

Travelling Merchant: \_\_\_\_\_

# DATASHEET

Standard:     **T75B-B317-20.00MHz**    

P/N: \_\_\_\_\_

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2022.09.26			

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## 1. Electrical Parameters

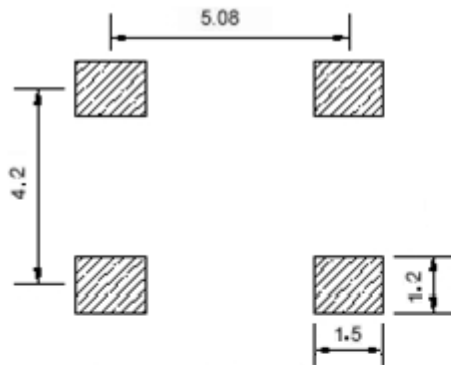
MODEL: T75B-B317-20.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$
	Output High Voltage	2.4			V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			5	ns	@25°C
	Start up Time			3	ms	Stabilization time to +/-0.5ppm of final frequency.
	Load	15			pF	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.28		+0.28	$\times 10^{-6}$	$T_A$ varied from -40°C to 105°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2$ , $V_{CC}=3.3V$ , $V_C=1.65V$ , $O_{load}=15\text{ pF}$ .
	Initial Frequency Tolerance	-1		+1	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ\text{C}$ , $V_{cc}=3.3V$ , $V_c=1.65V$ within 30 days after ex-works.
		-0.5		+0.5	$\times 10^{-6}$	Measurement referenced to frequency before reflow, tested with $T_A=25^\circ\text{C}$ and $V_{cc}=3.3V$ , $V_c=1.65V$ , $O_{load}=15\text{ pF}$ . At least 4 hours of static placement at room temperature is necessary after completion of 2 times reflow.
	Frequency Tolerance vs. Supply Voltage	-0.05		+0.05	$\times 10^{-6}$	measurement referenced to frequency observed $T_A=25^\circ\text{C}$ , $V_{cc}$ varied from 3.13V to 3.47V, $V_c=1.65V$ and $O_{Load}=15\text{ pF}$ .
	Frequency Tolerance vs. Load	-0.05		+0.05	$\times 10^{-6}$	5% load change measurement referenced to frequency observed with $T_A=25^\circ\text{C}$ , $V_{cc}=3.3V$ , $V_c=1.65V$ , $O_{Load}=15\text{ pF}$
	Short Term		0.1	0.2	$\times 10^{-9}$	Allan Deviation (ADEV), tau=1 second, at constant temperature.
	Aging Tolerance Per Day	-0.01		+0.01	$\times 10^{-6}$	$T_A=25^\circ\text{C}$ , $V_{cc}=3.3V$ , $V_c=1.65V$ and after 1h of operation.
	Aging Tolerance First Year	-1		+1	$\times 10^{-6}$	
Aging Tolerance 20 Years	-5		+5	$\times 10^{-6}$		



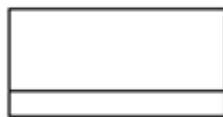
Power Supply	Current Consumption			10	mA	@25°C, V <sub>cc</sub> =3.3V, V <sub>c</sub> =1.65V, O <sub>load</sub> =15pF.
	Supply Voltage	3.13	3.3	3.47	V	
Voltage Control Characteristics	Frequency Tuning Range			-8	× 10 <sup>-6</sup>	V <sub>c</sub> =0V. measurement referenced to V <sub>c</sub> =1.65V
		-1		+1	× 10 <sup>-6</sup>	V <sub>c</sub> =1.65V. measurement referenced to exactly 20.00MHz
		+8			× 10 <sup>-6</sup>	V <sub>c</sub> =3.3V. measurement referenced to V <sub>c</sub> =1.65V
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100				KΩ
Phase Noise	Phase Noise @25°C		-90	-85	dBc/Hz	10Hz
			-115	-110		100Hz
			-140	-135		1KHz
			-150	-145		10KHz
			-152	-148		100KHz
			-155	-150		1MHz
Environmental Conditions	Operable Temperature	-40		+105	°C	
	Storage Temperature	-55		+105	°C	
	ESD Level	Human Body Model,class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.				
		Machine Model, class B: 200V to 400V; JEDEC JESD22-A115C.				
	Moisture Sensitivity Level	Level 2.				
	Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz~2000Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X , Y , Z ).IEC 68-2-06 Test Fc.				
Shock	100g; 6ms; half sine wave (3 times for each 3 directions X , Y , Z ),IEC 68-2-27 Test Ea/Severity 50A.					
Full Package Storage	Relative humidity (%)	20% ~ 70%				
	Temperature (°C)	-10~35°C				



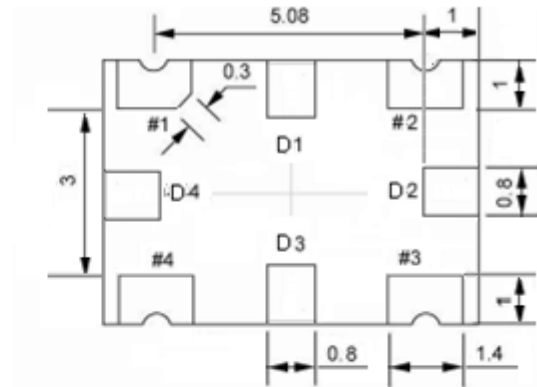
## 2. Mechanical Structure(mm)



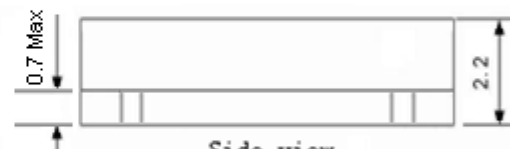
Solder pad layout



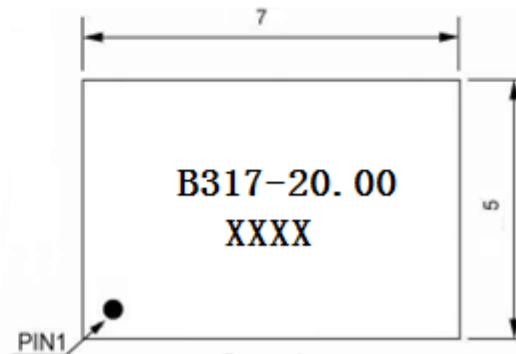
Right view



Bottom view



Side view



Top view

### PIN FUNCTION

PIN	NOTATION	FUNCTION
D1, D2, D3, D4	NC	Not Connect
1	VC	Control Voltage
2	GND	GND
3	OUTPUT	RF Output
4	VCC	Supply Voltage

**Note1:** Tolerance  $\pm 0.2\text{mm}$  without mark

**Note2:** The first two xx representative: week

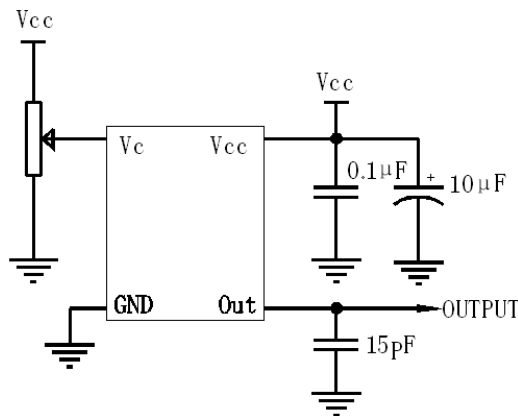
After two xx representative: year

**Note3:** Referential weight 0.2g

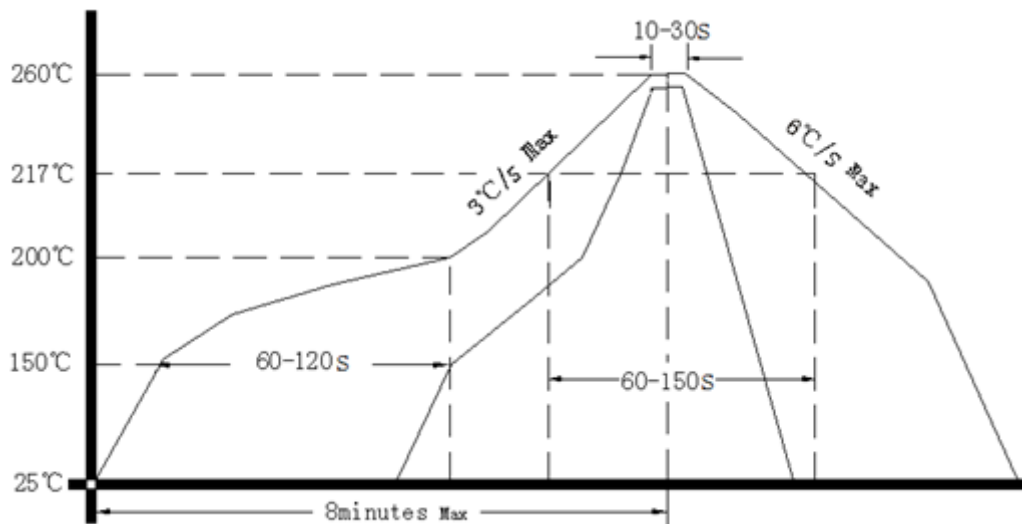
**Note4:** NC is not connect



### 3. Test circuit



### 4. Reflow Soldering Curve (RoHS)



**Note:** If soldering with a hot air gun, ensure the temperature < 320°C , soldering time < 15 seconds.

### 5. Package: Tape & Reel (mm)

