

QUARTZ CRYSTAL OSCILLATOR

■ GENERAL DESCRIPTION

The NJU6323 series is a C-MOS quartz crystal oscillator which consists of an oscillation amplifier, 3-stage divider, output frequency selector and 3-state output buffer.

The oscillation frequency is as wide as up to 50MHz and the symmetry of 45-55% is realized over full oscillation frequency range.

The oscillation amplifier incorporates feed-back resistance and oscillation capacitors(C_g , C_d), therefore, it requires no external component except quartz crystal.

The 3-stage divider outputs f_0 , $f_0/2$, $f_0/4$ and $f_0/8$ to the output frequency selector and it determined one output frequency according to the combination of two input-signal.

The 3-state output buffer is C-MOS compatible and capable of 10 LSTTL driving.

■ PACKAGE OUTLINE



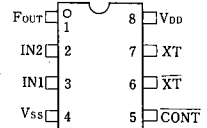
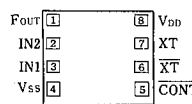
NJU6323XC



NJU6323XE

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■ PIN CONFIGURATION/PAD LOCATION



■ FEATURES

- Operating Voltage -- 3.0~6.0V
- Maximum Oscillation Frequency -- 50MHz
- Low Operating Current
- High Fan-out -- LSTTL 10
- 3-state Output Buffer
- Selected Frequency Output (mask option)
Only one frequency out of f_0 , $f_0/2$, $f_0/4$ and $f_0/8$ output
- Oscillation Capacitors C_g and C_d on-chip
- Oscillation and/or Output Stand-by Function
- Package Outline -- CHIP/EMP 8
- C-MOS Technology

■ COORDINATES

Unit: μm

No.	PAD	X	Y
1	FOUT	165	651
2	IN2	165	484
3	IN1	165	317
4	VSS	165	149
5	CONT	1113	149
6	XT	1113	317
7	XT	1113	484
8	VDD	1113	651

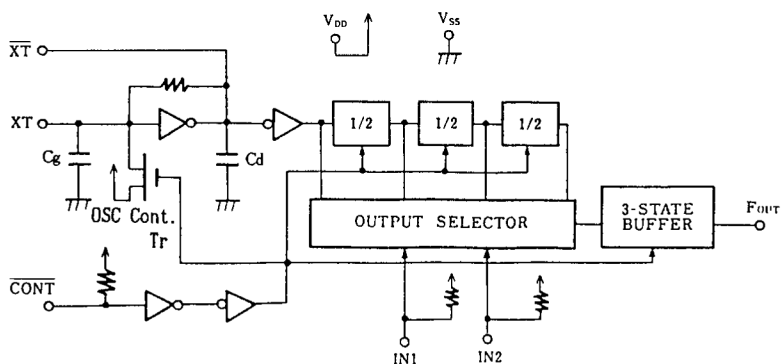
Chip Size : 1.28 X 0.8mm

Chip Thickness : $400\mu\text{m} \pm 30\mu\text{m}$

■ LINE-UP TABLE

Type No.	C_g	C_d	Osc.Stop Function
NJU6323	21pF	23pF	Yes
NJU6323J	21pF	No	Yes
NJU6323P	No	No	Yes

■ BLOCK DIAGRAM



■ TERMINAL DESCRIPTION

NO.	SYMBOL	F U N C T I O N			
5	CONT	Oscillation Stop Control and Divider Reset			
		CONT	F _{OUT}		
		H	Output either one frequency from f ₀ , f ₀ /2, f ₀ /4, and f ₀ /8		
		L	Oscillation Stop, Output High Impedance and Divider Reset		
6	XT	Quartz Crystal Connecting Terminals			
7	XT				
8	V _{DD}	+ 5V			
3	IN1	3-Stage Divider Outputs Selected by IN1 and IN2			
2	IN2		IN1	IN2	F _{OUT}
			H	H	f ₀
			L	H	f ₀ /2
			H	L	f ₀ /4
			L	L	f ₀ /8
1	F _{OUT}	Output either one frequency from f ₀ , f ₀ /2, f ₀ /4, and f ₀ /8			
4	V _{SS}	GND			

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

P A R A M E T E R	S Y M B O L	R A T I N G S	U N I T
Supply Voltage	V _{DD}	-0.5 ~ +7.0	V
Input Voltage	V _{IN}	-0.5 ~ V _{DD} +0.5	V
Output Voltage	V _O	-0.5 ~ V _{DD} +0.5	V
Input Current	I _{IN}	±10	mA
Output Current	I _O	±25	mA
Power Dissipation (EMP)	P _D	200	mW
Operating Temperature Range	Topr	-40 ~ + 85	°C
Storage Temperature Range	Tstg	-65 ~ +150	°C

(Note) Decoupling capacitor should be connected between V_{DD} and V_{SS} due to the stabilized operation for the circuit.

ELECTRICAL CHARACTERISTICS

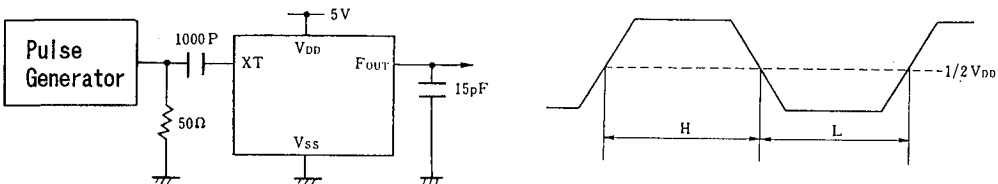
($T_a=25^{\circ}\text{C}$, $V_{DD}=5\text{V}$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V_{DD}		3		6	V
Operating Current	I_{DD}	$f_{osc}=16\text{MHz}$, No load			10	mA
Stand-by Current	I_{st}	CONT, XT= V_{SS} , No load (Note)			1	μA
Input Voltage	V_{IH}		3.5		5.0	V
	V_{IL}		0		1.5	
Output Current	I_{OH}	$V_{DD}=5\text{V}$, $V_{OH}=4.5\text{V}$	4			mA
	I_{OL}	$V_{DD}=5\text{V}$, $V_{OL}=0.5\text{V}$	4			
Input Current	I_{IN}	CONT, IN1, IN2 Terminals CONT, IN1, IN2= V_{SS}			400	μA
Internal Capacitor	C_g	Refer to Line-Up Table.				pF
	C_d					
Max. Oscillation Freq.	f_{MAX}	$V_{DD}=5\text{V}$, $C_L=15\text{pF}$	50			MHz
Output Signal Symmetry	SYM	$V_{DD}=5\text{V}$, $C_L=15\text{pF}$ at $1/2V_{DD}$	45	50	55	%
Output Signal Rise Time	t_r	$V_{DD}=5\text{V}$, $C_L=15\text{pF}$, 10% - 90%			8	ns
Output Signal Fall Time	t_f	$V_{DD}=5\text{V}$, $C_L=15\text{pF}$, 90% - 10%			8	ns

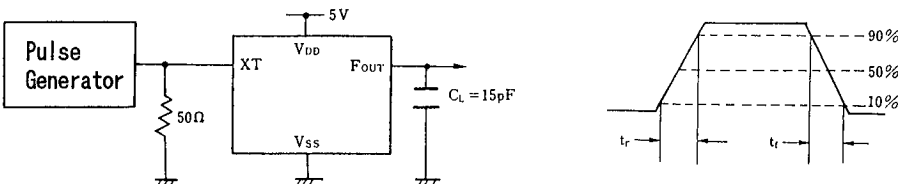
Note) Excluding input current on CONT terminal.

MEASUREMENT CIRCUITS

(1) Output Signal Symmetry ($C_L=15\text{pF}$)



(2) Output Signal Rise/Fall Time ($C_L=15\text{pF}$)



NJU6323 Series

MEMO

[CAUTION]

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