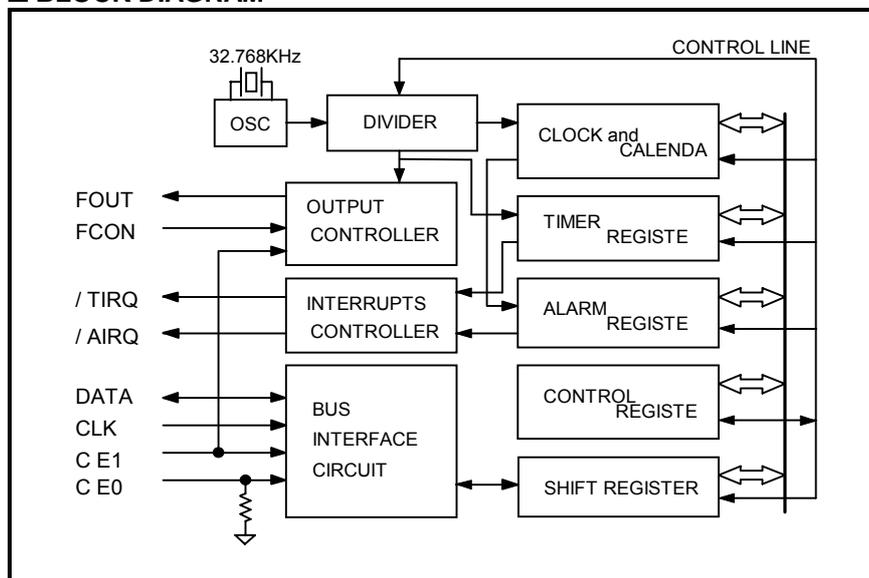## For Automotive Applications, Serial RTC with Alarm and Timer
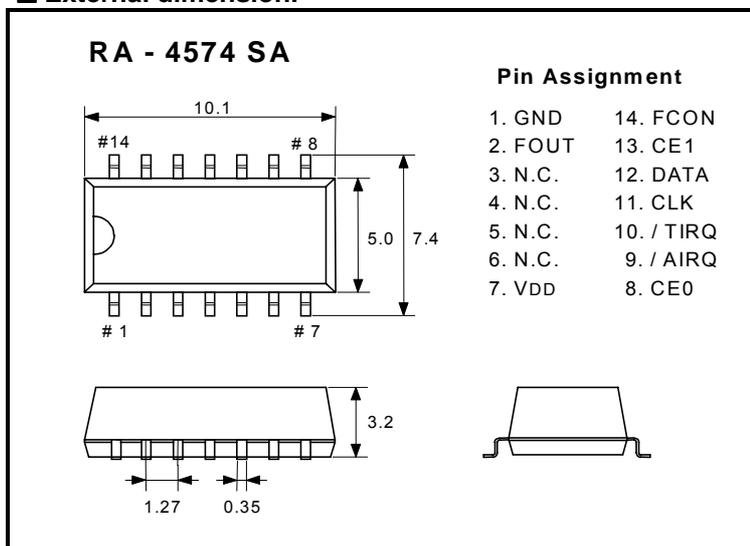
RA - 4574 SA

Product number: Q41A4745xxxxx00

- It is suitable for the car accessories.
- Built-in frequency adjusted 32.768KHz crystal oscillator.
- Serial interface that can be controlled through three signal lines.
- Week , Day , hour , and minute alarm interrupt functions.
- Interval timer interrupt function that can be set with an rate from 1/4096 second to 255minutes.
- Selectable frequency outputs function.
- Each detection function in oscillation stop, time renewal
- Automatic leap year compensation function
- Wide interface voltage range, from 1.6 to 5.5V
- Wide timing voltage range, from 1.6 to 5.5V
- Low current consumption : 0.5µA/3V (typ.)
- Small package (SA : SOP-14 pin)

■ BLOCK DIAGRAM

■ External dimension.

RA - 4574 SA

Pin Assignment

1. GND	14. FCON
2. FOUT	13. CE1
3. N.C.	12. DATA
4. N.C.	11. CLK
5. N.C.	10. / TIRQ
6. N.C.	9. / AIRQ
7. VDD	8. CE0

■ Pin Functions.

SYMBOL	Pin No. SA	Functions
GND	1	GND
FOUT	2	Frequency outputs.
VDD	7	VDD
CE 0	8	Chip enable0.
/ AIRQ	9	Alarm interrupts output.
/ TIRQ	10	Timer interrupts output
CLK	11	Clock input.
DATA	12	Data input,output.
CE 1	13	Chip enable1.
FCON	14	FOUT control input.

■ Characteristics.

1. Absolute Max. rating

Item	Symbol	Conditions.	Specifications	Unit
Operating voltage.	VDD	——	1.6 to 5.5	V
Clock backup voltage.	VCLK	——	1.6 to 5.5	V
Operating temperature.	TOPR	No condensation	- 40 to +85	°C

2.Frequency characteristics.

Item	Symbol	Conditions	Specifications	Unit
Frequency accuracy	$\Delta f / fo$	Ta=25°C,VDD=3V	5 ± 23 *	$X\ 10^{-6}$
Temperature characteristics		-10 to 70°C 25°C	+10 / -120	$X\ 10^{-6}$
Aging		Ta=25°C,VDD=3V	± 5.0	$X\ 10^{-6}$

* Monthly error of about 1 minute

3.Current characteristics.

Item	Symbol	Conditions		Min.	Typ.	Max.	Unit
Supply Current 1	IDD1	VDD=5V	CE0,CE1=GND. DATA,/AIRQ,/TIRQ =VDD		1.0	2.0	µA
Supply Current 2	IDD2	VDD=3V			0.5	1.0	µA

■ Register table

Address	Function	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
0	Sec	fos	40	20	10	8	4	2	1
1	Min.	fr	40	20	10	8	4	2	1
2	Hour	fr	*	20	10	8	4	2	1
3	Week	fr	6	5	4	3	2	1	0
4	Day	fr	*	20	10	8	4	2	1
5	Month	fr	*	*	10	8	4	2	1
6	Year	80	40	20	10	8	4	2	1
7	Alarm min.	AE	40	20	10	8	4	2	1
8	Alarm Hour.	AE	*	20	10	8	4	2	1
9	Alarm of week.	AE	6	5	4	3	2	1	0
A	Alarm day.	AE	*	20	10	8	4	2	1
B	Frequency output control	FE	*	FD4	FD3	*	FD2	FD1	FD0
C	Timer control	TE	*	TD1	TD0	*	*	*	*
D	Timer	128	64	32	16	8	4	2	1
E	Control 1	*	*	*	TI/TP	AF	TF	AIE	TIE
F	Control 2	*	TEST	STOP	RESET	HOLD	*	*	*

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SEIKO EPSON CORPORATION

ELECTRONIC DEVICE MARKETING DEPARTMENT

EPSON ELECTRONICS AMERICA, INC.
       150 River Oaks Parkway, San Jose, CA 95134, U.S.A.
       Phone: (1)800-228-3964 (Toll free) : (1)408-922-0200   Fax: (1)408-922-0238
EPSON EUROPE ELECTRONICS GmbH
       Riesstrasse 15, 80992 Munich, Germany
       Phone: (49)-(0)89-14005-0 Fax: (49)-(0)89-14005-110
EPSON (CHINA) CO., LTD.
       23F, Beijing Silver Tower 2# North RD DongSangHuan ChaoYang District, Beijing, China
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       14F, No.7, Song Ren Road, Taipei 110
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EPSON SINGAPORE PTE. LTD.
       No.1, Temasek Avenue #36-00, Millenia Tower, Singapore 039192
       Phone: (65) 337-7911 Fax: (65) 334-2716
SEIKO EPSON CORPORATION KOREA Office
       50F, KLI 63 Building,60 Yoido-dong, Youngdeungpo-Ku, Seoul, 150-763, Korea
       Phone: (82) 2-784-6027 Fax: (82) 2-767-3677

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