

OVERVIEW

The CF5750 series are analog clock driver ICs using 32.768kHz reference frequency of crystal oscillator. Some versions in accordance with the combinations of each motor drive characteristics can provide a wide range of applications for various clock specifications.

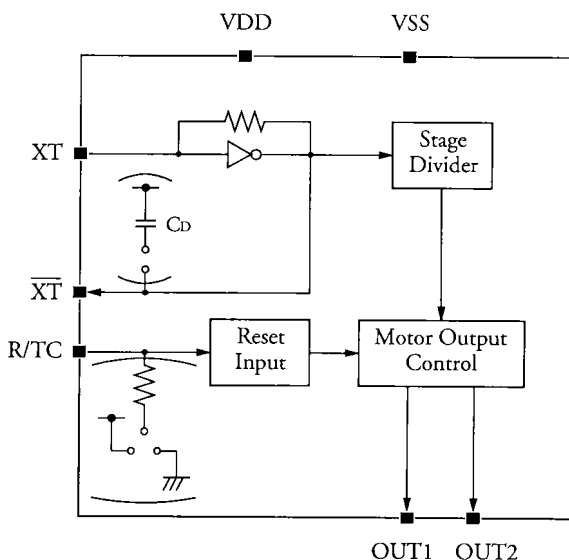
FEATURES

- Operating voltage 1.2 to 2.0V
- Low current 1.2 μ A(typ)/1.5V
- Built-in oscillator circuits (32.768 kHz)
Built-in crystal oscillator capacitors (C_D)
- Motor output
Various motor output
- Reset function
- Input debounce function (R/TC)
- Chip form (CF5750 $\times$)

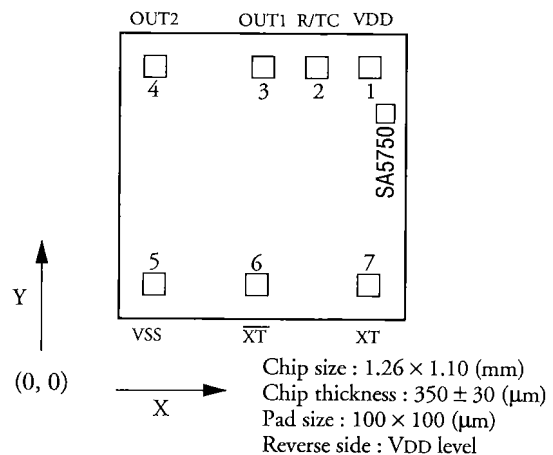
SERIES LINEUP

		CF5750A	CF5750C	CF5750D
Built-in Capacitor	XT terminal C _G (pF)	—	—	—
	$\overline{\text{XT}}$ terminal C _D (pF)	34	34	34
Reset Input	Active Level	High	Low	Low
		(Pull-down resistor)	(Pull-up resistor)	(Pull-up resistor)
Motor Output	Active Level	High	High	High
	Hand Drive Cycle t _{CH} (sec)	1	0.125	1
	Pulse Width t _{PH} (msec)	27.34375	62.5	46.875

BLOCK DIAGRAM



PAD LAYOUT (Top view)



CF5750 series

PAD DESCRIPTION (Unit : μm)

No.	Name	Description	Dimensions	
			X	Y
1	VDD	Power supply pin	1081	969
2	R/TC	Reset/Test Clock Input	850	969
3	OUT1	Motor drive output 1	606	969
4	OUT2	Motor drive output 2	156	969
5	VSS	Ground	156	145
6	$\overline{\text{XT}}$	Crystal oscillator connection	571	145
7	XT	Crystal oscillator connection	1081	145

ABSOLUTE MAXIMUM RATINGS

(VSS = 0V, unless otherwise noted.)

Parameter	Symbol	Condition	Rating	Unit
Supply Voltage	VDD - VSS		-0.3 to 5.0	V
Input Voltage	VIN		$V_{SS} \leq V_{IN} \leq V_{DD}$	V
Operating Temperature	TOPR		-30 to 80	°C
Storage Temperature	TSTG		-65 to 150	°C

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, VDD = 1.5V, VSS = 0V, X'tal(f0 = 32.768kHz Ci ≤ 35kΩ) unless otherwise noted.)

Parameter	Symbol	Condition	Limit			Unit
			MIN	TYP	MAX	
Supply Voltage	VDD		1.2	1.5	2.0	V
Supply Current	IDD	OUT1, OUT2 = Open		1.2	4.0	μA
Oscillator Startup Time	tSTA	VDD = 1.2V			5.0	sec
Motor Output Current	IMOT	VDD = 1.2V, RL = 400Ω (Note.1)	2.4			mA
Input Resistance (R/TC)	RIN	(Note.2)	200		1200	kΩ
Oscillator Stability	$\Delta f/f$	VDD = 1.2V to 2.0V			1.0	PPM/0.1V
Internal Capacitor	CG			—		pF
	CD			(Note.3)		pF

Note.1

RL is resistor of motor coil, that connect OUT1 between OUT2.

Note.2

RIN = VDD / IIS. IIS is current that flow into VSS from R/TC, when R/TC short VSS.

(R/TC build-in pull-up resistor.)

Note.3

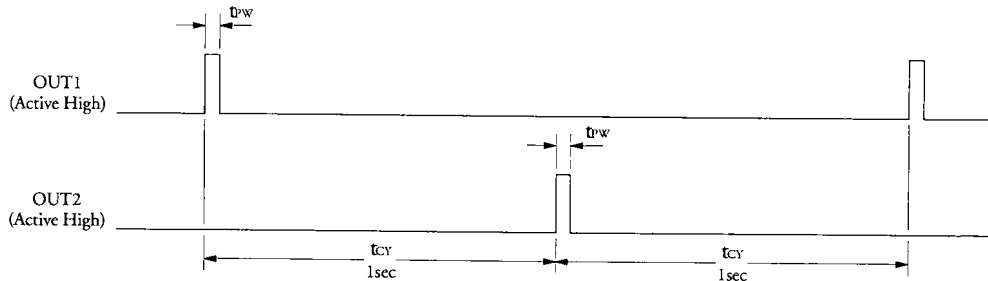
CD is internal capacitor between VDD and XT.

CG can't build-in capacitor between VDD and $\overline{\text{XT}}$.

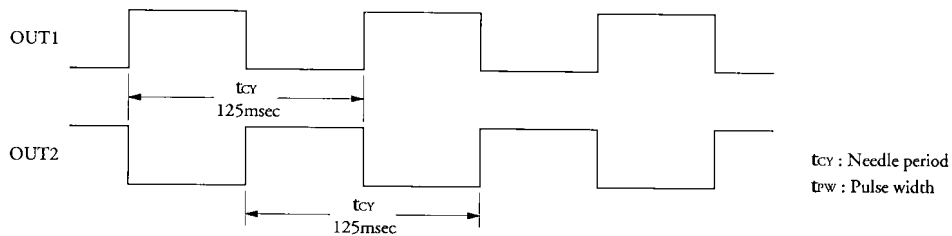
FUNCTIONAL DESCRIPTION

Motor Output

Stepping motor drive type



Sweeping motor drive type



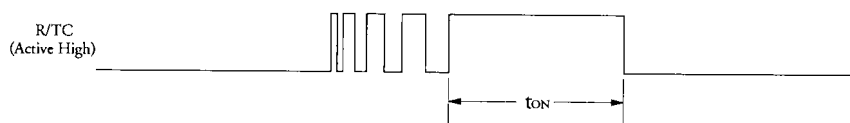
Input Debounce Function (R/TC)

Setting bouncing delay time prevents the circuit from the erroneous operation by R/TC input bouncing.

$t_{on} < 62.5 \text{ msec}$: Reset input is ignored

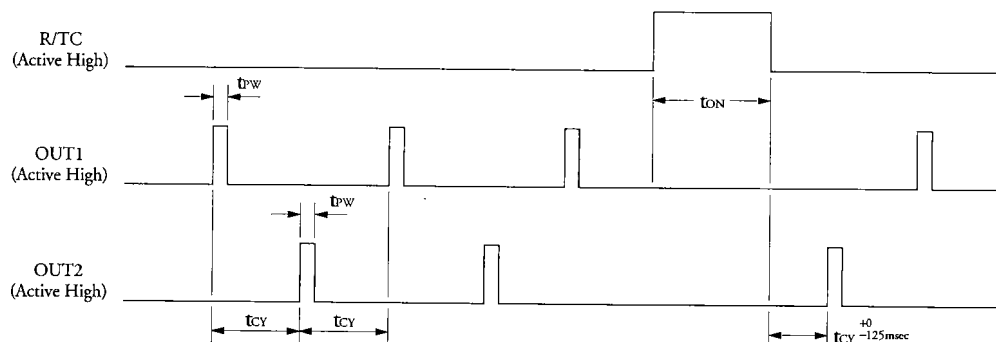
$62.5 \leq t_{on} \leq 125 \text{ msec}$: Reset input is ignored or accepted

$t_{on} > 125 \text{ msec}$: Reset input is accepted



Reset Function

R/TC goes to active level when motor output can be stopped. Motor output(OUT1,OUT2) restart of another stopped output after reset off.

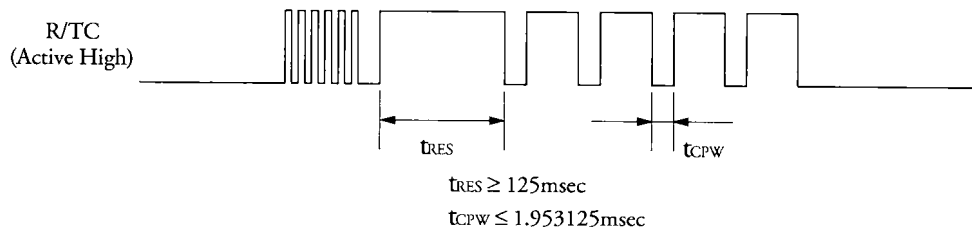


CF5750 series

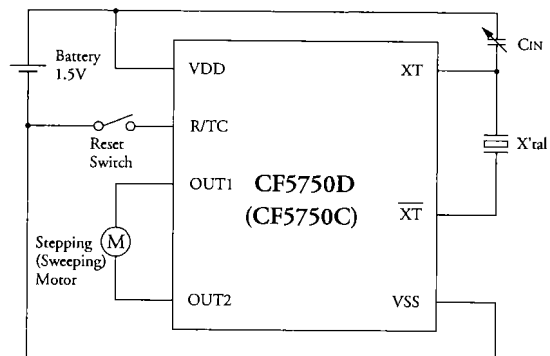
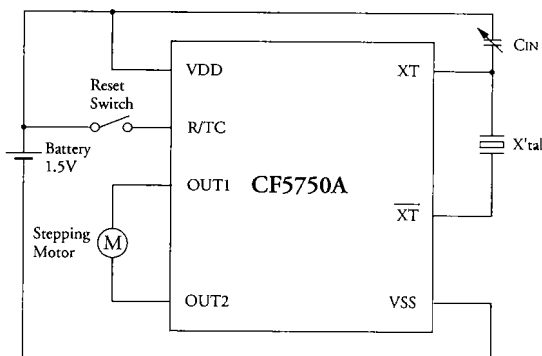
Test Function

Gain fast function

R/TC is active level more than 125 msec. And R/TC input outside clock when motor output gain fast. t_{CPW} is more less than 1.953125 msec.



APPLICATION CIRCUITS



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