







## 1. Electrical Parameters

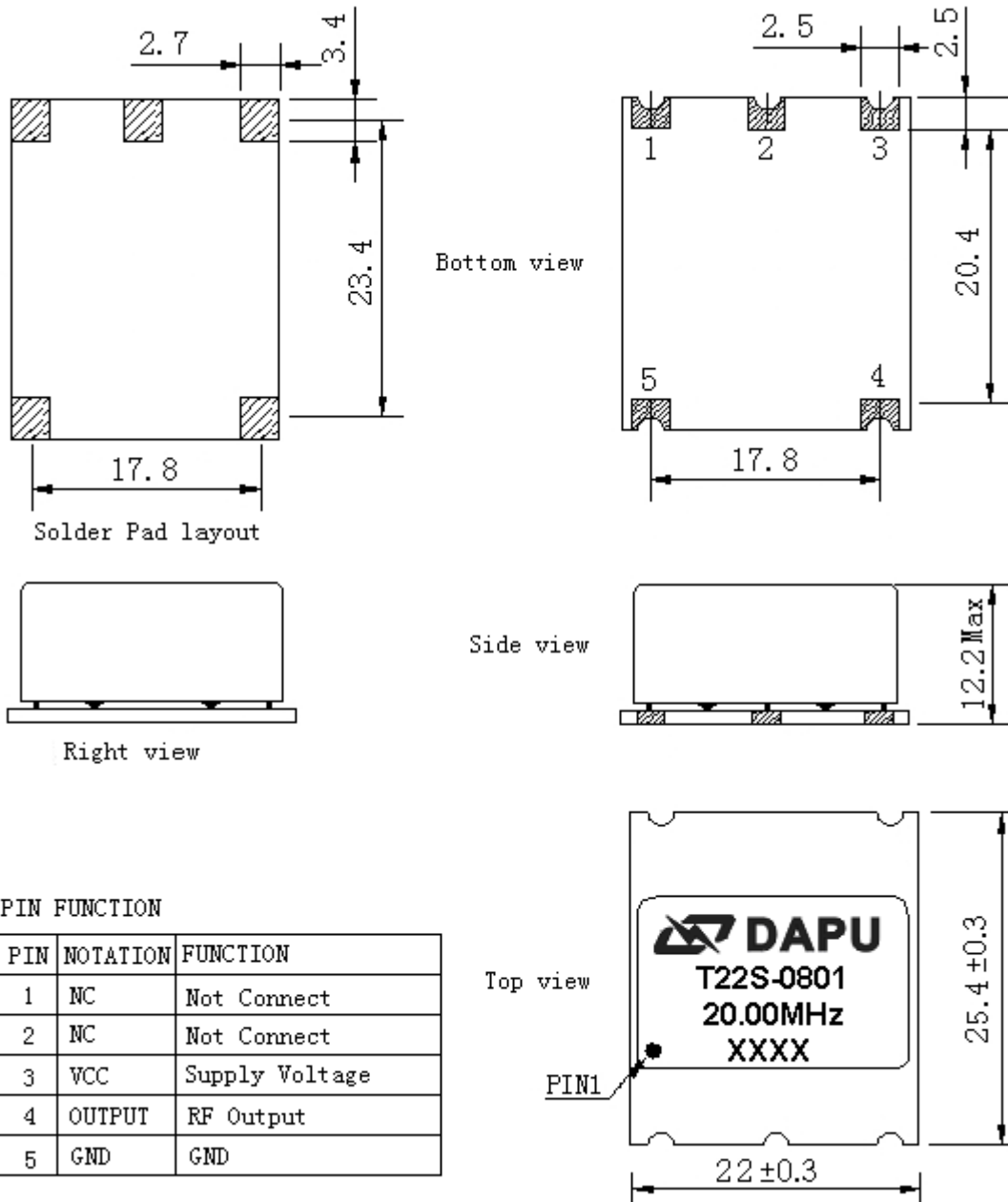
MODEL: T22S-0801-20.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	LVCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15pF$
	Output High Voltage	2.9			V	$V_{cc}=3.3V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			5	ns	
	Load	15			pF	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.28		+0.28	$\times 10^{-6}$	$T_A$ varied from -20°C to 70°C, measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V, O_{load}=15pF$ , temperature variable speed less than 2°C per minute.
		-1		+1	$\times 10^{-6}$	$T_A$ varied from -40°C to -20°C, measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V, O_{load}=15pF$ , temperature variable speed less than 2°C per minute.
		-1		+1	$\times 10^{-6}$	$T_A$ varied from 70°C to 85°C, measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V, O_{load}=15pF$ , temperature variable speed less than 2°C per minute.
	Initial Frequency Accuracy	-0.3		+0.3	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V$ , and after 30 minutes of operation, within 30 days after ex-works.
	Frequency Tolerance vs. Supply Voltage	-30		+30	$\times 10^{-9}$	measurement referenced to frequency observed $T_A=25^\circ C, V_{cc}$ varied from 3.13V to 3.47V, and $O_{Load}=15pF$ .
	Frequency Tolerance vs. Load	-20		+20	$\times 10^{-9}$	5% load change measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V$ , and $O_{Load}=15pF$ .
	Short-Term Stability Allan Variance			0.1	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to 25°C; 1s, using PN9000 equipment.
			0.2	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to 25°C; 10s, using PN9000 equipment.	



	Aging Tolerance Per Day	-3.0		+3.0	$\times 10^{-9}$	$V_{cc}$ , $T_A$ constant measurement referenced to frequency observed with $T_A=25^\circ\text{C}$ , $V_{cc}=3.3\text{V}$ , and after 30 days of operation.
	Aging Tolerance 1 Year	-1.0		+1.0	$\times 10^{-6}$	
	Aging Tolerance 10 Year	-4.6		+4.6	$\times 10^{-6}$	
Power Supply	Supply Voltage	3.13	3.3	3.47	V	
	Current Consumption			10	mA	@ $25^\circ\text{C}$ , $V_{cc}=3.3\text{V}$ , $O_{Load}=15\text{pF}$ .
Jitter				2	ps	RMS (12k~10M)
Phase Noise	Phase Noise		-85	-80	dBc/Hz	10Hz
			-110	-105		100Hz
			-130	-125		1KHz
			-140	-135		10KHz
			-145	-140		100KHz
Environmental Conditions	Operable Temperature	-40		+85	$^\circ\text{C}$	
	Operating Temperature	-40		+85	$^\circ\text{C}$	
	Storage Temperature	-40		+85	$^\circ\text{C}$	
	ESD Level	Human Body Model, class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.				
		Machine Model, class B: 200V to 400V; ANSI/ESDA/JEDEC JS-001-2010.				
	Moisture Sensitivity Level	Not humidity sensitive.				
	Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz~500Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X , Y , Z), IEC 68-2-06 Test Fc.				
Shock	50g; 11ms; 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 ( $^\circ\text{C}$ )	-10~35 $^\circ\text{C}$				



## 2. Mechanical Structure (mm)



**Note1:** Tolerance ± 0.2mm without mark

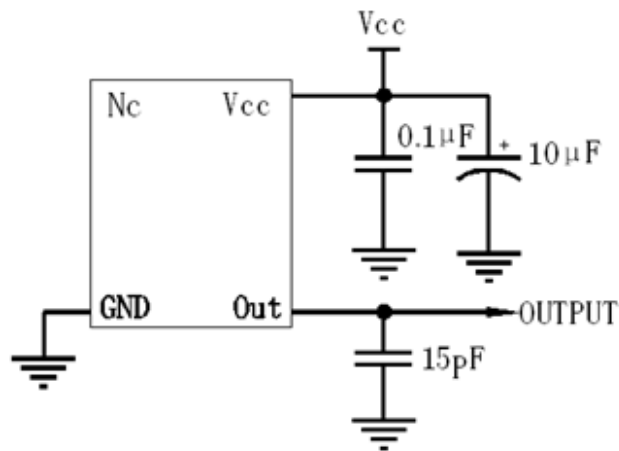
**Note2:** The first two xx representative: week  
After two xx representative: year

**Note3:** Referential weight 5g

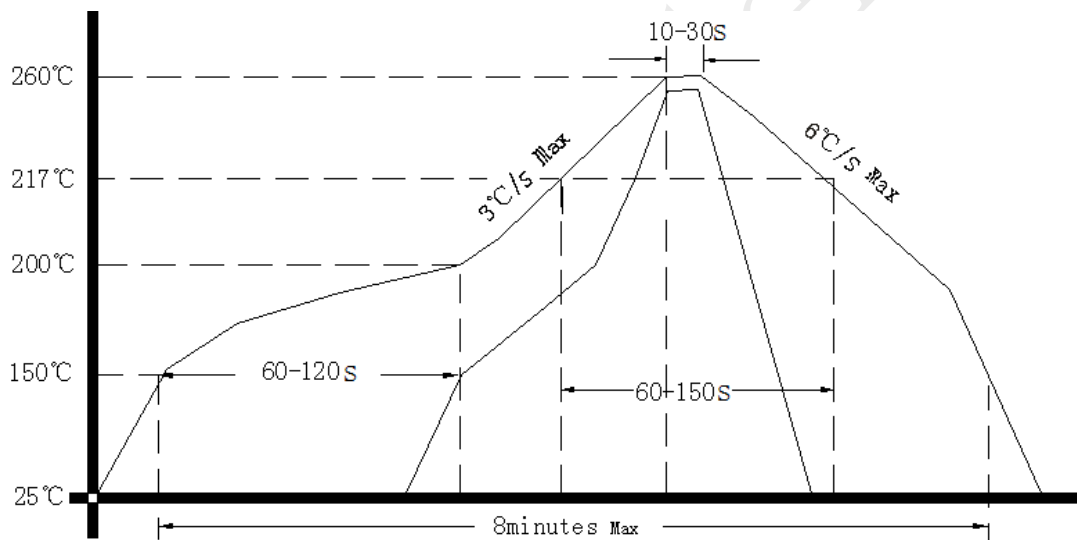
**Note4:** NC is not connect



#### 4. Test Circuit



#### 5. Reflow Soldering Curve (RoHS)



Note: passing through reflow upside down is not supported

#### 6. Package (mm)

