B	X1B0004210002 xx	No Change

2. Change point

	Current	New
Operation Temperature Range	40°C (Min)~+85°C(Max)	40°C(Min)~+105°C(Max)
Current consumption 1 (I _{DD})	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)
Current Consumption 2 (I _{32K})	2.0μA(Typ),3.0μA(Max)	2.0μA(Typ),3.0μA,(Max@85°C),3.5μA(Max@105°C)
Current Consumption 3 (I _{BAT})	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)

3. Current Specifications

Recommended Operating Conditions

Unless otherwise specified, VBAT = VDD = VIO = 1.6V to 5.5 V, Ta = -40°C to +85°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating supply Voltage	VDD	Supply from VDD	1.25	3.0	5.5	V
Interface supply voltage	VIO	VDD=1.6 V to 5.5 V	1.6	3.0	5.5	V
Clock supply voltage	VCLK	Supply from VBAT	VVLF	3.0	5.5	V
VLF detection voltage	VVLF	VOOUT low detection Voltage	-	-	1.1	V
Operating temperature	Ta	No condensation	-40	+25	+85	°C

VCLK: Min. is available by initializing in VDD ≥ VDET1.

When first Power ON, for internal initializing, VDD must be more than 1.45V: +VDET1.

Electrical Characteristics

DC Characteristics

Unless otherwise specified, VBAT = VDD = VIO = 1.6 V to 5.5 V, Ta = -40 °C to +85 °C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Current consumption 1	IDD	SCL = SDA = High, FOUT = OFF, /INT = OFF VDD = VOOUT = VBAT = VIO = 3.0 V -40 °C to +85°C CHGEN = 0b, INIEN = 0b		100	450	nA
Current consumption 2	I32k	SCL = SDA = High FOUT = 32.768 kHz, /INT = OFF VDD = VIO = 3.0 V, -40 °C to +85 °C FOUT pin CL = 15 pF CHGEN = 0b INIEN = 1b		2.0	3.0	uA
Current consumption 3	IBAT	SCL = SDA = Low FOUT = OFF, /INT = OFF VBAT = 3.0V VDD = VIO = 0.0		110	450	nA

Revised Specifications

Recommended Operating Conditions

Recommended Operating Conditions

Unless otherwise specified, VBAT = VDD = VIO = 1.6V to 5.5 V, Ta = -40°C to +105°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating supply Voltage	VDD	Supply from VDD	1.25	3.0	5.5	V
Interface supply voltage	VIO	VDD=1.6 V to 5.5 V	1.6	3.0	5.5	V
Clock supply voltage	VCLK	Supply from VBAT	VVLF	3.0	5.5	V
VLF detection voltage	VVLF	VOOUT low detection Voltage	-	-	1.1	V
Operating temperature	Ta	No condensation	-40	+25	+105	°C

VCLK: Min. is available by initializing in VDD ≥ VDET1.

When first Power ON, for internal initializing, VDD must be more than 1.45V: +VDET1.

Electrical Characteristics

Unless otherwise specified, $V_{BAT} = V_{DD} = V_{IO} = 1.6 \text{ V to } 5.5 \text{ V}$, $T_a = -40^\circ\text{C to } +105^\circ\text{C}$

Unless otherwise specified, V _{BAT} = V _{DD} = V _{IO} = 1.6 V to 5.5 V, T _a = -40 °C to +105 °C							
Item	Symbol	Condition		Min.	Typ.	Max.	Unit
Current consumption 1	IDD	SCL = SDA = High FOUT = OFF /INT = OFF VDD = VIO = 3.0 V CHGEN = 0b, INIEN = 0b	-40°C to +85°C	—	100	450	nA
			-40°C to +105°C	—	100	1000	
Current consumption 2	I32k	SCL = SDA = High FOUT = 32.768kHz /INT = OFF VDD = VIO = 3.0V FOUT pin CL = 15pF CHGEN = 0b, INIEN = 1b	-40°C to +85°C	—	2.0	3.0	uA
			-40°C to +105°C	—	2.0	3.5	
Current consumption 3	IBAT	SCL = SDA = Low VDD = VIO = 0.0 V VBAT = 3.0 V	-40°C to +85°C	—	110	450	nA
			-40°C to +105°C	—	110	1000	

There is no change in the materials, production process, characteristics, and reliability due to these changes.

4. Reason

This product can be considered for use in high-temperature environments, mainly in industrial equipment.

5. Schedule

From October 5th, 2023 documents on the website and new issue specifications will be updated with the new information.

6. Conclusion

If you have any questions or need further information regarding this ECN notice, please feel free to contact your local EPSON device sales office.

Sincerely yours,

Epson America, Inc.

Part Number	Epson Global Part Number	Change Point	Current	New
RX4111CE A3	X1B000431000112	Operation Temperature Range	40°C (Min)~+85°C(Max)	40°C(Min)~+105°C(Max)
RX4111CE A6	X1B000431000115	Operation Temperature Range	40°C (Min)~+85°C(Max)	40°C(Min)~+105°C(Max)
RX4111CE AB	X1B000431000101	Operation Temperature Range	40°C (Min)~+85°C(Max)	40°C(Min)~+105°C(Max)
RX4111CE B3	X1B000431000212	Current consumption 1 (IDD)	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)
RX4111CE B6	X1B000431000215	Current consumption 1 (IDD)	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)
RX4111CE BB	X1B000431000201	Current consumption 1 (IDD)	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)
RX8111CE A0	X1B000421000114	Current Consumption 2 (I32K)	2.0μA(Typ),3.0μA(Max)	2.0μA(Typ),3.0μA,(Max@85°C),3.5μA(Max@105°C)
RX8111CE A3	X1B000421000112	Current Consumption 2 (I32K)	2.0μA(Typ),3.0μA(Max)	2.0μA(Typ),3.0μA,(Max@85°C),3.5μA(Max@105°C)
RX8111CE A6	X1B000421000115	Current Consumption 2 (I32K)	2.0μA(Typ),3.0μA(Max)	2.0μA(Typ),3.0μA,(Max@85°C),3.5μA(Max@105°C)
RX8111CE AB	X1B000421000101	Current Consumption 2 (I32K)	2.0μA(Typ),3.0μA(Max)	2.0μA(Typ),3.0μA,(Max@85°C),3.5μA(Max@105°C)
RX8111CE B0	X1B000421000214	Current Consumption 3 (IBAT)	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)
RX8111CE B3	X1B000421000212	Current Consumption 3 (IBAT)	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)
RX8111CE B6	X1B000421000215	Current Consumption 3 (IBAT)	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)
RX8111CE BB	X1B000421000201	Current Consumption 3 (IBAT)	100nA(Typ),450nA(Max)	100nA(Typ),450nA(Max@85°C),1000nA(Max@105°C)