

Customer Code : \_\_\_\_\_

# DATASHEET

DAPU P/N :     **T53-Y311-20.00MHz**    

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

DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2024.09.09			

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### Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2018.07.18
1.1	The “Mechanical Structure” “Moisture Sensitivity Level” “ESD Level” “Package: Tape & Reel” changed	<i>Amway</i>	2024.09.09



## 1. Electrical Parameters

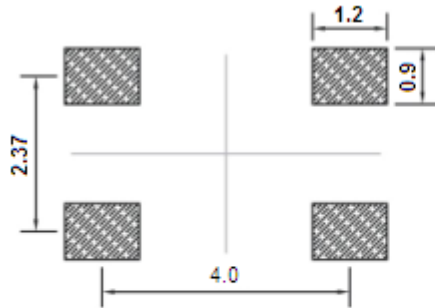
MODEL: T53-Y311-20.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.33	V	$V_{cc}=3.3V, O_{load}=15pF$
	Output High Voltage	2.97			V	$V_{cc}=3.3V, O_{load}=15pF$
	Duty Cycle	40	50	60	%	@50%
	Rise / Fall Time (10%~90%)			6	ns	
	Start time			2	ms	
	Load	15			pF	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.28		+0.28	$\times 10^{-6}$	$T_A$ varied from -40 to 85°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, V_c=1.5V, O_{load}=15pF$ , temperature variable speed less than 2°C per minute.
	Initial Frequency Tolerance	-2		+2	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V, V_c=1.5V$ within 30 days after ex-works.
	Frequency Tolerance vs. Supply Voltage	-0.3		+0.3	$\times 10^{-6}$	measurement referenced to frequency observed $T_A=25^\circ C, V_{cc}$ varied from 2.9V to 3.465V, $V_c=1.5V$ and $O_{Load}=15pF$ .
	Frequency Tolerance vs. Load	-0.2		+0.2	$\times 10^{-6}$	5% load change measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V, V_c=1.5V, O_{Load}=15pF$ .
	Aging Tolerance 20 Year	-2.5		+2.5	$\times 10^{-6}$	20 years at 25 °C
Power Supply	Current Consumption			5	mA	@25°C, $V_{cc}=3.3V, V_c=1.5V, O_{load}=15pF$ .
	Supply Voltage	2.9	3.3	3.465	V	
Phase Noise	Phase Noise @25°C		-123	-118	dBc/Hz	100Hz
			-145	-140		1KHz
			-158	-153		10KHz



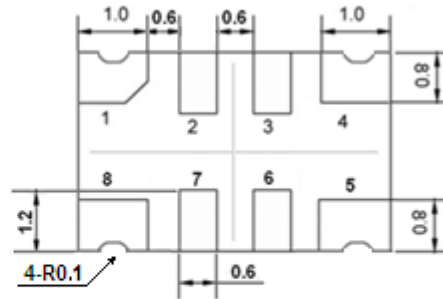
Voltage Control Characteristics	Frequency Tuning Range	-10		-5	$\times 10^{-6}$	$V_c=0.5V$ . measurement referenced to $V_c=1.5V$
		-2		+2	$\times 10^{-6}$	$V_c=1.5V$ . measurement referenced to exactly 20.00MHz
		+5		+10	$\times 10^{-6}$	$V_c=2.5$ . measurement referenced to $V_c=1.5V$
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100			K $\Omega$	
Environmental Conditions	Operable Temperature	-40		+85	$^{\circ}C$	
	Storage Temperature	-55		+125	$^{\circ}C$	
	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 ( $^{\circ}C$ )	-10~35 $^{\circ}C$				



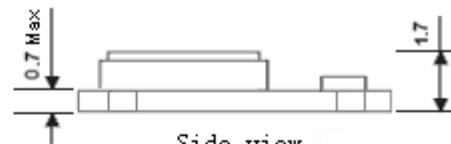
## 2. Mechanical Structure(mm)



Solder pad layout



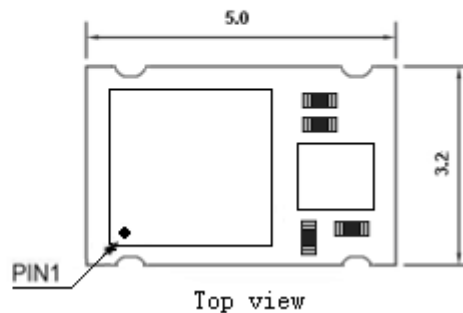
Bottom view



Side view

### PIN FUNCTION

PIN	NOTATION	FUNCTION
1	VC	Control Voltage
2, 3	NC	Not Connect
4	GND	GND
5	OUTPUT	RF Output
6, 7	NC	Not Connect
8	VCC	Supply Voltage



Top view

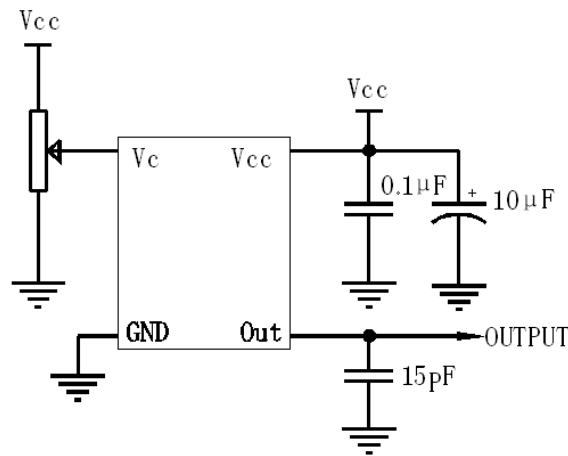
**Note1:** Tolerance  $\pm 0.30\text{mm}$  without mark

**Note2:** Referential weight 0.05g

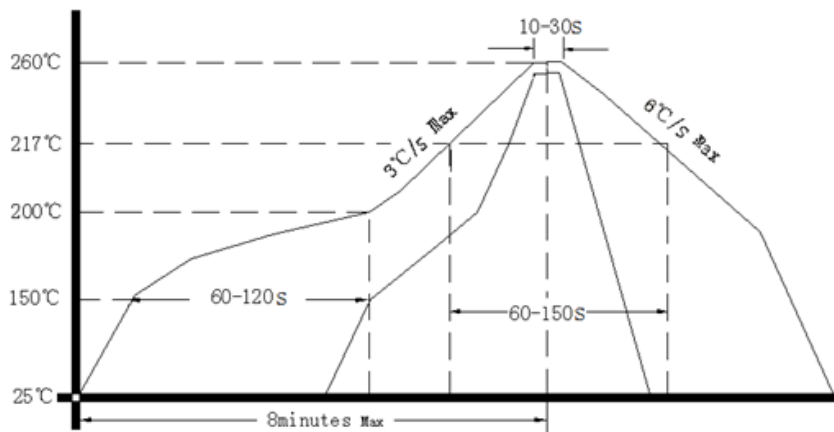
**Note3:** NC is not connect



### 3. Test circuit



### 4. Output Waveform



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

