

Travelling Merchant: _____

DATASHEET

Standard: **T21-S513-20.00MHz**

P/N: _____

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2023.08.21			

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Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2021.09.01
1.1	The “Mechanical Structure” changed	<i>Amway</i>	2023.08.21



1、Electrical Parameters

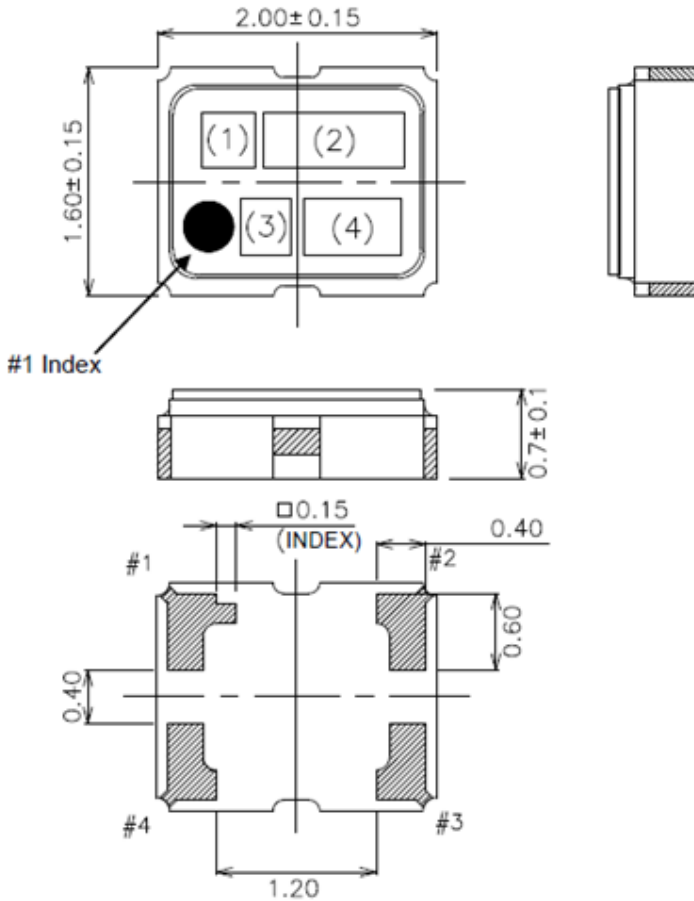
MODEL: T21-S513-20.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	Clipped Sine Wave				
	V _{p-p}	0.8		1.5	V	Peak to peak voltage
	Load	10KΩ//10pF				
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.5		+0.5	× 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} =10KΩ//10pF, temperature variable speed less than 2°C per minute.
	Initial Frequency Tolerance	-1.5		+1.5	× 10 ⁻⁶	Reflow cycles:2times, Measurement of frequency deviation is made 24h after reflow soldering . T _A =25°C, Include initial frequency tolerance and frequency deviation after reflow cycles.
	Frequency Tolerance vs. Supply Voltage	-0.2		+0.2	× 10 ⁻⁶	measurement referenced to frequency observed T _A =25°C, V _{cc} varied from 3.135V to 3.465V, V _c =1.5V and O _{Load} =10KΩ//10pF.
	Frequency Tolerance vs. Load	-0.2		+0.2	× 10 ⁻⁶	10% load change measurement referenced to frequency observed with T _A =25°C, V _{cc} =3.3V, V _c =1.5V and O _{Load} =10KΩ//10pF .
	Aging Tolerance Per Year	-1		+1	× 10 ⁻⁶	T _A =25°C, V _{cc} =3.3V, V _c =1.5V and after 1h of operation.
Power Supply	Operating Current			1.5	mA	@25°C, V _{cc} =3.3V, V _c =1.5V, O _{Load} =10KΩ//10pF.
	Supply Voltage	3.13	3.3	3.47	V	
Voltage Control	Frequency tuning range	-15		-5	× 10 ⁻⁶	V _c = 0.5V. measurement referenced to V _c =1.5V.
		-1.5		+1.5	× 10 ⁻⁶	V _c =1.5V. measurement referenced to Exactly 20.00MHz.
		+5		+15	× 10 ⁻⁶	V _c =2.5V. measurement referenced to V _c =1.5V.
	Slope	Positive				
	Input Impedance	100			KΩ	



Phase Noise	Phase Noise			-78	dBc/Hz	10Hz
				-108		100Hz
				-130		1KHz
				-145		10KHz
				-148		100KHz
				-148		1MHz
Environmental Conditions	Operable Temperature	-40		+85	°C	
	Storage Temperature	-40		+85	°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 1.				
	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.					



2、 Mechanical Structure(mm)



Pin Connections

Pin No.	Connection
#1	Vcont
#2	GND
#3	Output
#4	V _{CC}

Marking

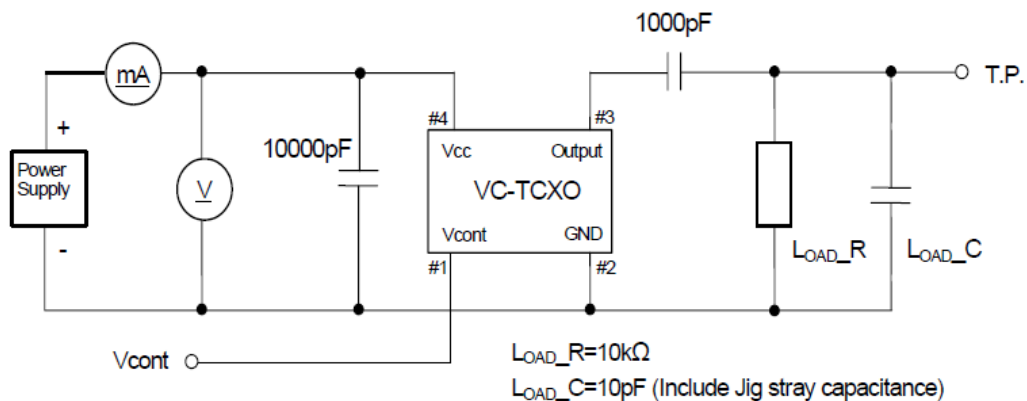
(1) Model code	BN
(2) Frequency	20.0 (MHz, 3digits)
(3) Logo	D
(4) Date code	Year (1digit) +Week (2digits) e.g.2014/1/1 → 401

unit: mm

Dimensional Tolerance: ±0.1

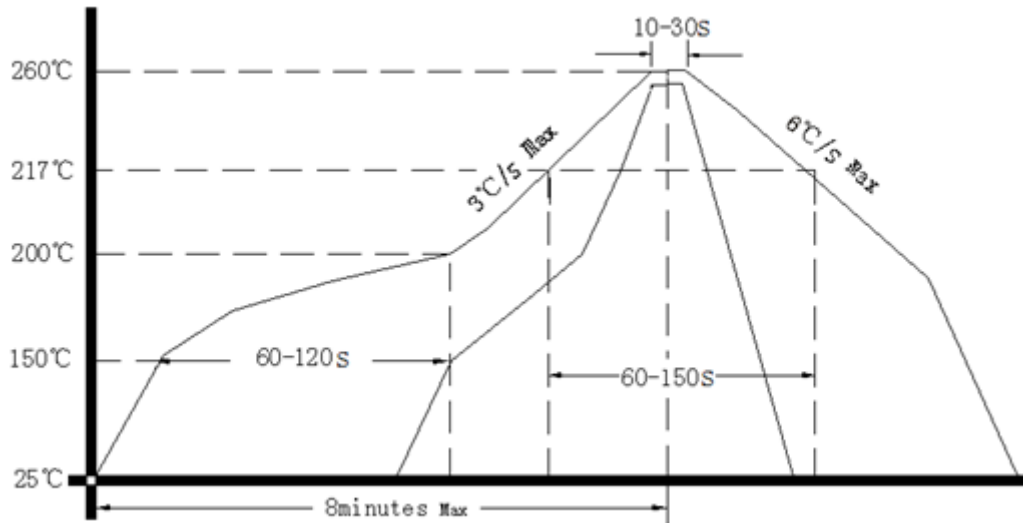
(Unless otherwise noted)

3、 Test Circuit





4、 Reflow Soldering Curve (RoHS)



5、 Package: Tape & Reel (mm)

