



**■ TERMINAL DESCRIPTION**

SYMBOL	FUNCTION	
$\overline{\text{CONT}}$	Oscillation and 3-state Output Buffer Control	
	$\overline{\text{CONT}}$	$F_{\text{OUT}}$
	H or OPEN	Output frequency $f_0$
	L	Oscillation Stop and High impedance Output
$\overline{\text{XT}}$	Quartz Crystal Connecting Terminals	
$\overline{\text{XT}}$		
$V_{\text{SS}}$	$V_{\text{SS}}=0\text{V}$	
$F_{\text{OUTA}}$	LVDS Output, Differential output pair	
$F_{\text{OUTB}}$		
$V_{\text{DD}}$	$V_{\text{DD}}=3.3\text{V}$	

**■ ABSOLUTE MAXIMUM RATINGS**

(Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	$V_{\text{DD}}$	-0.5 to +7.0	V
Input Voltage	$V_{\text{IN}}$	$V_{\text{SS}}-0.5$ to $V_{\text{DD}}+0.5$	V
Output Voltage	$V_{\text{O}}$	-0.5 to $V_{\text{DD}}+0.5$	V
Input Current	$I_{\text{IN}}$	$\pm 10$	mA
Output Current	$I_{\text{O}}$	$\pm 25$	mA
Operating Temperature Range	$T_{\text{opr}}$	-40 to +85	°C
Storage Temperature Range	$T_{\text{stg}}$	-55 to +125	°C

 Note2) If the supply voltage( $V_{\text{DD}}$ ) is less than 7.0V, the input voltage do not over the  $V_{\text{DD}}$  level.

 Note3) Decoupling capacitor should be connected between  $V_{\text{DD}}$  and  $V_{\text{SS}}$  due to the stabilized operation for the circuit.

**ELECTRICAL CHARACTERISTICS**

(Ta=25°C)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V <sub>DD</sub>		2.7		3.6	V

 (V<sub>DD</sub>=3.3V, Ta=25°C)

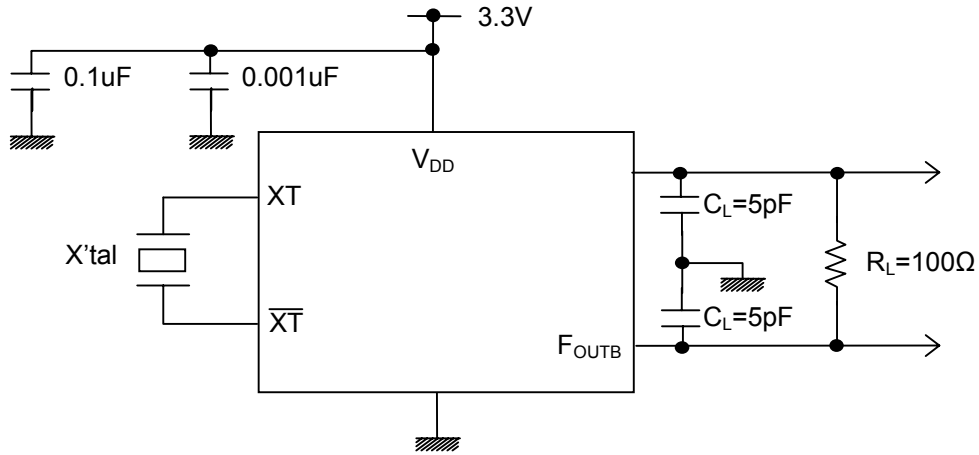
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT	CIR- CUIT
Operating Current	I <sub>DD1</sub>	fosc=155MHz, C <sub>L</sub> =5pF		27	40	mA	1
Oscillation Stopping Current	I <sub>DD2</sub>	CONT=V <sub>SS</sub> , No load		2.5	5	uA	
Stand-by Current	I <sub>st</sub>	CONT=XT=V <sub>SS</sub> , No load Note4)			1	uA	
Input Voltage	V <sub>IH</sub>		2.31		3.3	V	
	V <sub>IL</sub>		0		0.99	V	
Input Current	I <sub>IN</sub>	CONT=0.8V <sub>DD</sub>		15.0	20.0	uA	
		CONT=0.2V <sub>DD</sub>		2.3	3.5	uA	
Output Off Leakage Current	I <sub>oz</sub>	CONT=V <sub>SS</sub> , F <sub>OUTA</sub> and F <sub>OUTB</sub> =V <sub>DD</sub> CONT=V <sub>SS</sub> , F <sub>OUTA</sub> and F <sub>OUTB</sub> =V <sub>SS</sub>			±1	uA	
Feedback Resistance	R <sub>f</sub>			1.93		kΩ	
Internal Capacitor	C <sub>g</sub> /C <sub>d</sub>	fosc=155MHz		9/14		pF	
Maximum Oscillation Frequency	f <sub>MAX</sub>		160			MHz	
Output Signal Symmetry	SYM	F <sub>OUTA</sub> - F <sub>OUTB</sub> , C <sub>L</sub> =5pF, R <sub>L</sub> =100Ω @1/2V <sub>OD</sub> , Hi side	45	50	55	%	1
Differential Output Voltage	V <sub>OD</sub>		250	350	450	mV	2
Δ Differential Output Voltage	ΔV <sub>OD</sub>			2	35	mV	2
Offset Voltage	V <sub>OS</sub>		1.125	1.25	1.375	V	3
Δ Offset Voltage	ΔV <sub>OS</sub>			2	25	mV	3
Output Short Current 1	I <sub>OS</sub> (SHORT)				24	mA	4
Output Short Current 2	I <sub>OSD</sub> (SHORT)				12	mA	5
Differential Output Ripple	V <sub>OR</sub>	Note5)			±150	mVp-p	6
Output Signal Rise Time	t <sub>r</sub>	R <sub>L</sub> =100Ω, C <sub>L</sub> =5pF 0.2V <sub>OD</sub> to 0.8V <sub>OD</sub>	0.3		1.5	ns	1
Output Signal Fall Time	t <sub>f</sub>	R <sub>L</sub> =100Ω, C <sub>L</sub> =5pF 0.8V <sub>OD</sub> to 0.2V <sub>OD</sub>	0.3		1.5	ns	1
Output Disable Time	t <sub>PLZ</sub>	C <sub>L</sub> =5pF, R <sub>UP</sub> =10kΩ			100	ns	8
Output Enable Time	t <sub>PZL</sub>	C <sub>L</sub> =5pF, R <sub>UP</sub> =10kΩ			100	ns	8

Note4) Excluding input current on CONT Terminal.

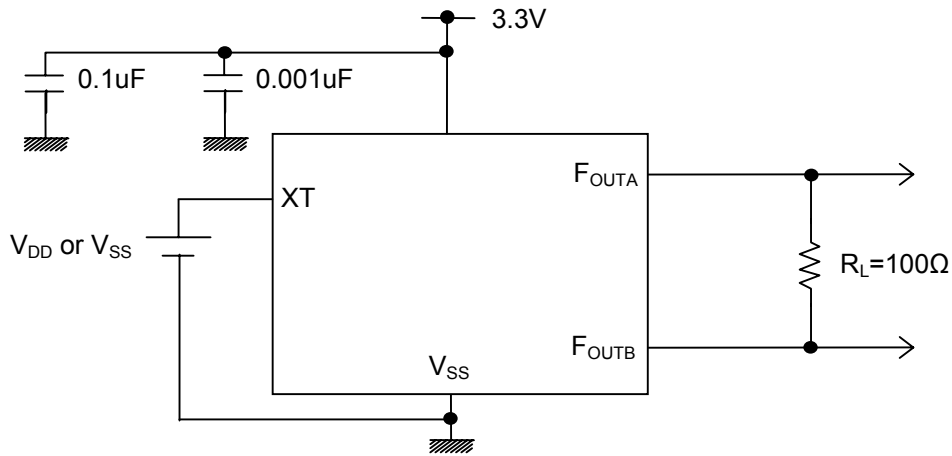
Note5) Design guarantee.

MEASUREMENT CIRCUITS

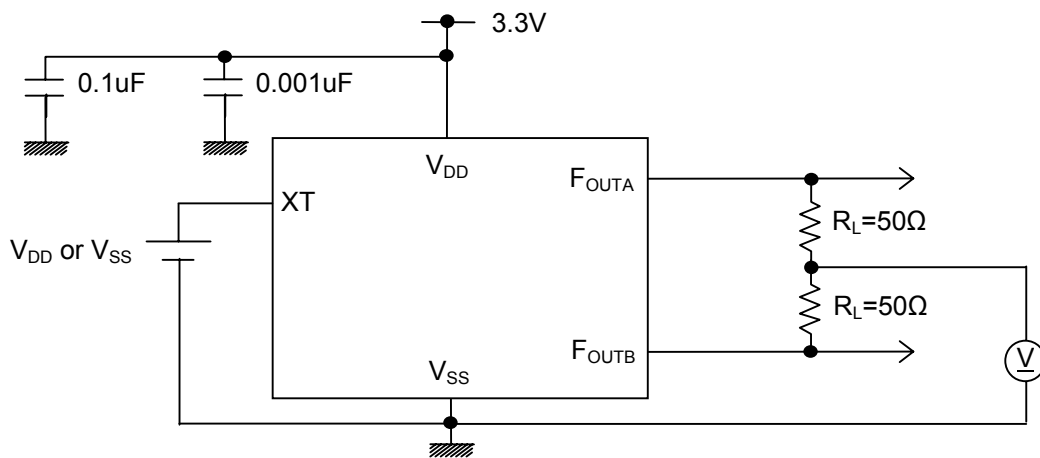
(1) Operating Current / Output Signal Symmetry / Output Signal Rise / Fall Time



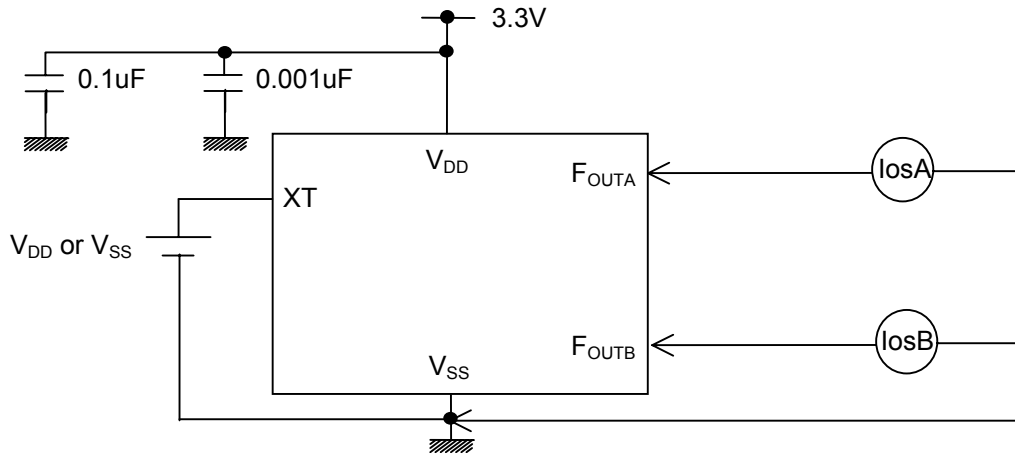
(2) Differential Output Voltage



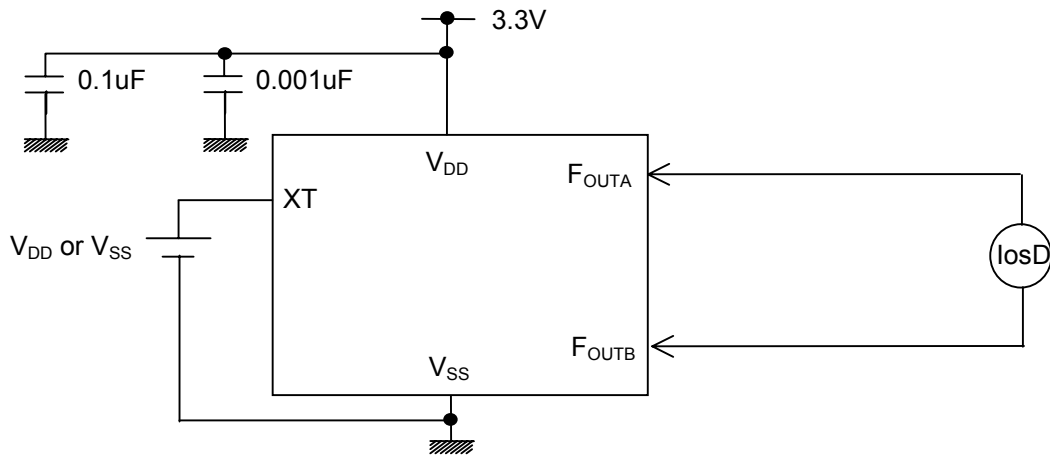
(3) Offset Voltage



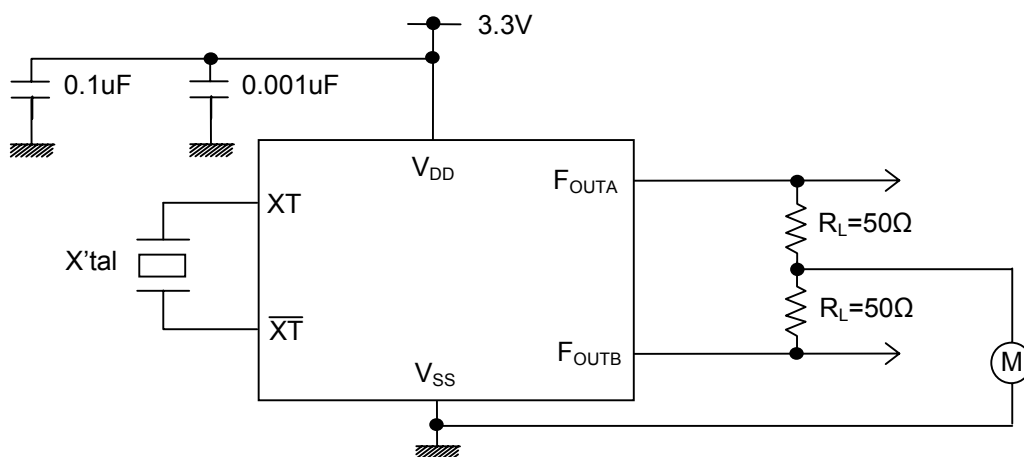
(4) Output Short Current 1



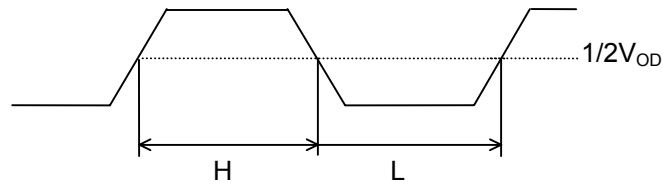
(5) Output Short Current 2



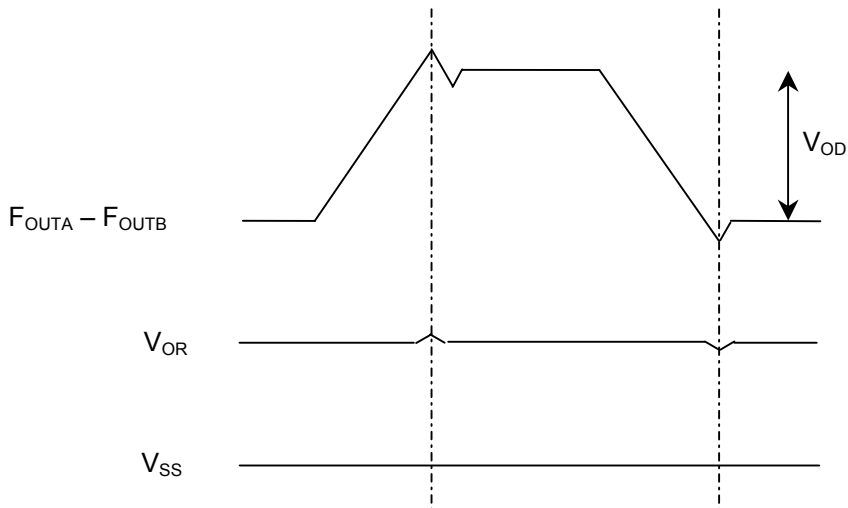
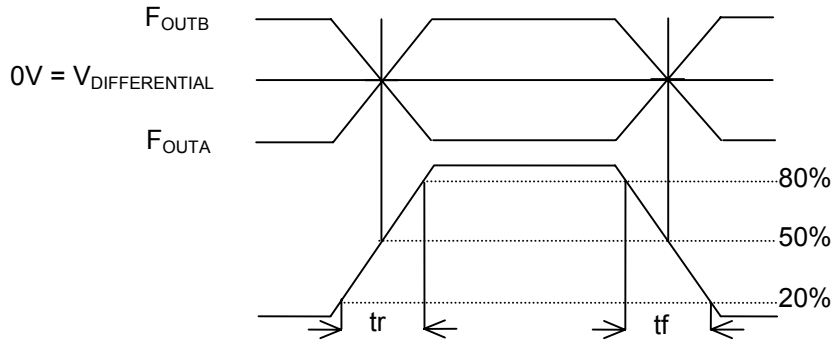
(6) Differential Output Ripple



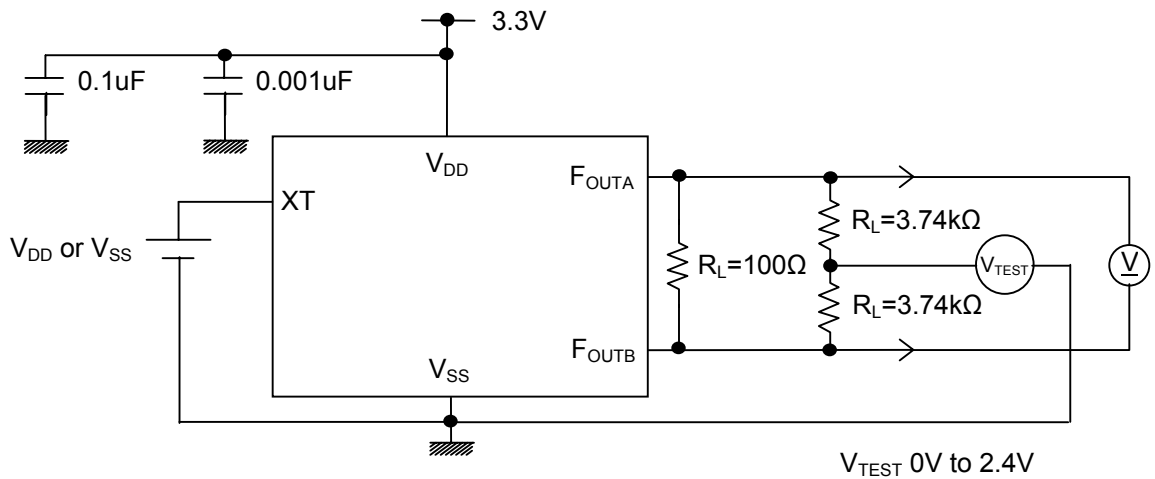
Output Signal Symmetry



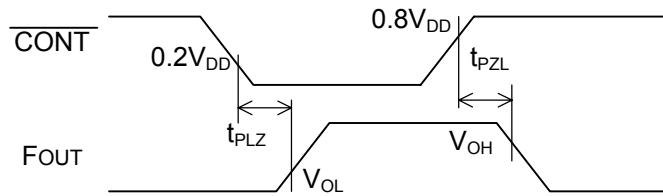
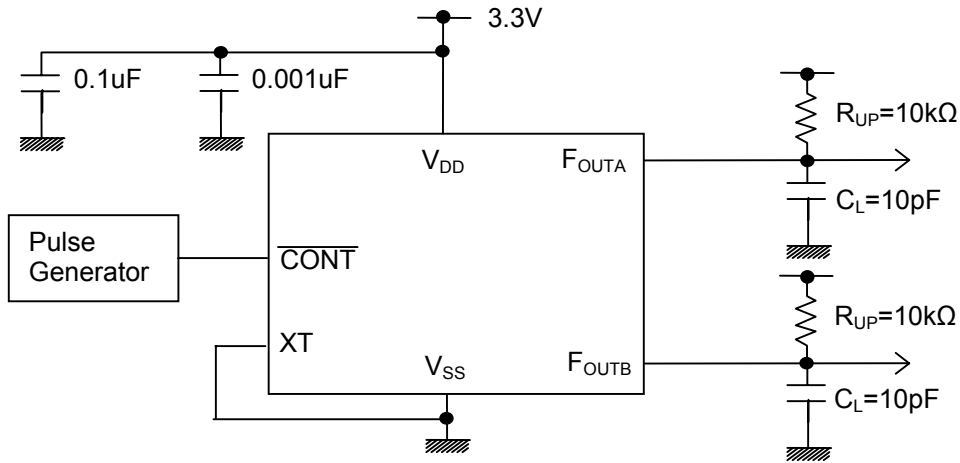
$$V_{DIFFERENTIAL} = F_{OUTA} - F_{OUTB}$$



(7) FULL LOAD DC Test



(8) Output Disable Time / Output Enable Time



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