

Customer Code : _____

DATASHEET

DAPU P/N : **T53-F318-20.00MHz**

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DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2021.06.16			

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Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2015.05.28
1.1	The “ESD Level” “Moisture Sensitivity Level” “Mechanical Structure” “Package: Tape & Reel” changed	<i>Amway</i>	2021.06.16



1. Electrical Parameters

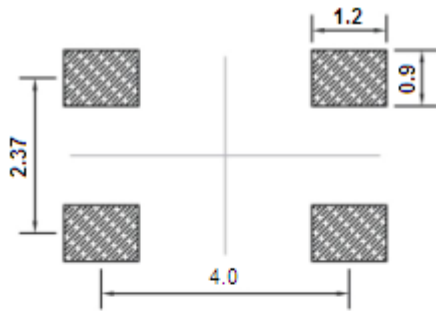
MODEL: T53-F318-20.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.33	V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$
	Output High Voltage	2.97			V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			8	ns	@25°C
	Load	15			pF	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.5		+0.5	$\times 10^{-6}$	T_A varied from -40°C to 85°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2$, $V_{cc}=3.3V, V_c=1.5V, O_{load}=15\text{ pF}$, temperature variable speed less than 2°C per minute.
	Nominal Frequency Tolerance	-1		+1	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V$ within 30 days after ex-works.
	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, $V_c=1.5V$ and $O_{Load}=15\text{ pF}$.
	Frequency Tolerance vs. Load	-0.05		+0.05	$\times 10^{-6}$	10% load change measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V, O_{Load}=15\text{ pF}$
	Aging Tolerance Per Day	-0.02		+0.02	$\times 10^{-6}$	$T_A=25^\circ\text{C}, V_{cc}=3.3V, V_c=1.5V$ and after 1h of operation.
	Aging Tolerance 1 Year	-0.5		+0.5	$\times 10^{-6}$	
	Total Stability	-4.6		+4.6	$\times 10^{-6}$	Inclusive of the following: - initial tolerance ($T_A=25^\circ\text{C}$) - operating temperature -40°C to 85°C - 3.3V±5% - 15pF load ±10% - 20 years aging



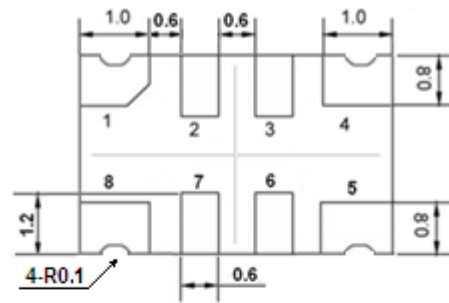
Power Supply	Current Consumption			6	mA	@25°C, V _{cc} =3.3V, V _c =1.5V, O _{load} =15pF.
	Supply Voltage	3.13	3.3	3.47	V	
Voltage Control Characteristics	Frequency Tuning Range			-5	× 10 ⁻⁶	V _c =0.5V. measurement referenced to V _c =1.5V.
		-1		+1	× 10 ⁻⁶	V _c =1.5V. measurement referenced to Exactly 20.00MHz.
		+5			× 10 ⁻⁶	V _c =2.5V. measurement referenced to V _c =1.5V.
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100				KΩ
Phase Noise	Phase Noise @25°C		-85	-80	dBc/Hz	10Hz
			-115	-110		100Hz
			-135	-130		1KHz
			-145	-140		10KHz
			-145	-140		100KHz
			-148	-143		1MHz
Environmental Conditions	Operable Temperature	-40		+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 3.				
	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				



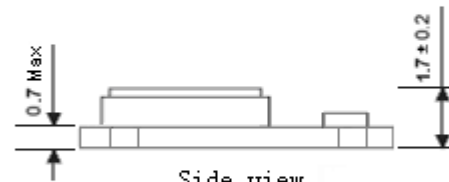
2. Mechanical Structure(mm)



Solder pad layout



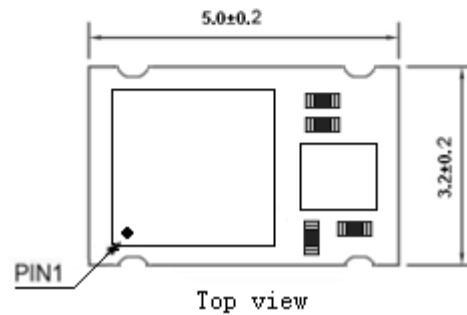
Bottom view



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



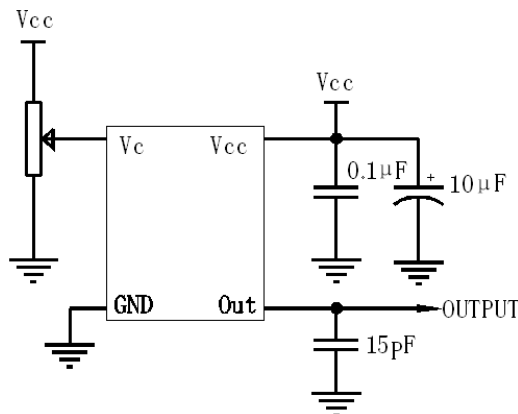
Top view

Note1: Tolerance $\pm 0.20\text{mm}$ without mark

Note2: Referential Weight 0.05g

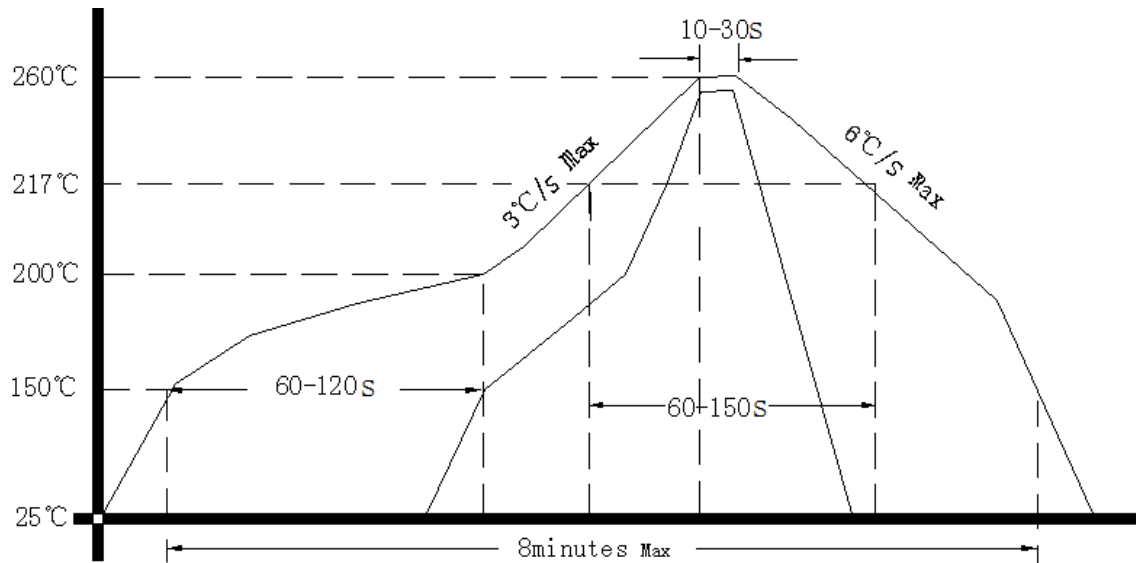
Note3: NC is not connect

3. Test circuit





4. Reflow Soldering Curve (RoHS)



5. Package: Tape & Reel (mm)

