

Travelling Merchant: \_\_\_\_\_

# DATASHEET

Standard:           **O79A-K319-20.00MHz**          

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

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2023.05.25			

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### Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2018.01.10
1.1	The “Rise / Fall Time” “Initial Frequency Tolerance” “Frequency Tolerance vs. Supply Voltage” “Frequency Tolerance vs. Load” “Warm up current” “Phase Noise” “Mechanical Structure” “Package: Tape & Reel” changed, Add “Startup time till valid waveform” “Frequency vs. Temperature Slope” “Warm up Time” “Relative Humidity Range” “Absolute Humidity Range” “Air Pressure Range”	<i>Amway</i>	2020.08.20
1.2	The “Aging Tolerance Per Day” “Aging Tolerance 1 Year” changed	<i>Amway</i>	2020.08.26
1.3	The “Mechanical Structure” changed	<i>Amway</i>	2020.11.02
1.4	The “Moisture Sensitivity Level” “Mechanical Structure” “Reflow Soldering Curve” changed	<i>Amway</i>	2022.06.13
1.5	The “Warm up Time” changed	<i>Amway</i>	2022.09.14
1.6	The “Phase Noise” changed	<i>Amway</i>	2023.03.08
1.7	The “Marking” changed	<i>Amway</i>	2023.05.25



## 1. Electrical Parameters

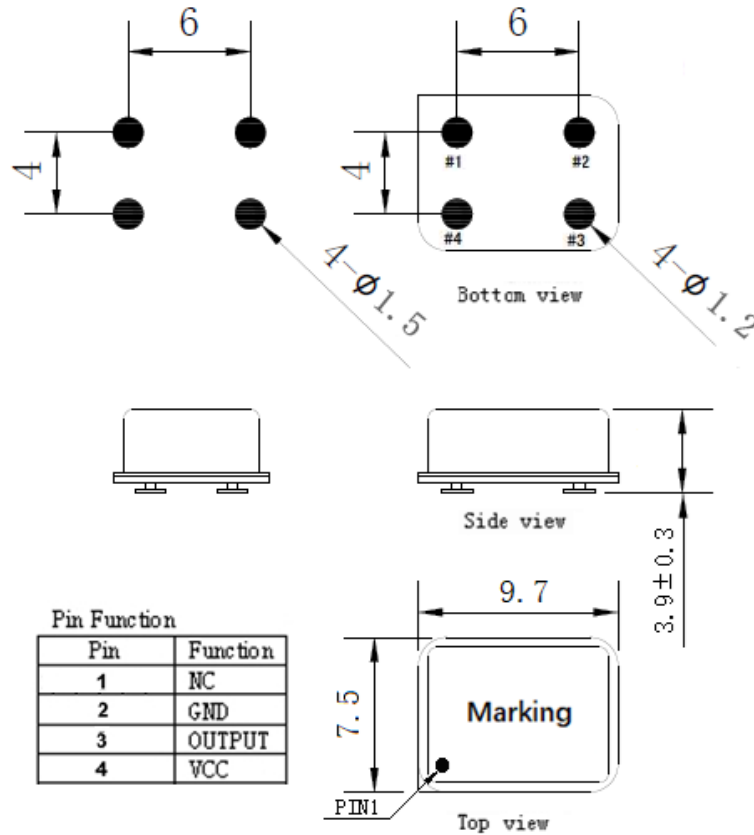
MODEL: O79A-K319-20.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$
	Output High Voltage	2.4			V	$V_{cc}=3.3V, O_{load}=15\text{ pF}$
	Duty Cycle	45		55	%	@50%
	Rise / Fall Time			6	ns	10%~90%
	Startup time till valid waveform			50	ms	Time until RF output waveform is within output level, duty cycle and rise/fall time spec
	Load	15			pF	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.01		+0.01	$\times 10^{-6}$	$T_A$ varied from $-40^\circ\text{C}$ to $95^\circ\text{C}$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, O_{load}=15\text{ pF}$ , temperature variable speed less than $2^\circ\text{C}$ per minute.
	Initial Frequency Tolerance	-1		+1	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V$ within 30 days after ex-works.
	Frequency Tolerance vs. Supply Voltage	-5		+5	$\times 10^{-9}$	measurement referenced to frequency observed $T_A= -40\sim 95^\circ\text{C}, V_{cc}$ varied from 3.135V to 3.465V, and $O_{Load}=15\text{ pF}$ .
	Frequency Tolerance vs. Load	-5		+5	$\times 10^{-9}$	5% load change measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=3.3V, O_{Load}=15\text{ pF}$ .
	Frequency vs. Temperature Slope	-0.5		+0.5	$\times 10^{-9}/^\circ\text{C}$	$T_{amb}$ slope $\pm 1^\circ\text{C}/\text{min}$ with any temperature window over operating temperature range. Includes also hysteresis effects. Slope measurement for device qualification as described in the related note.
	Aging Tolerance Per Day	-2		+2	$\times 10^{-9}$	$T_A=25^\circ\text{C}, V_{cc}=3.3V$ , and after 30 days of operation.
	Aging Tolerance 1 Year	-0.5		+0.5	$\times 10^{-6}$	



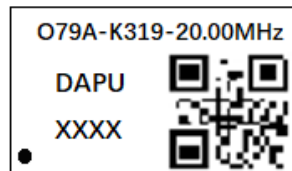
	Warm up Time			3	min	Time until RF output is within $\pm 0.025$ ppm referenced to last frequency reading 1 h after startup, $T_A$ varied from $-40^\circ\text{C}$ to $95^\circ\text{C}$ .	
	Steady Consumption			230	mA	@ $25^\circ\text{C}$	
	Warm up current			600	mA		
	Supply Voltage	3.135	3.3	3.465	V		
Phase Noise	Phase Noise $-40\sim 95^\circ\text{C}$		-75	-65	dBc/Hz	1Hz	
			-113	-108		10Hz	
			-146	-138		100Hz	
			-160	-154		1KHz	
			-163	-158		10KHz	
			-163	-158		100KHz	
			-163	-158		1MHz	
Environmental Conditions	Operating Temperature	-40		+95	$^\circ\text{C}$		
	Operable Temperature	-45		+105	$^\circ\text{C}$		
	Storage Temperature	-55		+105	$^\circ\text{C}$		
	Relative Humidity Range	5		95	%		
	Absolute Humidity Range	1		29	$\text{g}/\text{m}^3$		
	Air Pressure Range	70		106	kPa		
	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)



### Marking:



**Note1:** Tolerance  $\pm 0.3$ mm without mark

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

After two xx representative: year

**Note3:** Referential Weight 0.7g

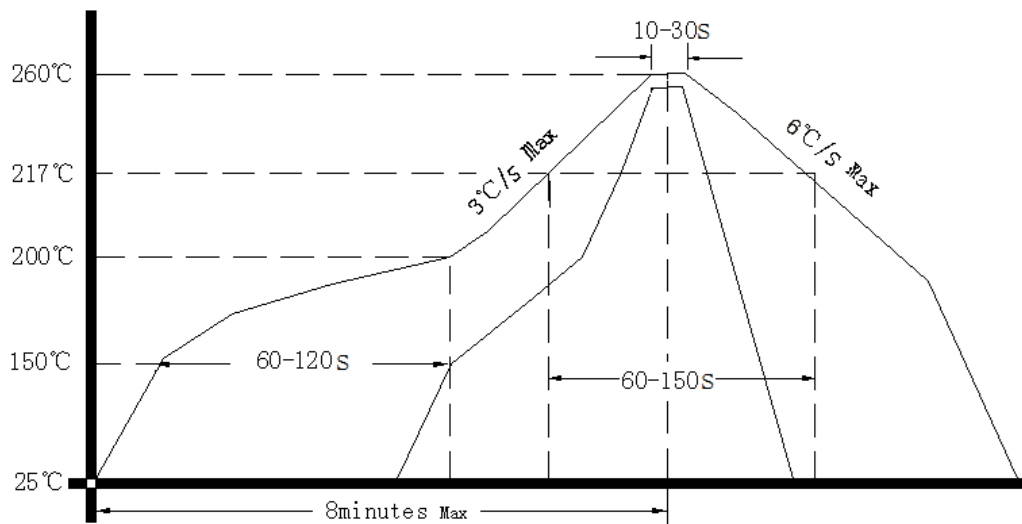
**Note4:** NC is not connect



### 3. Test circuit



### 4. Reflow Soldering Curve (RoHS)



Note: Passing through reflow upside down is not supported

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

