OVERVIEW

The 5061H series are LVDS output oscillator ICs that support a wide output frequency range ideal for high-frequency applications typical in high-speed communications devices. They employ an oscillator circuit optimized for compact, 3rd overtone crystal elements, making them ideal for use as compact, crystal oscillator modules. The oscillator circuit uses voltage regulator drive to achieve a low drive level.

FEATURES

- Operating supply voltage range: 2.25 to 3.63V
- Recommended oscillation frequency range (varies with version)
  25MHz to 250MHz fundamental oscillation
  50MHz to 220MHz 3rd overtone oscillation
- -40 to 125°C operating temperature range
- LVDS output
- Oscillation capacitors C_G, C_D built-in
- Frequency divider built-in
  Selectable by version: f_0, $f_0/2$, $f_0/4$
- Standby function
  High impedance in standby mode, oscillator stops
- Power-saving pull-up resistor built-in (OE pin)
- Wafer form (WF5061Hxx)
- Chip form (CF5061Hxx)

SERIES CONFIGURATION

Oscillation mode	Recommended oscillation frequency range[*1] [MHz]	C_0 cancellation circuit	Recommended C_0 value[*2] [pF]	Output frequency		
				f_0	$f_0/2$	$f_0/4$
fundamental	25 to 100	No	to 1.5[*3] (to 2.0)[*4]	5061HL6[*5]	5061HL7[*5]	5061HL8[*5]
	100 to 175			5061HM6[*5]	-	-
	175 to 250	Yes	1.2 to 1.8	5061HF6[*6]	-	-
3rd overtone fundamental	175 to 220				-	-
	50 to 63	No	to 2.0[*3] (to 2.5)[*4]	5061HA6	-	-
	62 to 80			5061HB6	-	-
	80 to 107	Yes	1.0 to 2.0[*3] (0.8 to 2.5)[*4]	5061HC6	-	-
	100 to 140			5061HD6	-	-
	140 to 175			5061HE6	-	-

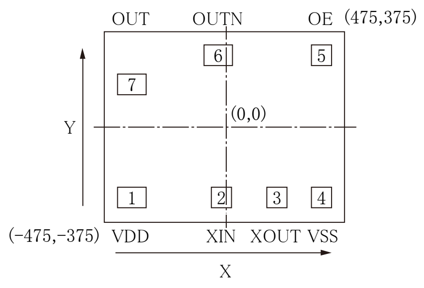
*1. The oscillation frequency range is a target based on evaluation results for the crystal element used for NPC characteristics verification, and does not represent a guarantee of the oscillation frequency band. The oscillation characteristics can vary significantly depending on the characteristics and mounting conditions of the crystal. Accordingly, oscillation characteristics should be thoroughly evaluated for each crystal.
*2. The oscillator circuit is optimized for 5032 to 3225 sized crystal oscillators. When using 7050 sized crystal elements that have large C_0, additional evaluation is recommended before implementation due to the increased risk of insufficient oscillation margin.
*3. Normal recommended range based on the oscillator circuit design.
*4. Values in ( ) are full range values. If using these ranges, careful evaluation is recommended before implementation.
*5. L, M version is recommended for use with crystals such as compact AT cut crystals with extremely low C_0 and R_1, and inverted mesa crystals.
*6. The F version is adjusting C_0 cancellation circuit rather hard to have a negative resistance by a high frequency. A self-oscillation tends to happen compared with the other versions, so please be careful about a lower limit of C_0. A self-oscillation becomes easy to happen coldly, so please be careful and do initial evaluation. As a target for R_1 in the F version, it is 50 Ω in 3rd overtone (≤ 220MHz), and 20 Ω in fundamental wave (≤ 250MHz).

ORDERING INFORMATION

Device	Package	Version Name
WF5061Hxx-3	Wafer form	WF5061H□□-3 Form WF: Wafer form CF: Chip (Die) form Output frequency 6: f_0, 7: $f_0/2$, 8: $f_0/4$ Oscillation frequency L : 25 to 100MHz M: 100 to 175MHz A : 50 to 63MHz B : 62 to 80MHz C : 80 to 107MHz D : 100 to 140MHz E : 140 to 175MHz F : 175 to 250MHz (fundamental) 175 to 220 MHz (3rd overtone)
CF5061Hxx-3	Chip form	

PAD LAYOUT

(Unit: µm)



Chip size: 0.95mm×0.75mm
Chip thickness : 180µm
PAD size : 110µm×80µm (No.1, 6, 7)
80µm×80µm (No.2, 3, 4, 5)
Chip base : Vss level

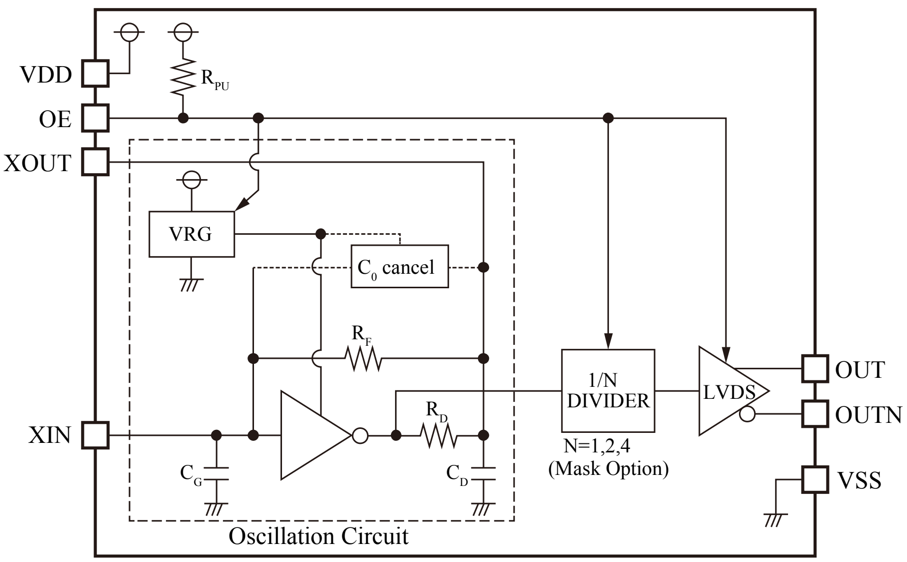
· Coordinates at the chip center are (0,0).

PIN DESCRIPTION and PAD COORDINATES

No.	Name	I/O*1	Function	PAD coordinates [µm] X	PAD coordinates [µm] Y
1	VDD	-	(+) supply voltage	-363.7	-283.5
2	XIN	I	Crystal connection pins. Crystal is connected between XIN and XOUT.	-11.7	-283.5
3	XOUT	O		208.2	-283.5
4	VSS	-	(-) ground	383.5	-283.5
5	OE	I	Input pin controlled output state(oscillator stops when V_{SS} level), Power-saving pull-up resistor built-in	383.5	283.5
6	OUTN	O	LVDS output pin (Inverting output)	-29.1	283.5
7	OUT	O	LVDS output pin (Non-inverting output)	-368.5	168.2

*1. I: Input pin O: Output pin

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Vss=0V

Parameter	Symbol	Condition	Rating	Unit
Supply voltage range*1	V_{DD}	Between VDD and VSS	-0.3 to +4.0	V
Input voltage range*1*2	V_{IN}	Input pins	-0.3 to VDD+0.3	V
Output voltage range*1*2	V_{OUT}	Output pins	-0.3 to VDD+0.3	V
Junction temperature*3	T_j		+150	°C
Storage temperature range*4	T_{STG}	Chip form, Wafer form	-55 to +150	°C

*1. This parameter rating is the values that must never exceed even for a moment. This product may suffer breakdown if this parameter rating is exceeded. Operation and characteristics are guaranteed only when the product is operated at recommended operating conditions.
*2. V_{DD} is a V_{DD} value of recommended operating conditions.
*3. Do not exceed the absolute maximum ratings. If they are exceeded, a characteristic and reliability will be degraded.
*4. When stored in nitrogen or vacuum atmosphere applied to IC itself only (excluding packaging materials).

RECOMMENDED OPERATING CONDITIONS

Vss=0V

Parameter	Symbol	Condition		MIN	TYP	MAX	Unit
Oscillator frequency*1	f_0	5061HL6, HL7, HL8		25	-	100	MHz
		5061HM6		100	-	175	
		5061HA6		50	-	63	
		5061HB6		62	-	80	
		5061HC6		80	-	107	
		5061HD6		100	-	140	
		5061HE6		140	-	175	
		5061HF6	3rd overtone	175	-	220	
			fundamental	175	-	250	
Output frequency	f_{OUT}	5061HL6		25	-	100	MHz
		5061HL7		12.5	-	50	
		5061HL8		6.25	-	25	
		5061HM6		100	-	175	
		5061HA6		50	-	63	
		5061HB6		62	-	80	
		5061HC6		80	-	107	
		5061HD6		100	-	140	
		5061HE6		140	-	175	
		5061HF6	3rd overtone	175	-	220	
			fundamental	175	-	250	
Operating supply voltage	V_{DD}	Between VDD and VSS*2		2.25	-	3.63	V
Input voltage	V_{IN}	Input pins		0	-	V_{DD}	V
Operating temperature	T_a			-40	-	+125	°C
Output load	R_L	Between OUT pin and OUTN pin		99	-	101	Ω

*1. The oscillation frequency range is a target based on evaluation results for the crystal element used for NPC characteristics verification, and does not represent a guarantee of the oscillation frequency band. The oscillation characteristics can vary significantly depending on the characteristics and mounting conditions of the crystal. Accordingly, oscillation characteristics should be thoroughly evaluated for each crystal.
*2. For stable device operation, connect a 0.01μF or larger ceramic chip capacitor between VDD and VSS, mounted close (within approximately 3mm) to the chip. Also, use the thickest wiring possible between the IC and capacitor.

Note. Since it may influence the reliability if it is used out of range of recommended operating conditions, this product should be used within this range.

ELECTRICAL CHARACTERISTICS

DC Characteristics

Measurement circuits 1 to 3 in “Conditions” are shown in “MEASUREMENT CIRCUITS.”

V_{DD}=2.25 to 3.63V, V_{SS}=0V, T_a= -40 to +125°C unless otherwise noted.

Parameter	Symbol	Conditions		MIN	TYP	MAX	Unit
Current consumption (HLx ver.)	I_{DDL}_3.3V	Measurement circuit 1, OE=Open, f_0=100MHz	V_{DD}=3.3V	-	20.5	33.0	mA
	I_{DDL}_2.5V		V_{DD}=2.5V	-	17.5	30.0	
Current consumption (HM6 ver.)	I_{DDM}_3.3V	Measurement circuit 1, OE=Open, f_0=156.25MHz	V_{DD}=3.3V	-	22.0	33.5	mA
	I_{DDM}_2.5V		V_{DD}=2.5V	-	19.0	29.5	
Current consumption (HA6 ver.)	I_{DDA}_3.3V	Measurement circuit 1, OE=Open, f_0=62.5MHz	V_{DD}=3.3V	-	18.0	29.0	mA
	I_{DDA}_2.5V		V_{DD}=2.5V	-	15.0	25.0	
Current consumption (HB6 ver.)	I_{DDB}_3.3V	Measurement circuit 1, OE=Open, f_0=80MHz	V_{DD}=3.3V	-	19.0	30.5	mA
	I_{DDB}_2.5V		V_{DD}=2.5V	-	16.0	26.5	
Current consumption (HC6 ver.)	I_{DDC}_3.3V	Measurement circuit 1, OE=Open, f_0=106.25MHz	V_{DD}=3.3V	-	25.5	36.5	mA
	I_{DDC}_2.5V		V_{DD}=2.5V	-	22.5	32.5	
Current consumption (HD6 ver.)	I_{DDD}_3.3V	Measurement circuit 1, OE=Open, f_0=125MHz	V_{DD}=3.3V	-	26.5	38.0	mA
	I_{DDD}_2.5V		V_{DD}=2.5V	-	23.0	33.5	
Current consumption (HE6 ver.)	I_{DDE}_3.3V	Measurement circuit 1, OE=Open, f_0=156.25MHz	V_{DD}=3.3V	-	27.0	38.5	mA
	I_{DDE}_2.5V		V_{DD}=2.5V	-	23.5	34.0	
Current consumption (HF6 ver.)	I_{DDF}_3.3V	Measurement circuit 1, OE=Open, f_0=200MHz	V_{DD}=3.3V	-	27.0	39.0	mA
	I_{DDF}_2.5V		V_{DD}=2.5V	-	23.5	34.5	
Standby current	I_{STB}	Measurement circuit 1, OE=Low	$T_a \leq$ +85°C	-	-	15	µA
			$T_a >$ +85°C	-	-	30	
High-level output voltage	V_{OH}	Measurement circuit 2 OUT/OUTN pin		-	1.43	1.60	V
Low-level output voltage	V_{OL}			0.90	1.10	-	V
Differential output voltage	V_{OD}	Measurement circuit 2, OUT/OUTN pin		247	330	454	mV
Differential output voltage error	ΔV_{OD}	Measurement circuit 2		-	-	50	mV
Offset voltage	V_{OS}	Measurement circuit 2, OUT-OUTN pin middle tap		1.125	1.250	1.375	V
Offset voltage error	ΔV_{OS}	Measurement circuit 2		-	-	50	mV
Output leakage current	I_Z	Measurement circuit 3, OE=Low, OUT/OUTN pin		-	-	10	µA
High-level input voltage	V_{IH}	Measurement circuit 1, OE pin		$0.7V_{DD}$	-	-	V
Low-level input voltage	V_{IL}	Measurement circuit 1, OE pin		-	-	$0.3V_{DD}$	V
OE pin pull-up resistance	R_{PU1}	Measurement circuit 1		0.2	1	8	MΩ
	R_{PU2}	Measurement circuit 1		30	70	150	kΩ

Parameter	Symbol	Conditions	MIN	TYP	MAX	Unit
Oscillator feedback resistance (HLx ver.)	R_{FL}	Design value	50	100	200	kΩ
Oscillator feedback resistance (HM6 ver.)	R_{FM}	Design value	50	100	200	kΩ
Oscillator feedback resistance (HA6 ver.)	R_{FA}	Design value	1.2	2.4	3.6	kΩ
Oscillator feedback resistance (HB6 ver.)	R_{FB}	Design value	1.1	2.2	3.3	kΩ
Oscillator feedback resistance (HC6 ver.)	R_{FC}	Design value	1.1	2.2	3.3	kΩ
Oscillator feedback resistance (HD6 ver.)	R_{FD}	Design value	1.1	2.2	3.3	kΩ
Oscillator feedback resistance (HE6 ver.)	R_{FE}	Design value	1.1	2.2	3.3	kΩ
Oscillator feedback resistance (HF6 ver.)	R_{FF}	Design value	0.95	1.9	2.85	kΩ
Oscillator capacitance[*2] (HLx ver.)	C_{GL}	Design value, Excludes parasitic capacitance [*1]	9.6	12.0	14.4	pF
	C_{DL}		11.2	14.0	16.8	
Oscillator capacitance[*2] (HM6 ver.)	C_{GM}	Design value, Excludes parasitic capacitance [*1]	1.6	2.0	2.4	pF
	C_{DM}		1.6	2.0	2.4	
Oscillator capacitance[*2] (HA6 ver.)	C_{GA}	Design value, Excludes parasitic capacitance [*1]	8.0	10.0	12.0	pF
	C_{DA}		11.2	14.0	16.8	
Oscillator capacitance[*2] (HB6 ver.)	C_{GB}	Design value, Excludes parasitic capacitance [*1]	8.0	10.0	12.0	pF
	C_{DB}		9.6	12.0	14.4	
Oscillator capacitance[*2] (HC6 ver.)	C_{GC}	Design value, Excludes parasitic capacitance [*1]	3.2	4.0	4.8	pF
	C_{DC}		3.2	4.0	4.8	
Oscillator capacitance[*2] (HD6 ver.)	C_{GD}	Design value, Excludes parasitic capacitance [*1]	1.6	2.0	2.4	pF
	C_{DD}		1.6	2.0	2.4	
Oscillator capacitance[*2] (HE6 ver.)	C_{GE}	Design value, Excludes parasitic capacitance [*1]	0.8	1.0	1.2	pF
	C_{DE}		0.8	1.0	1.2	
Oscillator capacitance[*2] (HF6 ver.)	C_{GF}	Design value, Excludes parasitic capacitance [*1]	-	0[*3]	-	pF
	C_{DF}		-	0[*3]	-	

*1. Confirmed by sampling inspection of the monitor pattern on the wafer.

*2. Values do not include parasitic capacitance.

*3. The F version doesn't connect the Oscillator capacitance. The C_G and C_D of the F version is only parasitic capacitance.

AC Characteristics

Measurement circuits 4 and 5 in "Conditions" are shown in " MEASUREMENT CIRCUITS."
The conditions for each parameter assume the timing shown in "Timing chart."

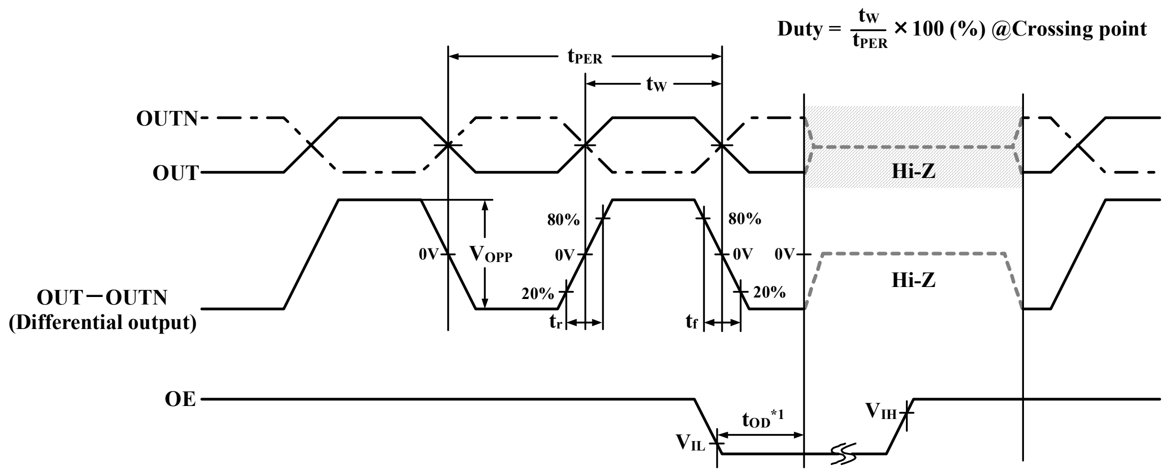
V_{DD} = 2.25 to 3.63V, V_{SS} = 0V, T_a = -40 to +125°C unless otherwise noted

Parameter	Symbol	Conditions	MIN	TYP	MAX	Unit
Output duty cycle	Duty	Measurement circuit 4 Measured at differential output signal 0V (crossing point)	45	-	55	%
Output swing	V_{OPP}	Measurement circuit 4, differential output signal	0.4	-	-	V
Output rise time	t_r	Measurement circuit 4 Measured at 20% to 80% differential output swing	-	200	400	ps
Output fall time	t_f	Measurement circuit 4 Measured at 80% to 20% differential output swing	-	200	400	ps
Output disable delay time	t_{OD}	Measurement circuit 5 Time to becoming output Hi-Z at OE(fall)=V_{IL} (Refer to the timing chart for details.)	-	-	200	ns

Note. The said values are measured by using the NPC standard crystal and jig for evaluation. It must be carefully evaluated so that the values can vary due to crystal characteristics, parasitic component of a mount board and a package.

Timing chart

The timing diagram applies to the "Conditions" in the above table in "AC Characteristics."



*1. The OUT/OUTN output goes high impedance after the OE is fallen and then the output disable delay time "t_{OD}" has elapsed.

FUNCTIONAL DESCRIPTION

OE Function

When OE goes V_{SS}, the OUT/OUTN outputs stop and become high impedance. This function is used to disable the operation of the device.

OE	OUT/OUTN	Oscillator
V_{DD} or Open	f_0, $f_0/2$, $f_0/4$ output	Operating
V_{SS}	Hi-Z	Stopped

Power Saving Pull-up Resistor

The OE terminal pull-up resistance switches between R_{PU1} and R_{PU2}, depending on the input level (V_{DD} or V_{SS}).
When the OE terminal is held V_{SS}, the built-in OE terminal pull-up resistance increases (R_{PU1}), reducing the current consumed by the pull-up resistance when the outputs are disabled.
When the device is operating with the OE terminal V_{DD} or open circuit, the pull-up resistance decreases (R_{PU2}), reducing internal susceptibility to the effects of external noise. The OE terminal is held V_{DD} internally to prevent problems that might otherwise cause the outputs to stop abruptly.

Oscillation Detection Function

The 5061H series have a built-in oscillation detection circuit. The oscillation detection circuit disables the output circuit when the oscillator starts until the oscillation becomes stable. This function limits the danger of unstable oscillation when the oscillator starts after power is first applied or the output is enabled.

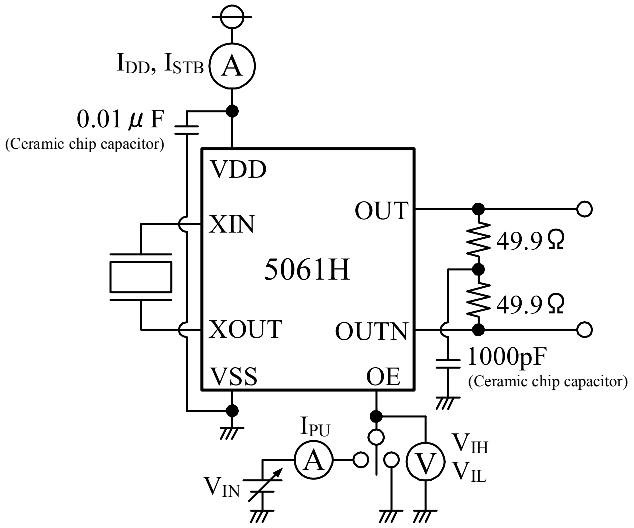
C_0 cancellation circuit

Oscillation circuit with a built-in C_0 cancellation circuit provides a fixed compensation amount to cancel the effect of the crystal C_0.
It reduces the C_0 parameter in the equivalent circuit, reducing the shallow negative resistance for increasing values of C_0.
This cancellation circuit makes it easier to maintain the oscillation margin.

MEASUREMENT CIRCUITS

MEASUREMENT CIRCUIT 1

Measurement Parameter : I_{DD}, I_{STB}, V_{IH}, V_{IL}, R_{PU1}, R_{PU2}



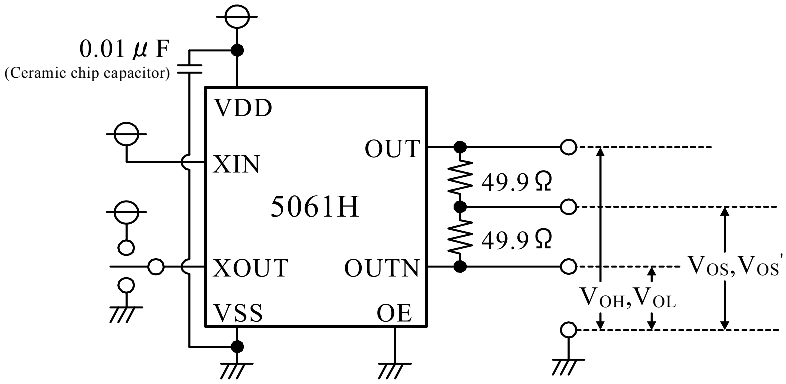
$$R_{PU1} = \frac{V_{DD}}{I_{PU}} \quad (V_{IN} = V_{SS})$$

$$R_{PU2} = \frac{V_{DD} - 0.7V_{DD}}{I_{PU}} \quad (V_{IN} = 0.7V_{DD})$$

V_{IH} : $V_{SS} \rightarrow V_{DD}$ voltage that changes output state
V_{IL} : $V_{DD} \rightarrow V_{SS}$ voltage that changes output state
I_{STB} : OE=V_{SS}

MEASUREMENT CIRCUIT 2

Measurement Parameter : V_{OH}, V_{OL}, V_{OD}, V_{OS}



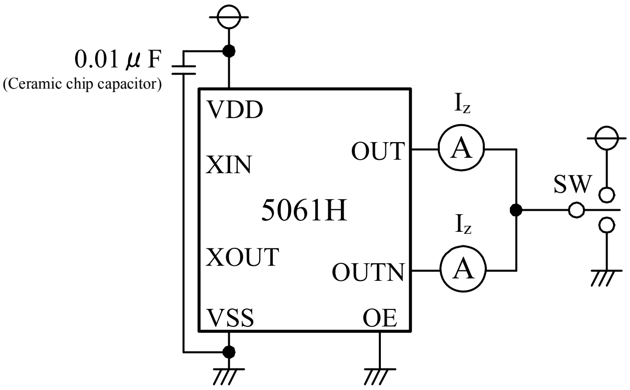
XOUT=V_{DD} { OUT =High, OUTN=Low }
XOUT=V_{SS} { OUT =Low, OUTN=High }

V_{OD} = OUT(High) - OUTN(Low)
V_{OD}' = OUTN(High) - OUT(Low)
$\Delta V_{OD} = |V_{OD} - V_{OD}'|$

V_{OS} : OUT=High, OUTN=Low
V_{OS}' : OUT=Low, OUTN=High
$\Delta V_{OS} = |V_{OS} - V_{OS}'|$

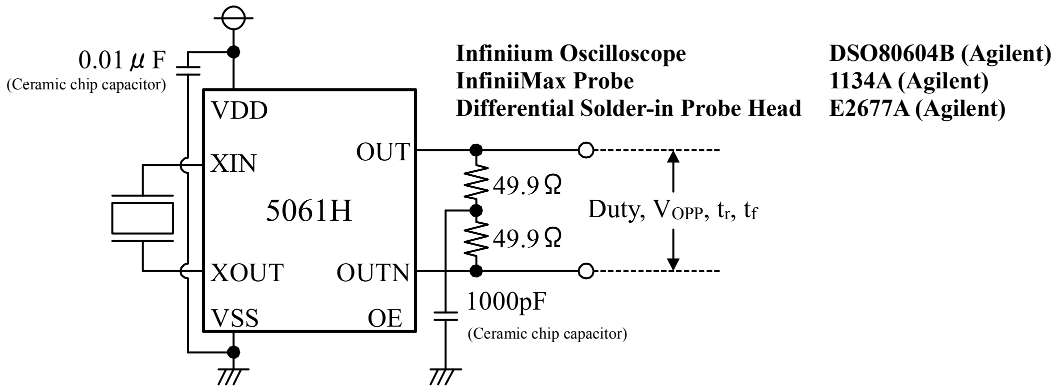
MEASUREMENT CIRCUIT 3

Measurement Parameter : I_Z



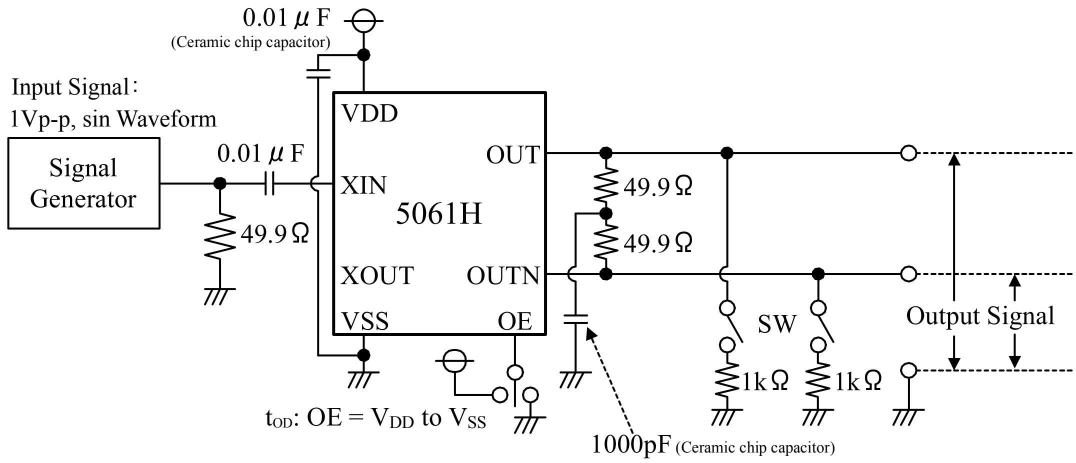
MEASUREMENT CIRCUIT 4

Measurement Parameter : Duty, V_{OPP}, t_r, t_f



MEASUREMENT CIRCUIT 5

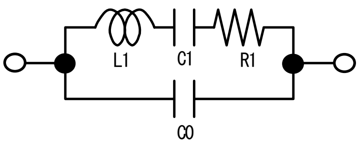
Measurement Parameter : t_{OD}



REFERENCE DATA (Typical 5061H Characteristics)

The following characteristics are measured using the crystal below.
Note that the characteristics will vary with the crystal used.

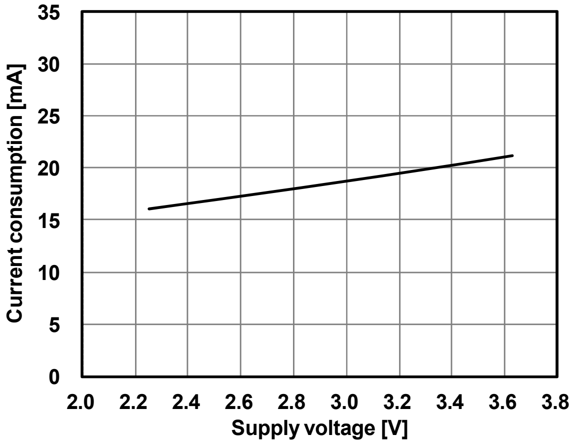
Crystal parameters



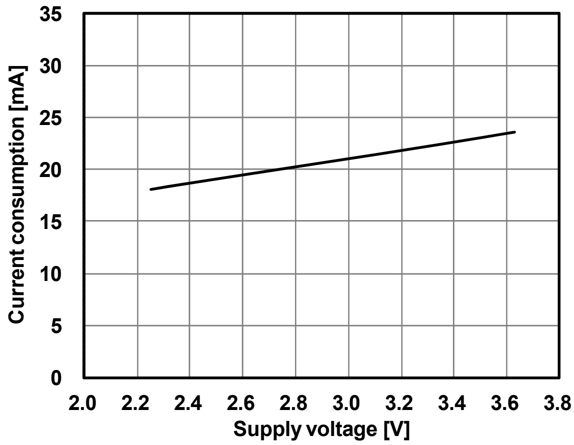
Crystal used for measurement

Oscillation mode	Versions	Oscillation Frequency f_0 [MHz]	C_0 (pF)	R_1 (Ω)
fundamental	5061HL6	100.00	2.0	10
	5061HM6	155.25	3.0	7
3rd overtone fundamental	5061HA6	62.50	1.3	40
	5061HB6	80.00	1.3	63
	5061HC6	106.25	1.5	45
	5061HD6	125.00	1.8	35
	5061HE6	156.25	1.2	60
	5061HF6	200.00	1.9	54

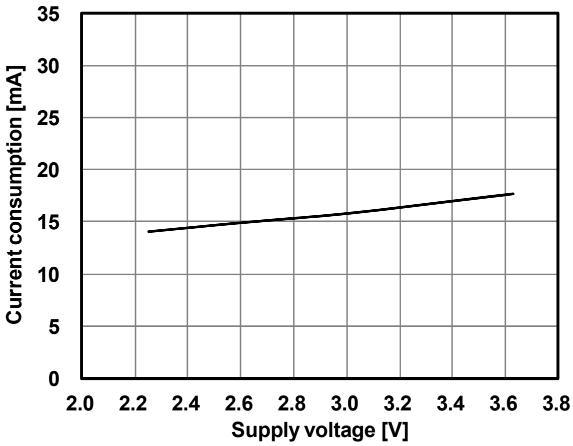
Current Consumption



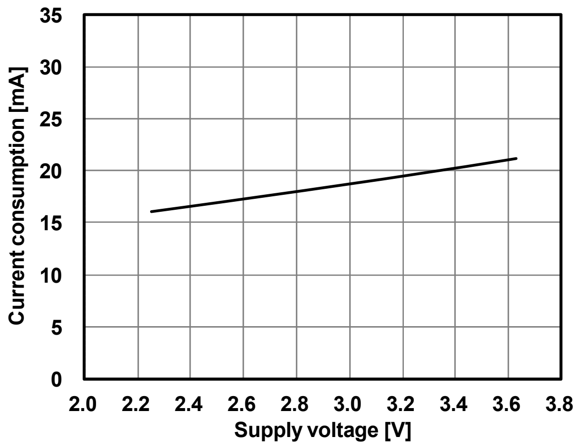
5061HL6, f_{OUT}=100MHz, T_a=25°C



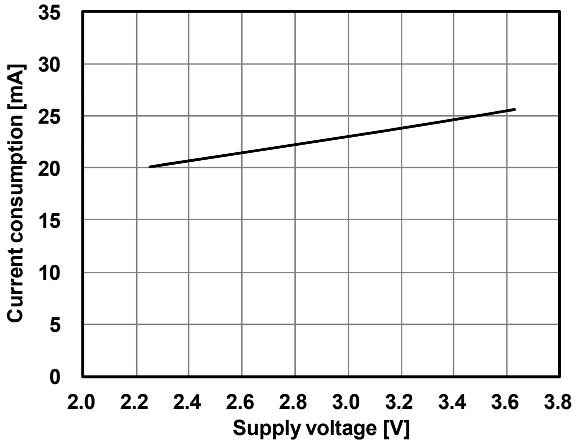
5061HM6, f_{OUT}=155.25MHz, T_a=25°C



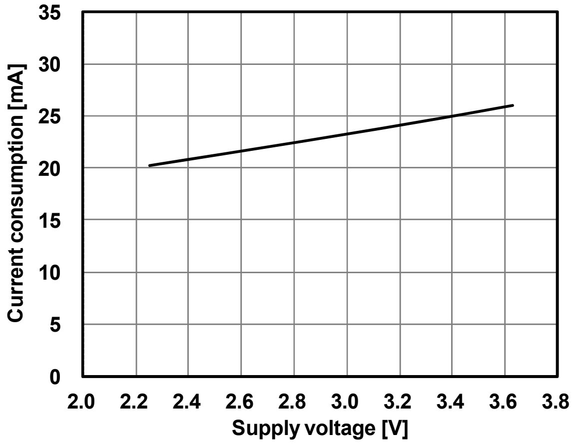
5061HA6, f_{OUT}=62.5MHz, Ta=25°C



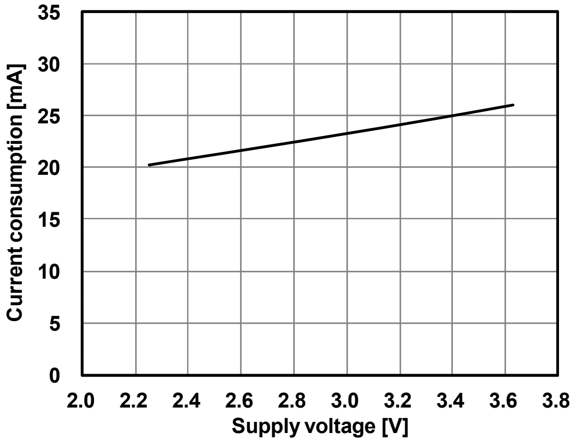
5061HB6, f_{OUT}=80MHz, Ta=25°C



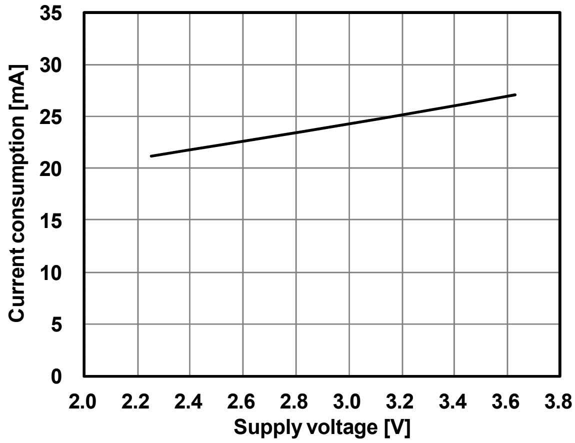
5061HC6, f_{OUT}=106.25MHz, Ta=25°C



5061HD6, f_{OUT}=125MHz, Ta=25°C

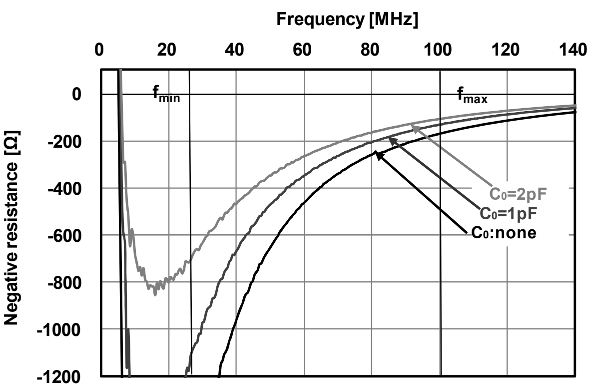


5061HE6, f_{OUT}=156.25MHz, T_a=25°C

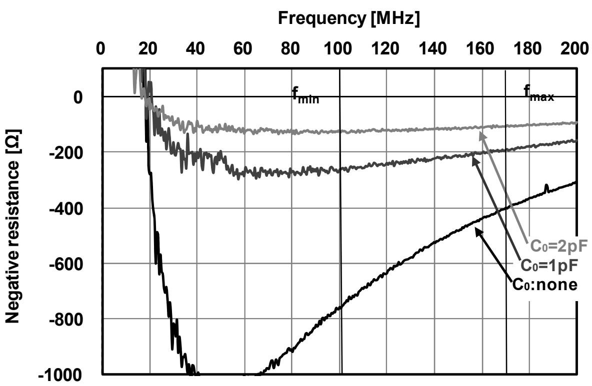


5061HF6, f_{OUT}=200MHz, T_a=25°C

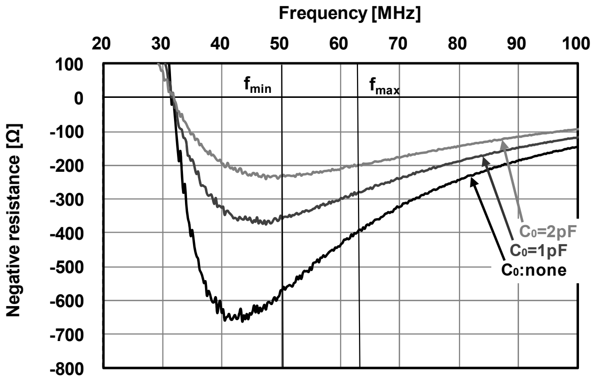
Negative Resistance



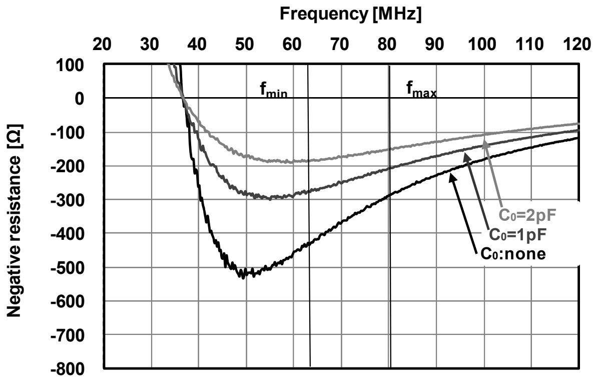
5061HL6, V_{DD}=3.3V, T_a=25°C



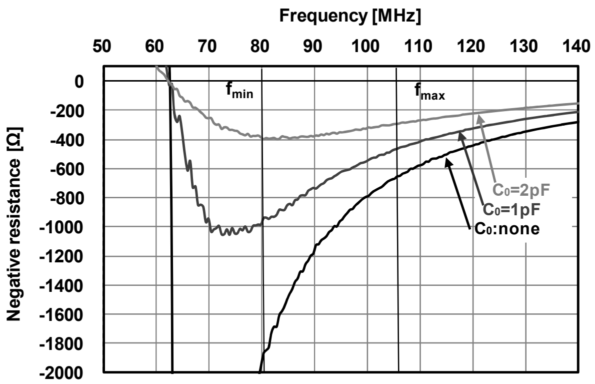
5061HM6, V_{DD}=3.3V, T_a=25°C



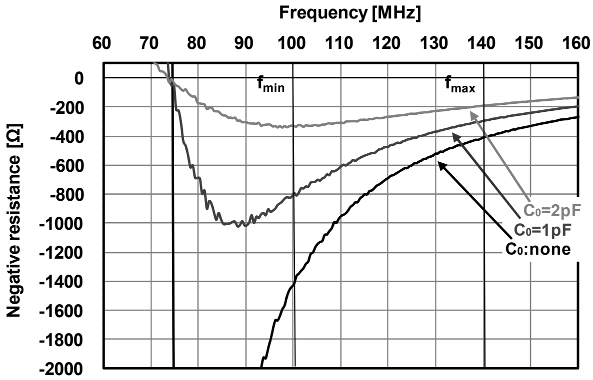
5061HA6, V_{DD}=3.3V, T_a=25°C



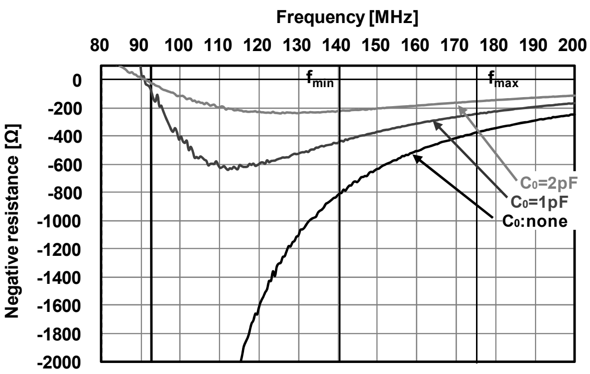
5061HB6, V_{DD}=3.3V, T_a=25°C



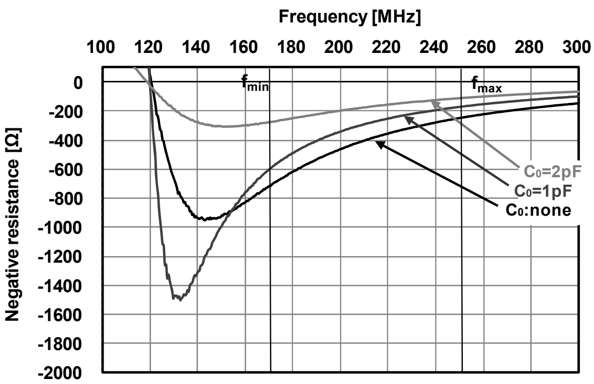
5061HC6, V_{DD}=3.3V, T_a=25



5061HD6, V_{DD}=3.3V, T_a=25°C



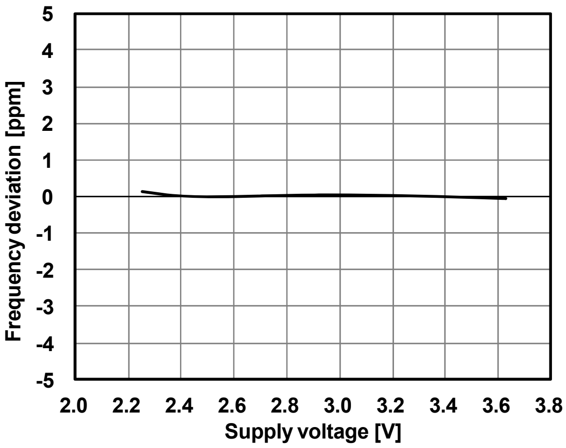
5061HE6, V_{DD}=3.3V, T_a=25°C



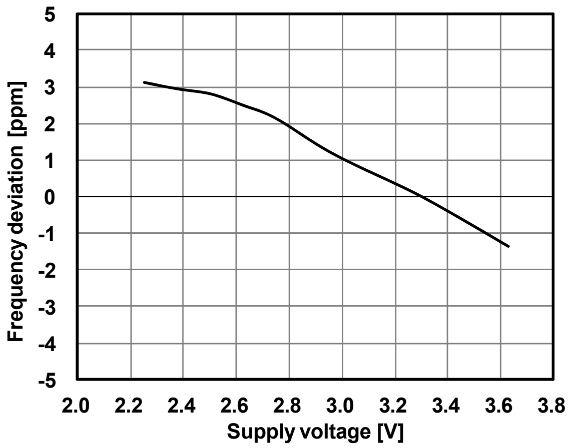
5061HF6, V_{DD}=3.3V, T_a=25°C

The figures show the measurement result of the crystal equivalent circuit C_0 capacitance, connected between the XIN and XOUT pins. They were performed with Agilent 4396B using the NPC test jig.
They may vary in a measurement jig, and measurement environment.

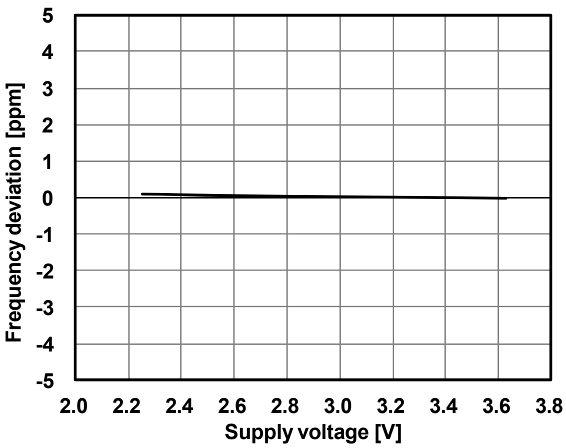
Frequency Deviation by Voltage



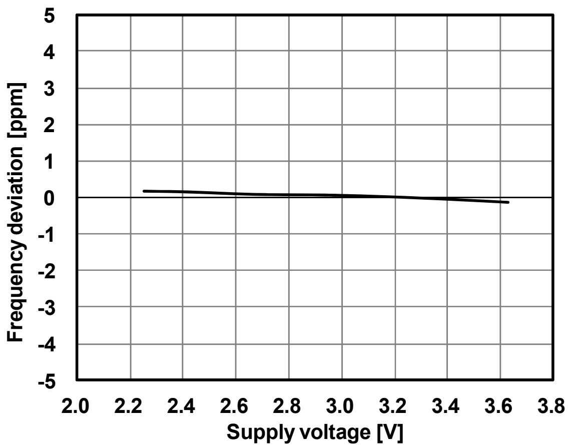
5061HL6, f_{OUT}=100MHz, T_a=25°C, 3.3V std.



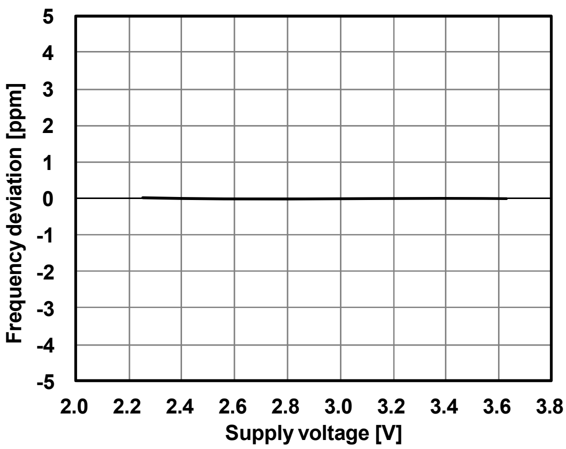
5061HM6, f_{OUT}=155.25MHz, T_a=25°C, 3.3V std.



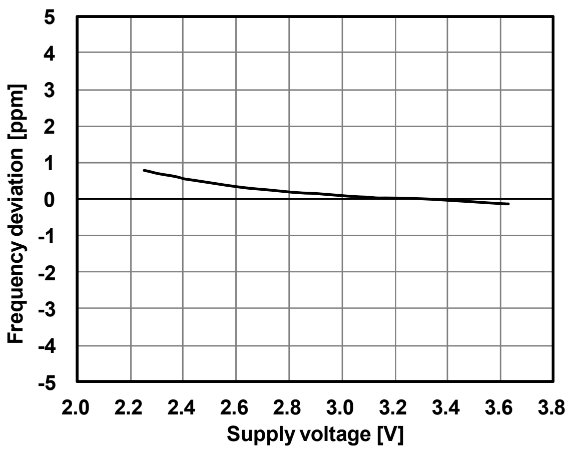
5061HA6, f_{OUT}=62.5MHz, T_a=25°C, 3.3V std.



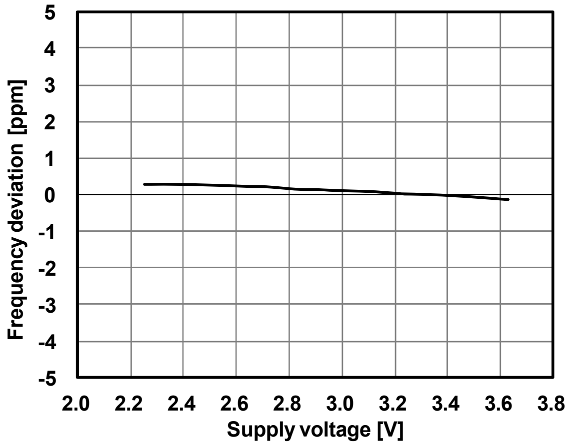
5061HB6, f_{OUT}=80MHz, T_a=25°C, 3.3V std.



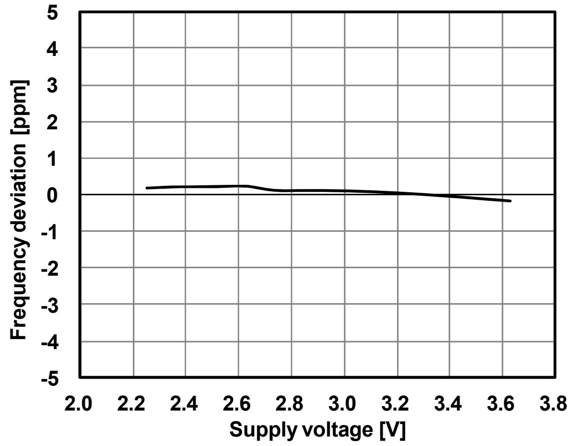
5061HC6, f_{OUT}=106.25MHz, T_a=25°C, 3.3V std.



5061HD6, f_{OUT}=125MHz, T_a=25°C, 3.3V std.

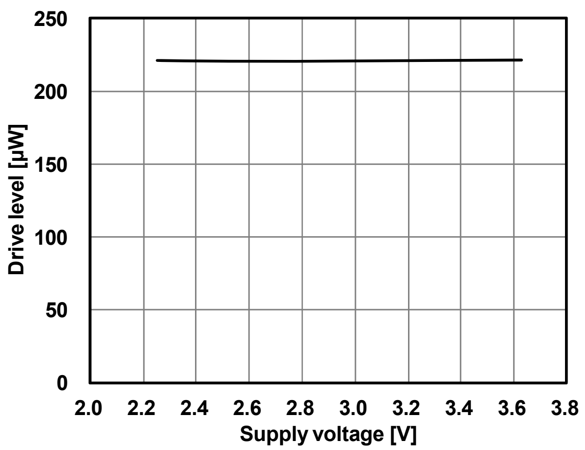


5061HE6, f_{OUT}=156.25MHz, T_a=25°C, 3.3V std.

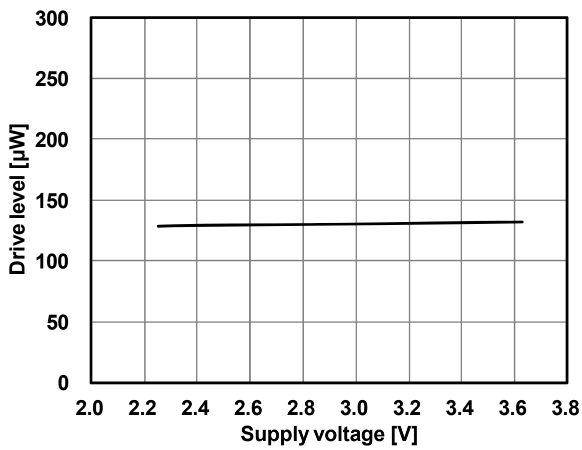


5061HF6, f_{OUT}=200MHz, T_a=25°C, 3.3V std.

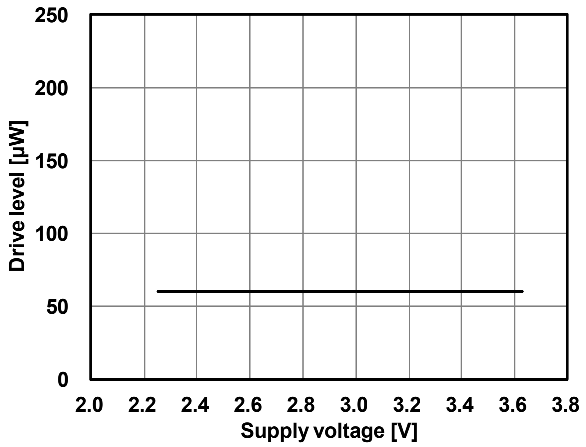
Drive Level



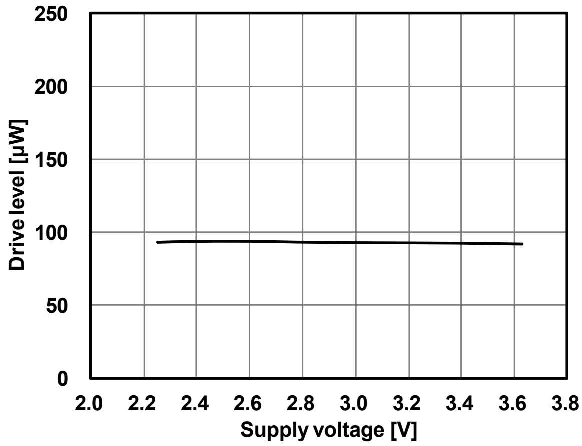
5061HL6, f_{OUT}=100MHz, T_a=25°C



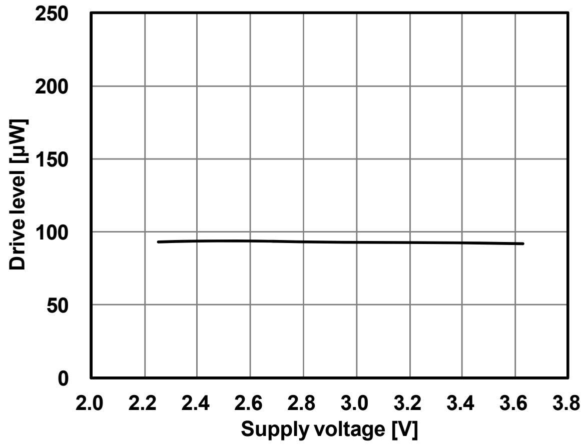
5061HM6, f_{OUT}=155.25MHz, T_a=25°C



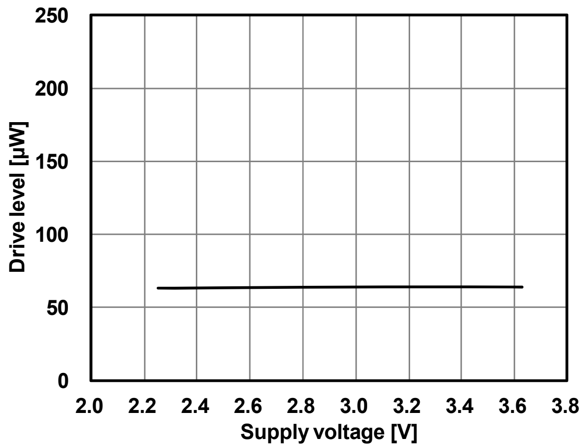
5061HA6, f_{OUT}=62.5MHz, T_a=25°C



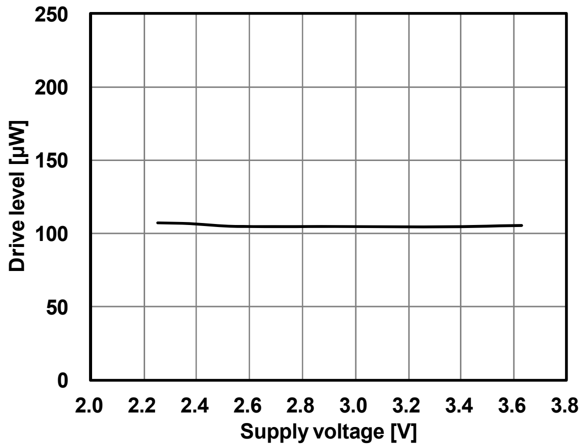
5061HB6, f_{OUT}=80MHz, T_a=25°C



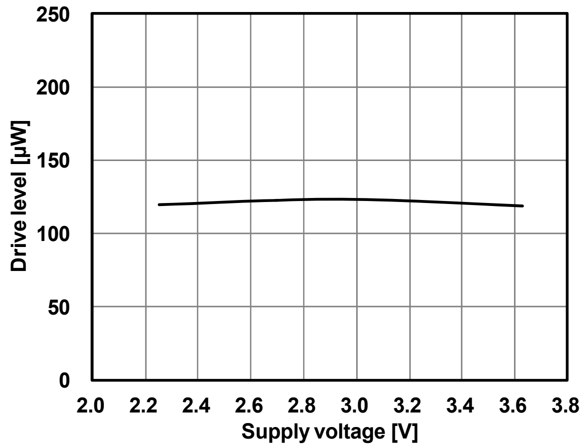
5061HC6, f_{OUT}=106.25MHz, T_a=25°C



5061HD6, f_{OUT}=125MHz, T_a=25°C

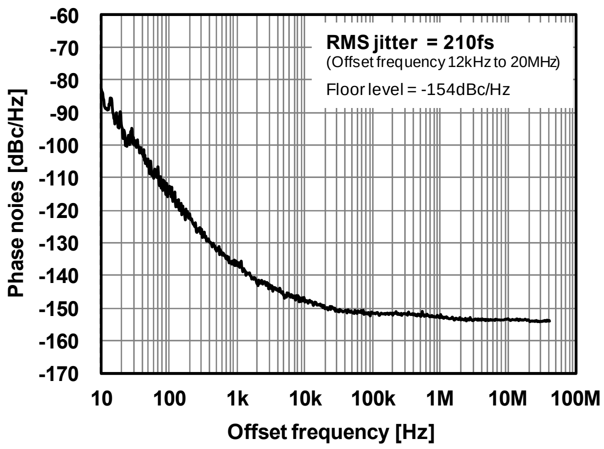


5061HE6, f_{OUT}=156.25MHz, T_a=25°C

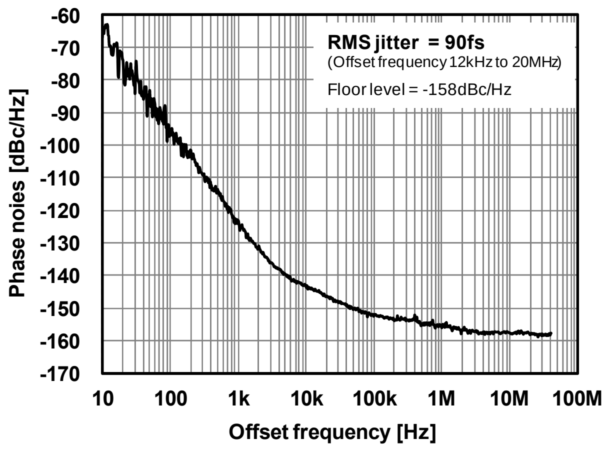


5061HF6, f_{OUT}=200MHz, T_a=25°C

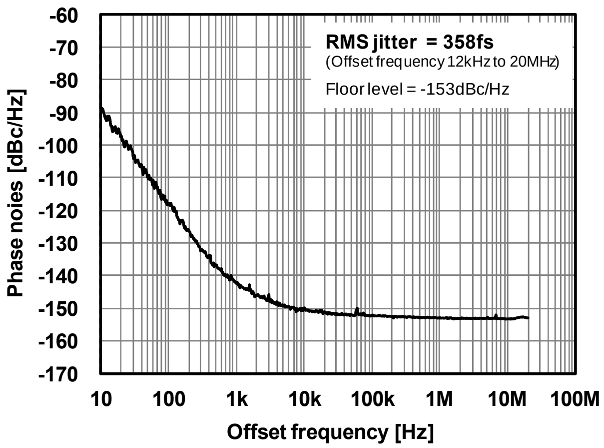
Phase Noise



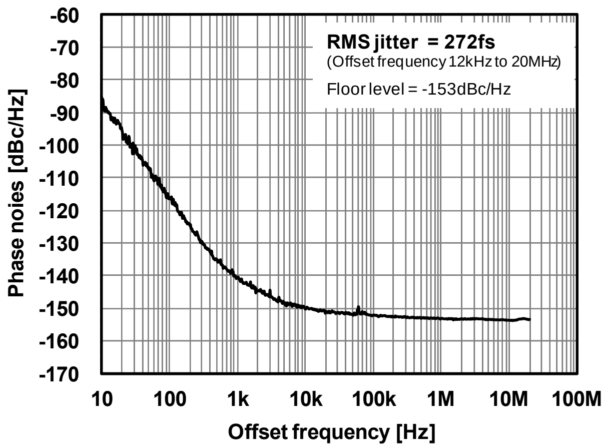
5061HL6, f_{OUT}=100MHz, V_{DD}=3.3V, T_a=25°C



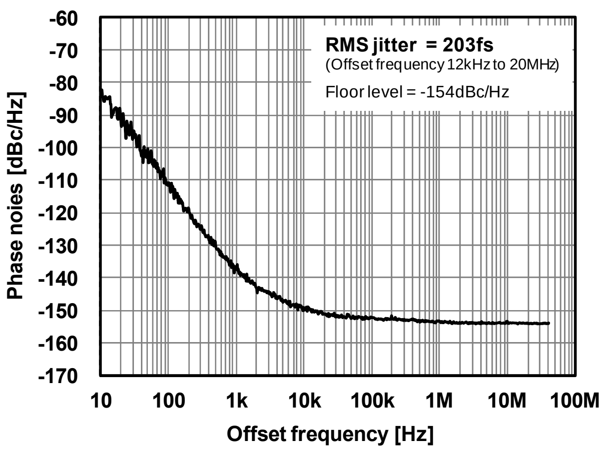
5061HM6, f_{OUT}=155.25MHz, V_{DD}=3.3V, T_a=25°C



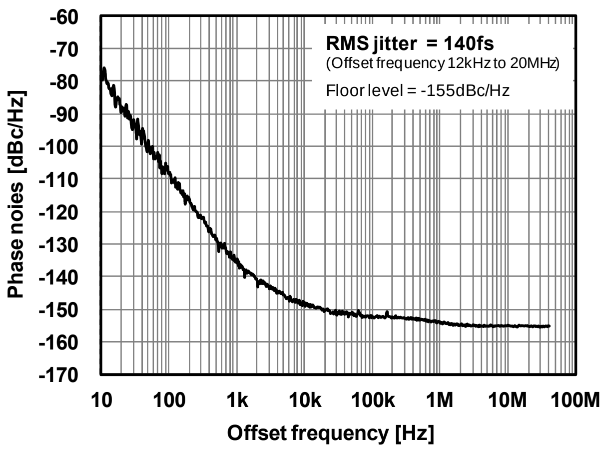
5061HA6, f_{OUT}=62.5MHz, V_{DD}=3.3V, T_a=25°C



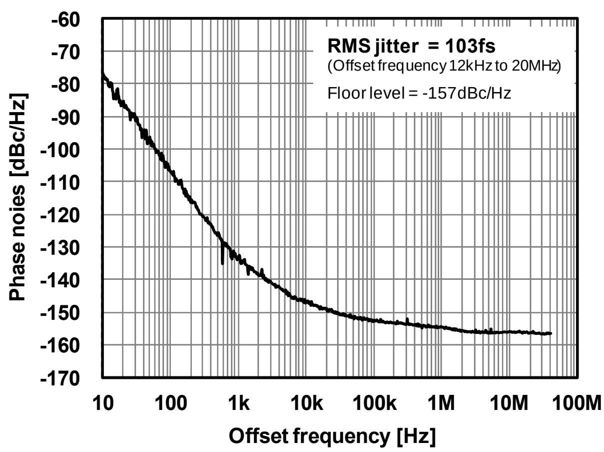
5061HB6, f_{OUT}=80MHz, V_{DD}=3.3V, T_a=25°C



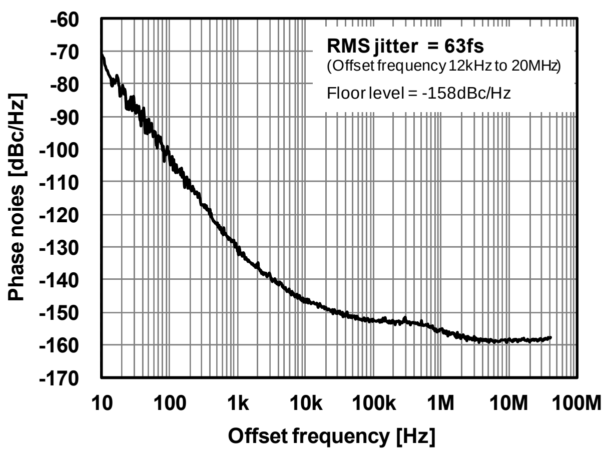
5061HC6, f_{OUT}=106.25MHz, V_{DD}=3.3V, T_a=25°C



5061HD6, f_{OUT}=125MHz, V_{DD}=3.3V, T_a=25°C



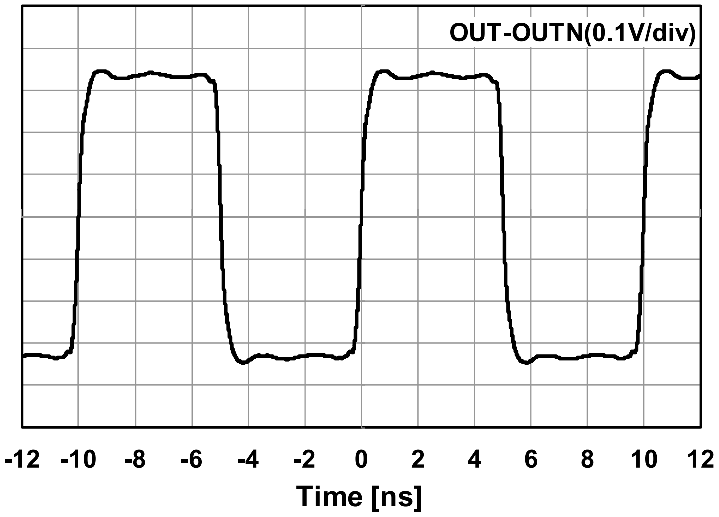
5061HE6, f_{OUT}=156.25MHz, V_{DD}=3.3V, T_a=25°C



5061HF6, f_{OUT}=200MHz, V_{DD}=3.3V, T_a=25°C

Measurement equipment: Agilent E5052B Signal Source Analyzer

Output Waveform

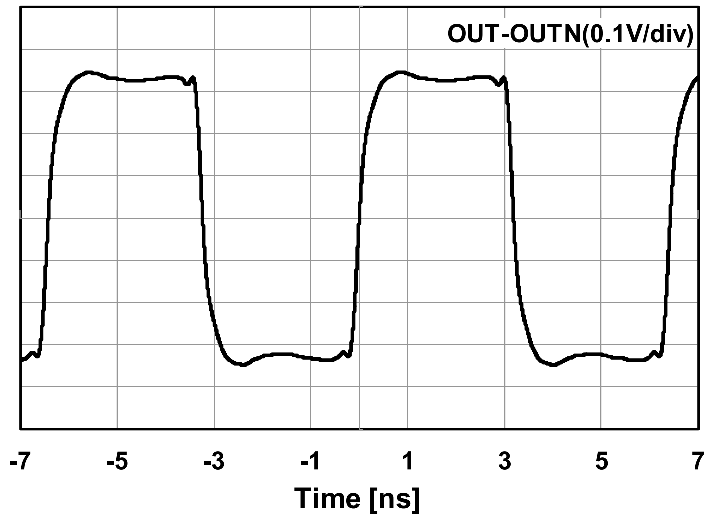


Duty1 = 50.4%

t_r = 224ps

t_f = 220ps

5061HL6, f_{OUT}=100MHz, V_{DD}=3.3V, T_a=25°C

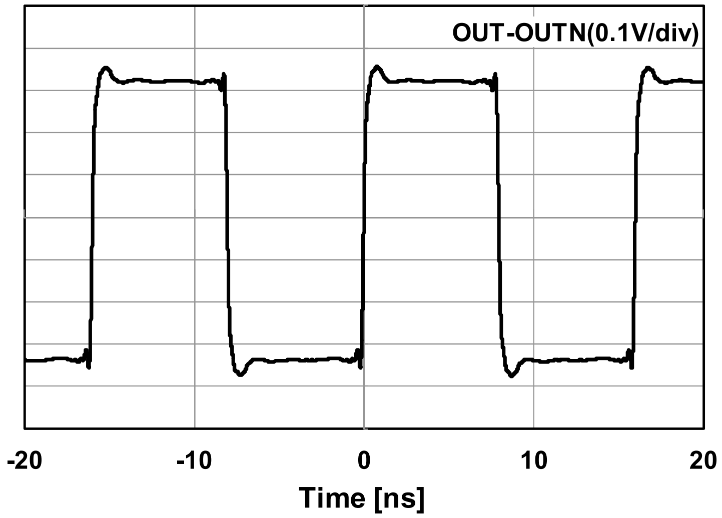


Duty1=49.6%

tr=235ps

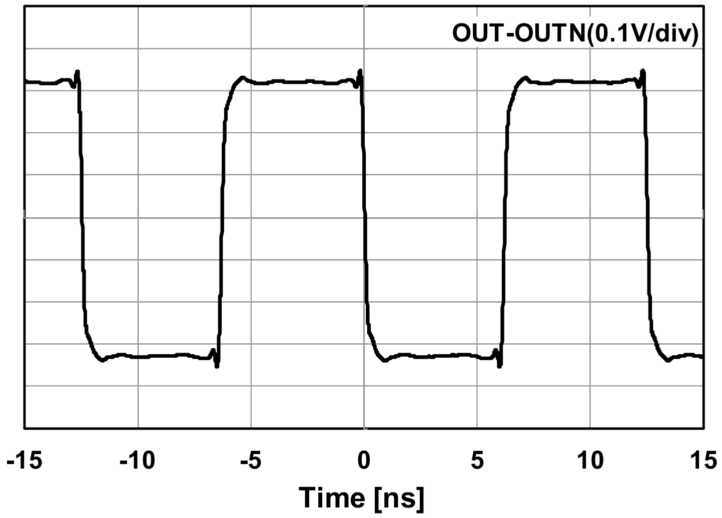
tf=230ps

5061HM6, f_{OUT}=155.25MHz, V_{DD}=3.3V, T_a=25°C



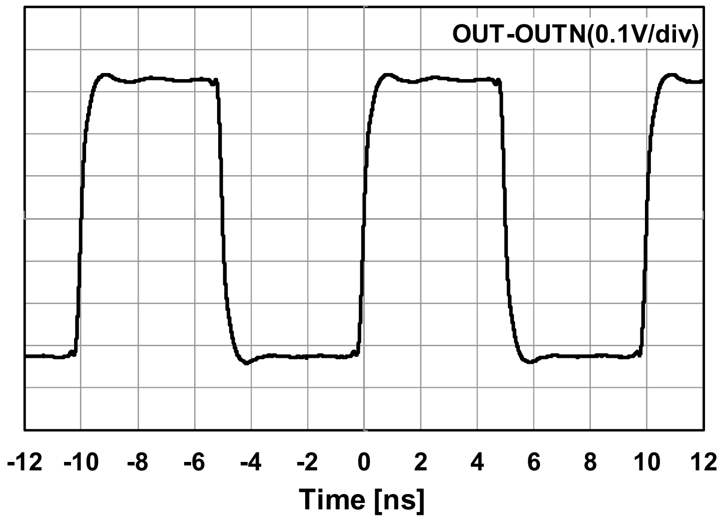
5061HA6, f_{OUT}=62.5MHz, V_{DD}=3.3V, T_a=25°C

Duty = 49.7%
tr = 175ps
tf = 170ps



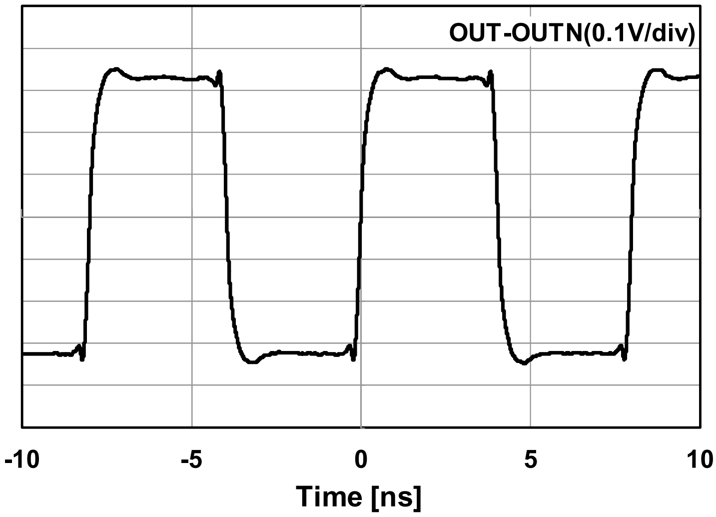
5061HB6, f_{OUT}=80MHz, V_{DD}=3.3V, T_a=25°C

Duty1 = 50.6%
tr= 222ps
tf = 216ps



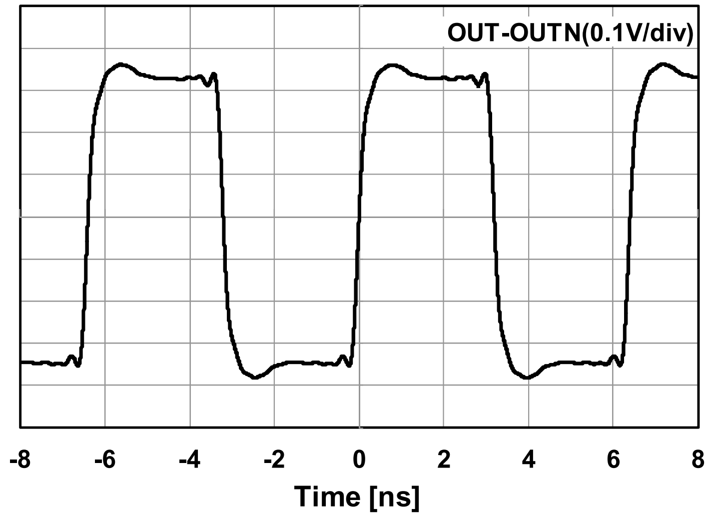
5061HC6, f_{OUT}=106.25MHz, V_{DD}=3.3V, T_a=25°C

Duty1 = 50.1%
tr= 213ps
tf = 211ps



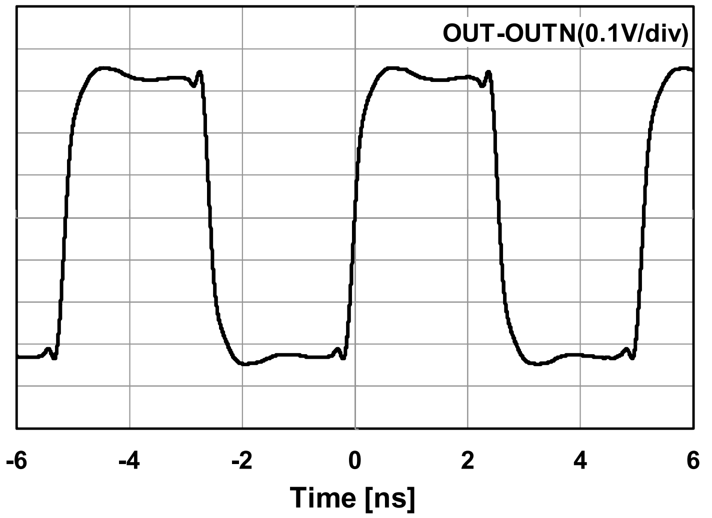
5061HD6, f_{OUT}=125MHz, V_{DD}=3.3V, T_a=25°C

Duty1 = 50.3%
tr= 204ps
tf = 206ps



5061HE6, f_{OUT}=156.25MHz, V_{DD}=3.3V, T_a=25°C

Duty1 = 50.0%
tr= 200ps
tf = 204ps



5061HF6, f_{OUT}=200MHz, V_{DD}=3.3V, T_a=25°C

Duty1 = 50.0%
tr= 200ps
tf = 204ps

Measuring instrument
Agilent 54855A Oscilloscope

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