

Clock generator for personal computers

BU2192F

The BU2192F is a clock generator IC for personal computers, and uses a single crystal resonator to generate the three clock signals needed for personal computers.

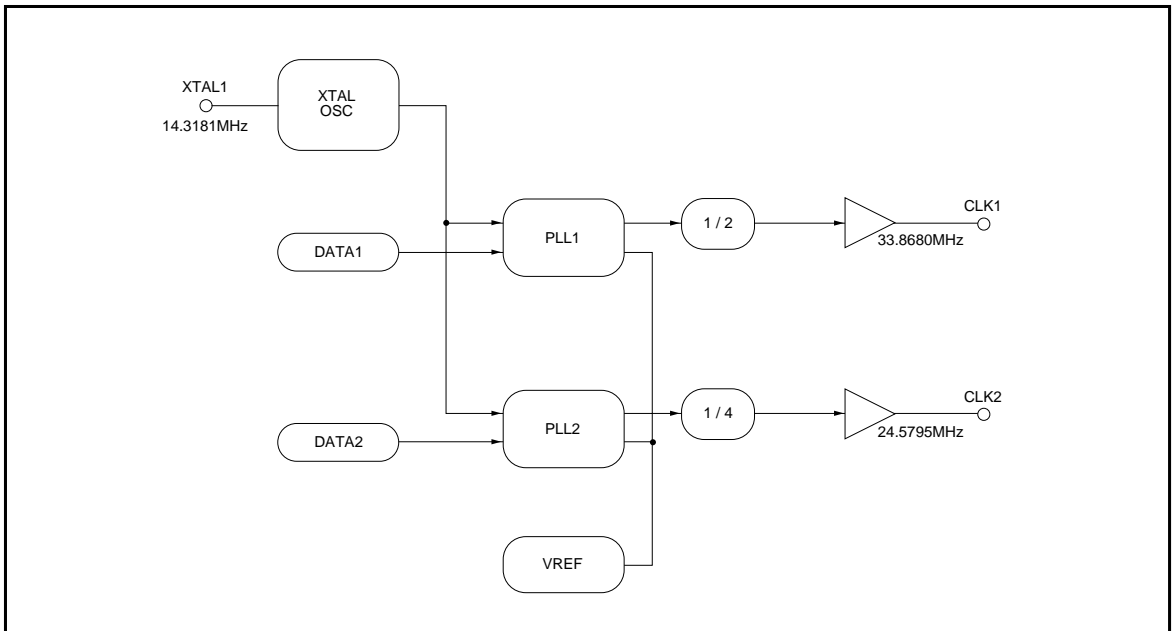
●Applications

Personal computers

●Features

- 1) Clock signals of two different types can be generated with a single attached crystal generator.
- 2) Internal PLL loop filter, eliminating the need for an attached component.
- 3) Single 5V power supply.
- 4) SOP 8-pin package.

●Block diagram

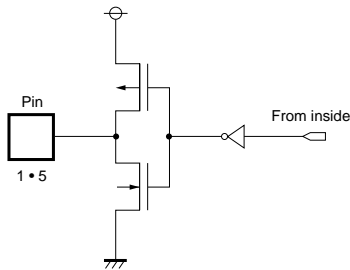


●Pin descriptions

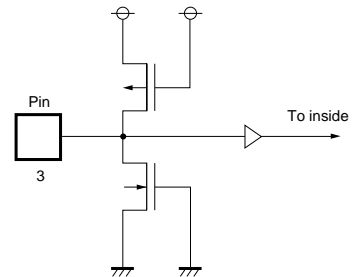
Pin No.	Pin name	Function	Circuit
1	CLK2	Clock output 2 (f2 = 24.5795MHz)	A
2	GND	GND	—
3	XTAL I	Reference oscillation input	B
4	N.C.	—	—
5	CLK1	Clock output 1 (f1 = 33.8680MHz)	A
6	N.C.	—	—
7	DV _{DD}	Digital power supply	—
8	AV _{DD}	Analog power supply	—

●Input / output circuits

Type A



Type B



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Applied voltage	V _{DD}	- 0.5 ~ + 7.0	V
Input voltage	V _{IN}	- 0.5 ~ V _{DD} + 0.5	V
Storage temperature	T _{stg}	- 30 ~ + 125	°C
Power dissipation	P _d	450*	mW

○ Do not represent guaranteed performance.

* Reduced by 4.5mW for each increase in Ta of 1°C over 25°C.

○ Not designed for radiation resistance.

●Recommended operating conditions (Ta = 25°C)

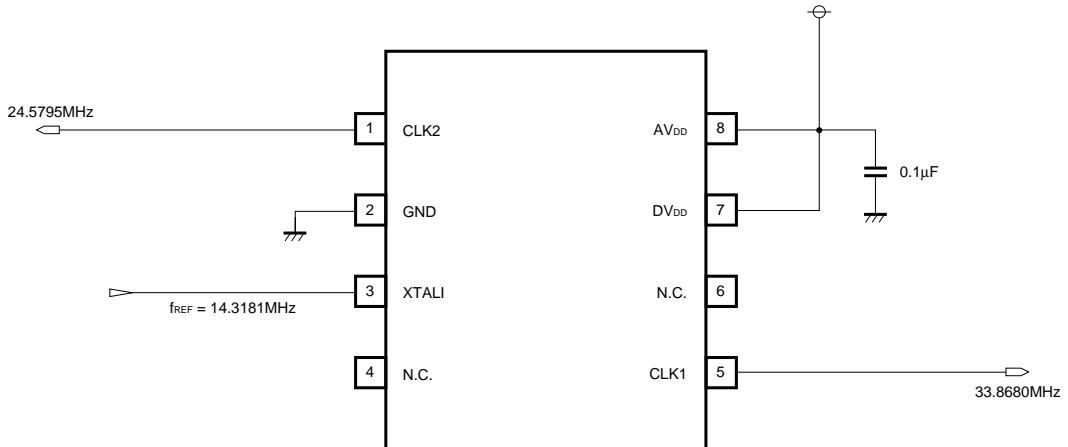
Parameter	Symbol	Limits	Unit
Power supply voltage	V _{DD}	- 4.5 ~ + 5.5	V
Input high level voltage	V _{IH}	0.8 × V _{DD} ~ V _{DD}	V
Input low level voltage	V _{IL}	0.0 ~ 0.2 × V _{DD}	V
Operating temperature	T _{opr}	- 5 ~ + 70	°C
Output load	CL	15 (Max.)	pF

●Electrical characteristics (unless otherwise noted, Ta = 0 to 70°C, V_{DD} (AV_{DD}) = 4.5V to 5.5V, CL ≤ 15pF, XTALI [f_{REF}] = 14.3181MHz)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input V _{th} XTALI	V _{th}	0.8	—	2.2	V	—
Output low level voltage	V _{OL}	—	—	0.4	V	I _{OL} = 4.0mA
Output high level voltage	V _{OH}	V _{DD} - 0.5	—	—	V	I _{OL} = - 4.0mA
Operating circuit current	I _{DD}	—	30	50	mA	f _{REF} = 14.3181MHz, no load
Output frequency 1	f1	- 100ppm	33.8680	+ 100ppm	MHz	f _{REF} × 123 / 26 / 2
Output frequency 2	f2	- 100ppm	24.5795	+ 100ppm	MHz	f _{REF} × 103 / 15 / 4
Rise time	t _R	—	—	5	nsec	V _{DD} × 0.2 to V _{DD} × 0.8
Fall time	t _F	—	—	5	nsec	V _{DD} × 0.8 to V _{DD} × 0.2
Jitter	J1s	—	80	250	psec	1 sigma
Jitter	Jabs	—	300	1	nsec	MIN-MAX width
Power up time	t _{PT}	—	—	10	msec	*
Duty	Duty	45	50	55	%	Measure with V _{th} = 1 / 2V _{DD}

* The time for the output to stabilize after the power supply reaches 90% after being turned on. However, if the power supply rise (to rise condition) takes the entire time, this requirement is satisfied.

●Application example



●External dimensions (Units: mm)

