

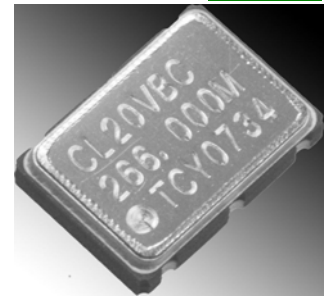
# - HCSL Output Crystal Oscillator -

**TYPE : CH28V\*\* / CH284\*\***

RoHS

- HCSL output SPXO ( 27MHz to 220MHz )
- Excellent performance / Low jitter and high stability vs temperature
- High speed switching (Tr/Tf=0.3nS typ.) , low consumption
- RoHS compliant

Supply Voltage	+2.5Vdd or +3.3Vdd
Output Level	HCSL
Dimension	7.0*5.0*1.8mm



## - Electrical Specifications -

\* +3.3Vdd = < CH284\* \* >    +2.5Vdd = < CH28V\* \* >

Item	Condition	MIN	TYP	MAX	UNIT
Frequency Range (Fo)		27	-	220	MHz
Supply Voltage	Vdd=+3.3V	+3.135	-	+3.465	V
	Vdd=+2.5V	+2.375	-	+2.625	
Total Frequency Accuracy ( Including accuracy, supply voltage change, 1st year aging )	(G) option	-20	-	+20	PPM
	(A) option	-25	-	+25	
	(B) option	-50	-	+50	
	(C) option	-100	-	+100	
Operating temperature	(S) option	0	-	+70	deg.c
	(A) option	-20	-	+70	
	(B) option	-40	-	+85	
	(C) option	-10	-	+70	
Storage temperature		-50	-	+125	
Output Level	VOH	-	0.75	-	V
	VOL	-	0.00	0.15	
Rise Time	20% → 80%	-	0.3	0.5	nS
Fall Time	80% → 20%	-	0.3	0.5	
Duty	@ 1/2 Vdd	45	-	55	%
Current Consumption	13.5MHz to 125MHz	-	20	30	mA
	125MHz to 220MHz	-	22	32	
Load	-	50			Ohm
RMS jitter *1	Offset : 12KHz to 20MHz	-	0.2 - 0.3	-	ps
Start Up Time		-	-	10	mA
E/D function	#1pin = Hi or Open : Output Enable / Low : Output Disable				

1\*) Measured with E5052B signal source analyzer (Agilent technology).  
( Typical RMS Jitter value is depending on Output Frequency )

## < Dimension and recommended land pattern >

( Unit in mm )

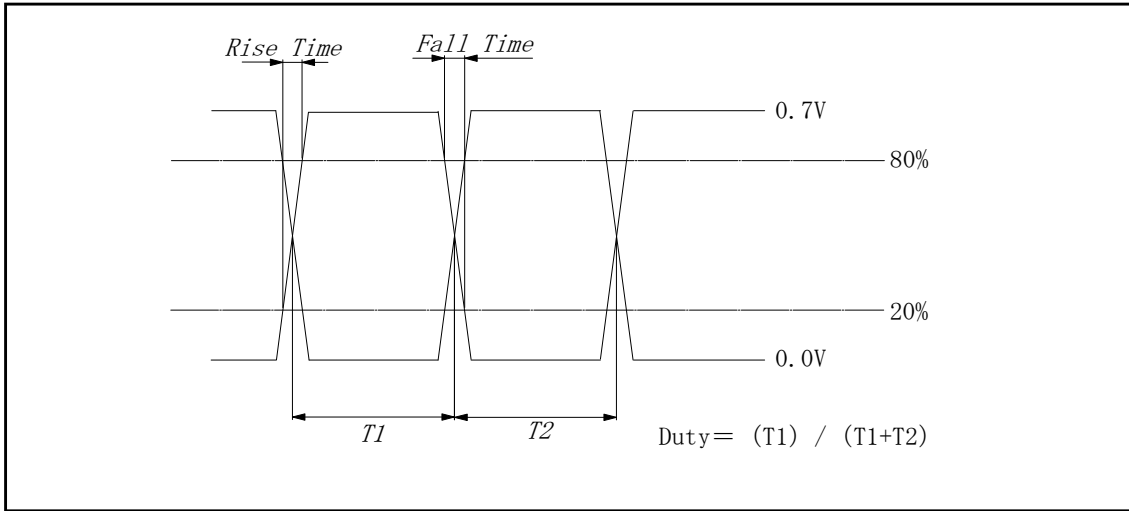
<Recommended Land Pattern>

#1	E/D
#2	NC
#3	VSS
#4	OUTPUT
#5	OUTN
#6	VDD

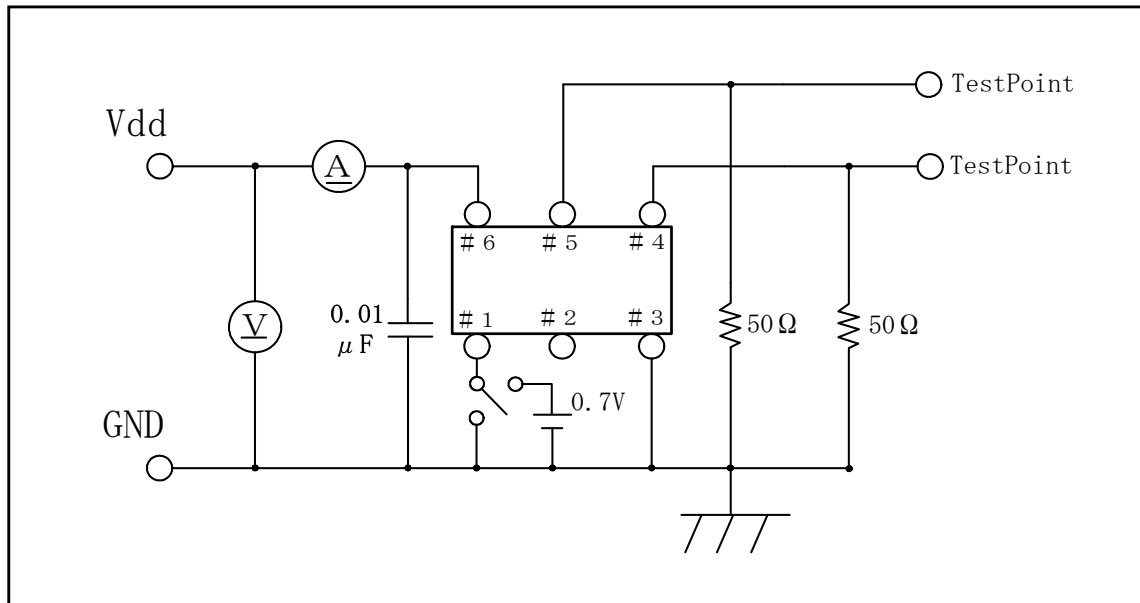
\* Metal Lid and Ceramic Base / seam Welded / Pad : Gold Plating

\* Please insert 0.01microF bypass capacitor between #6 and #3 pins.

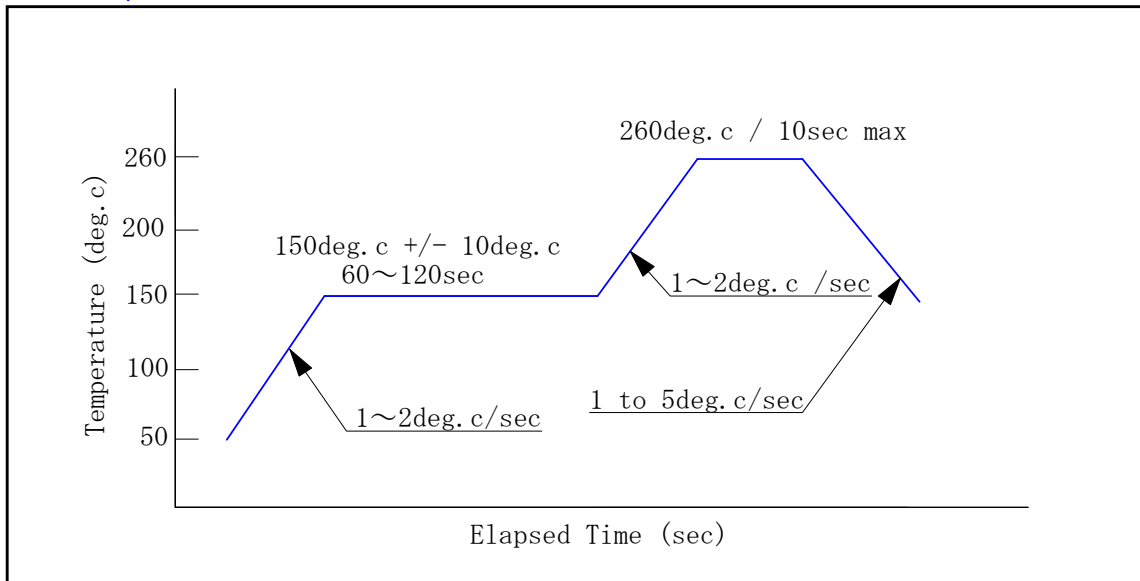
● Output Wave Form Diagram ( Single output )



● Test circuits

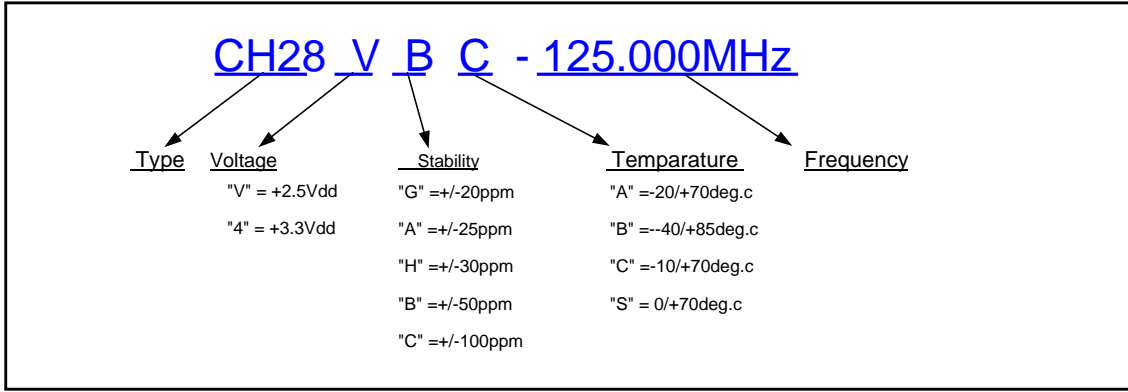


● Reflow profile

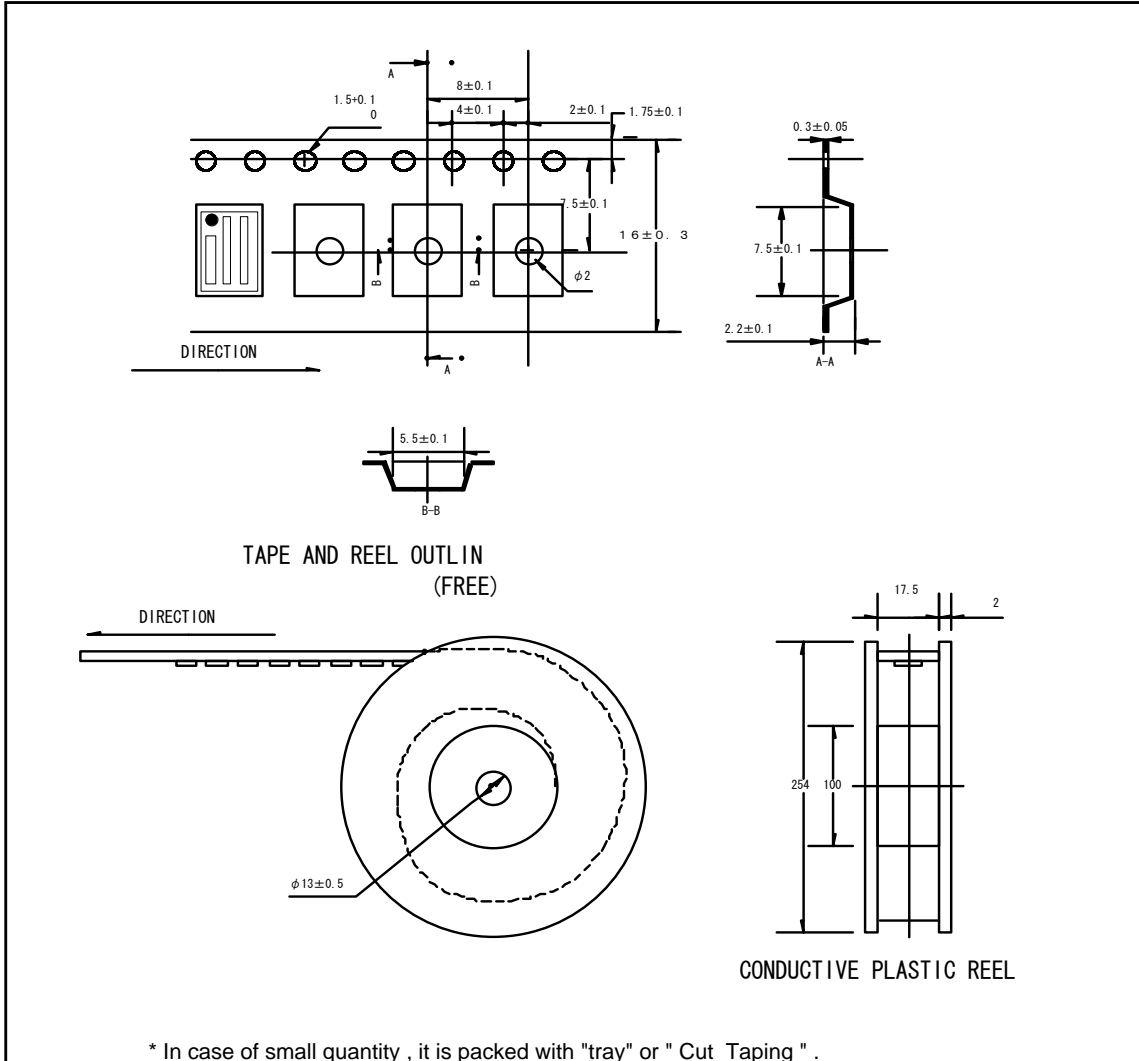


- \* The reflow process can be allowed until 2 times.
- \* In case of manual soldering ; using soldering iron at +360deg.c +/-20deg.c , within 3sec ( per each 1pad )
- \* This product includes CMOS device, then please handle it with protected process against ESD.

● How to define Model Number



● Taping & Reel dimension



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**TamaDevice**  
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