

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

# DATASHEET

DAPU P/N : T53-K513-13.00MHz-A

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

DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2022.10.19			

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**Table of amendment**

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2021.05.21
1.1	The "Moisture Sensitivity Level" "Reflow Soldering Curve" changed	<i>Amway</i>	2022.10.19

DAPU Confidential



## 1. Electrical Parameters

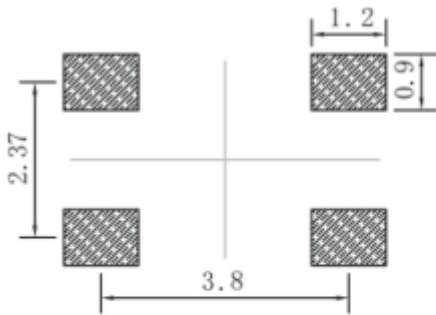
MODEL: T53-K513-13.00MHz-A						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	13.00			MHz	
	Output Waveform	Clipped Sine Wave				
	Vp-p	0.8			V	
	Start up Time			2	ms	
	Harmonics			-5	dBc	
	Load	10K $\Omega$ //10pF				
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-1		+1	$\times 10^{-6}$	T <sub>A</sub> varied from -30°C to 85°C, measurement referenced to frequency observed with T <sub>A</sub> =25°C, V <sub>cc</sub> =3.3V, V <sub>c</sub> =1.5V, O <sub>load</sub> =10K $\Omega$ //10pF, temperature variable speed less than 2°C per minute.
	Nominal Frequency Tolerance	-1		+1	$\times 10^{-6}$	Measurement referenced to frequency observed with T <sub>A</sub> =25°C, V <sub>cc</sub> =3.3V, V <sub>c</sub> =1.5V within 30 days after ex-works.
	Frequency Tolerance vs. Supply Voltage	-0.2		+0.2	$\times 10^{-6}$	measurement referenced to frequency observed T <sub>A</sub> =25°C, V <sub>cc</sub> varied from 3.13V to 3.47V, V <sub>c</sub> =1.5V and O <sub>Load</sub> =10K $\Omega$ //10pF.
	Frequency Tolerance vs. Load	-0.2		+0.2	$\times 10^{-6}$	10% load change measurement referenced to frequency observed with T <sub>A</sub> =25°C, V <sub>cc</sub> =3.3V, V <sub>c</sub> =1.5V and O <sub>Load</sub> =10K $\Omega$ //10pF.
	Aging Tolerance Per Day	-0.02		+0.02	$\times 10^{-6}$	T <sub>A</sub> =25°C, V <sub>cc</sub> =3.3V, V <sub>c</sub> =1.5V and after 1h of operation.
	Aging Tolerance 1 Year	-1		+1	$\times 10^{-6}$	
Power Supply	Operating Current			2	mA	@25°C, V <sub>cc</sub> =3.3V, V <sub>c</sub> =1.5V, O <sub>Load</sub> =10K $\Omega$ //10pF.
	Supply Voltage	3.13	3.3	3.47	V	



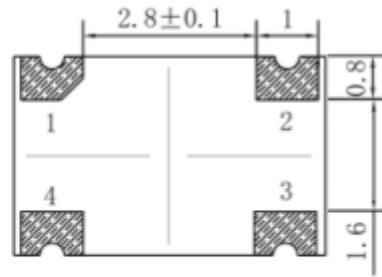
Voltage Control	Frequency tuning range	-15		-9	$\times 10^{-6}$	$V_c=0.5V$ . measurement referenced to $V_c=1.5V$ .
		-1		+1	$\times 10^{-6}$	$V_c=1.5V$ . measurement referenced to Exactly 13.00MHz.
		+9		+15	$\times 10^{-6}$	$V_c=2.5V$ . measurement referenced to $V_c=1.5V$ .
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100				K $\Omega$
Phase Noise	Phase Noise @25°C			-100	dBc/Hz	100Hz
				-130		1KHz
				-140		10KHz
Environmental Conditions	Operable Temperature	-30		+85	°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



Bottom view



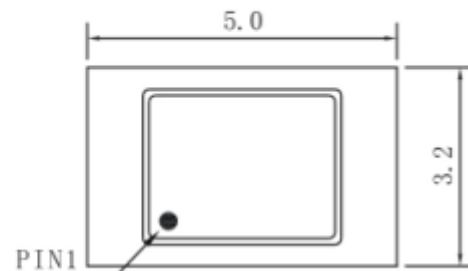
Right view



Side view

### PIN FUNCTION

PIN	NOTATION	FUNCTION
1	VC	Control Voltage
2	GND	GND
3	OUTPUT	RF Output
4	VCC	Supply Voltage

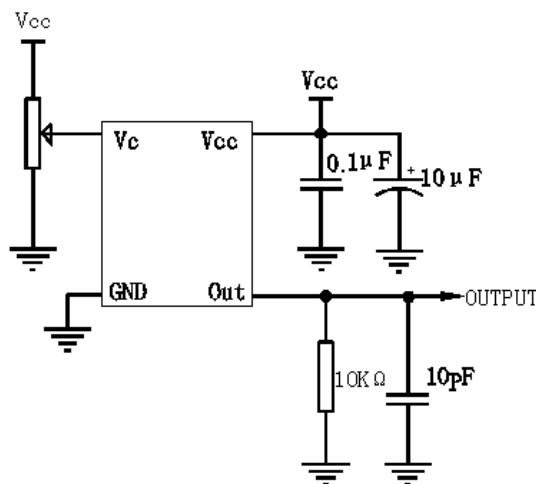


Top view

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

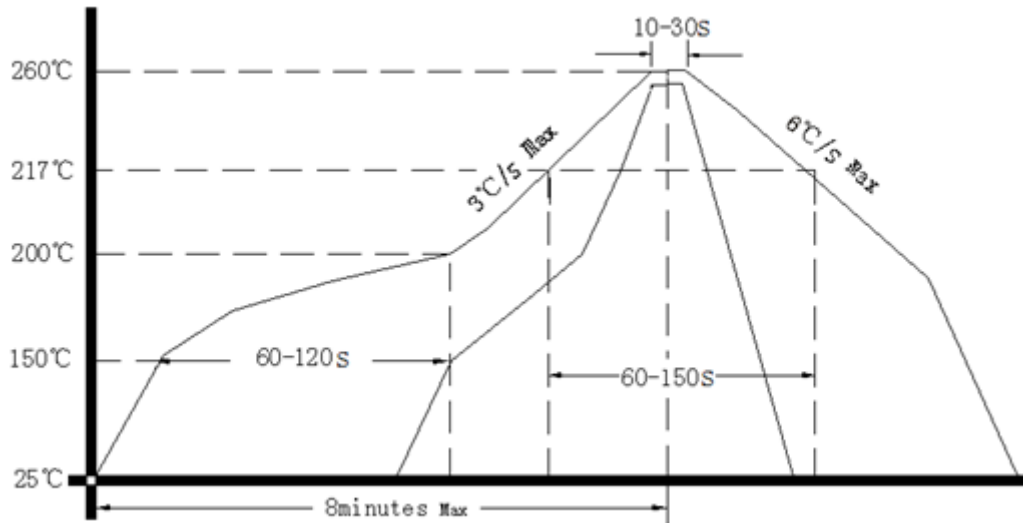
**Note2:** Referential Weight 0.05g

## 3. Test Circuit





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



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

