

QUARTZ CRYSTAL OSCILLATOR

■ GENERAL DESCRIPTION

The NJU6339 series is a C-MOS quartz crystal oscillator which consists of an oscillation amplifier, 3-stage divider and 3-state output buffer.

This series are classed into three groups A to D, H to L and Q to T according to their oscillation frequency range mentioned in the line-up table.

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 generates f_0 , $f_0/2$, $f_0/4$ and $f_0/8$ and only one frequency selected by internal circuits is output.

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

The difference between NJU6339 and NJU6332 series is pin configuration only.

■ FEATURES

- Operating Voltage. -- 4.0~6.0V
- Maximum Oscillation Frequency (See Line-Up Table)
- 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

■ LINE-UP TABLE

Type No.	Recommended Osc. Freq.	Output Freq.	C_g, C_d
NJU6339A 6339B 6339C 6339D	From 20 to 35MHz	f_0 $f_0/2$ $f_0/4$ $f_0/8$	28pF
NJU6339H 6339J 6339K 6339L	From 30 to 50MHz	f_0 $f_0/2$ $f_0/4$ $f_0/8$	20pF
NJU6339Q 6339R 6339S 6339T	From 45 to 75MHz	f_0 $f_0/2$ $f_0/4$ $f_0/8$	17pF

■ PACKAGE OUTLINE

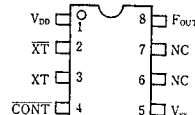


NJU6339XC



NJU6339XE

■ PIN CONFIGURATION/PAD LOCATION



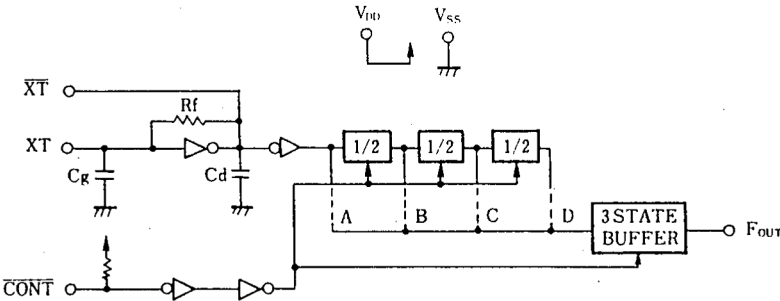
■ COORDINATES

Unit: μm

No.	PAD	X	Y
1	V_{DD}	-408	248
2	XT	-408	81
3	XT	-408	-86
4	CONT	-408	-248
5	V_{SS}	464	-248
8	FOUT	464	248

Chip Size : 1.29 X 0.8mm
 Chip Center : $X=0\mu m, Y=0\mu m$
 Chip Thickness : $400\mu m \pm 30\mu m$
 (Note) No. 6 and 7 terminals are only for package type information. There are no PAD on the chip.

■ BLOCK DIAGRAM



■ TERMINAL DESCRIPTION

NO.	SYMBOL	F U N C T I O N	
1	V _{DD}	+ 5V	
2	X \overline{T}	Quartz Crystal Connecting Terminals	
3	XT		
4	\overline{CONT}	3-State Output Control and Divider Reset	
		\overline{CONT}	F _{OUT}
		H	Output either one frequency from f ₀ , f ₀ /2, f ₀ /4 and f ₀ /8
		L	Output High Impedance and Divider Reset
5	V _{SS}	GND	
8	F _{OUT}	Output either one frequency from f ₀ , f ₀ /2, f ₀ /4 and f ₀ /8	

(Note) Reference the Line-Up Table

■ ABSOLUTE MAXIMUM RATINGS

($T_a=25^\circ\text{C}$)

P A R A M E T E R	SYMBOL	R A T I N G S	UNIT
Supply Voltage	V_{DD}	-0.5 ~ +7.0	V
Input Voltage	V_{IN}	$V_{SS}-0.5 \sim V_{DD}+0.5$	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	P_D	200 (EMP)	mW
Operating Temperature Range	T_{opr}	-40 ~ + 85	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 ~ +125	$^\circ\text{C}$

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

ELECTRICAL CHARACTERISTICS

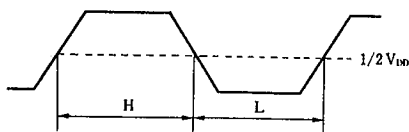
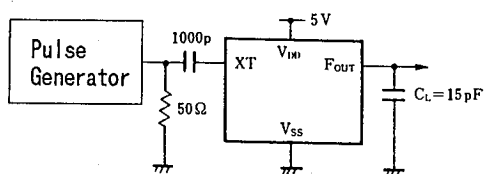
(Ta=25°C, V_{DD}=5V)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V _{DD}		4		6	V
Operating Current	I _{DD1}	A,B,C,D, f _{osc} =24MHz, No Load			15	mA
	I _{DD2}	H,J,K,L, f _{osc} =48MHz, No Load			20	
	I _{DD3}	Q,R,S,T, f _{osc} =48MHz, No Load			25	
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} =5V, V _{OH} =4.5V	4			mA
	I _{OL}	V _{DD} =5V, V _{OL} =0.5V	4			
Input Current	I _{IN}	CONT Terminal, CONT=V _{SS}	125	250	500	μA
3-St Off-leakage Current	I _{oz}	CONT=V _{SS} , F _{OUT} =V _{SS} and V _{DD}			±0.1	μA
Internal Capacitor	C _g , C _d	A,B,C,D Version, f _{osc} =24MHz		28		pF
		H,J,K,L Version, f _{osc} =48MHz		20		
		Q,R,S,T Version, f _{osc} =48MHz		17		
Maximum Oscillation Frequency	f _{MAX}	A,B,C,D Version	35			MHz
		H,J,K,L Version	50			
		Q,R,S,T Version	75			
Output Signal Symmetry	SYM	C _L =15pF, R _L =390Ω, at 1/2V _{DD}	45	50	55	%
Output Signal Rise Time	t _r	C _L =15pF, 10~90%			6	ns
Output Signal Fall Time	t _f	C _L =15pF, 90~10%			4	ns

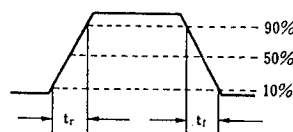
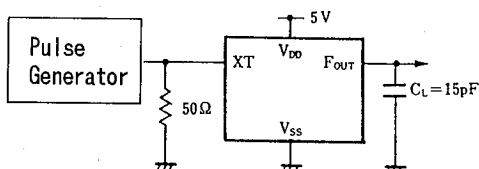
Note) Excluding input current on CONT terminal.

■ MEASUREMENT CIRCUITS

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



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



NJU6339 Series

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MEMO

[CAUTION]

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