

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

# DATASHEET

DAPU P/N: 021L-H312-16.384MHz

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

DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2022.07.05			

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### Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2022.07.05



## 1. Electrical Parameters

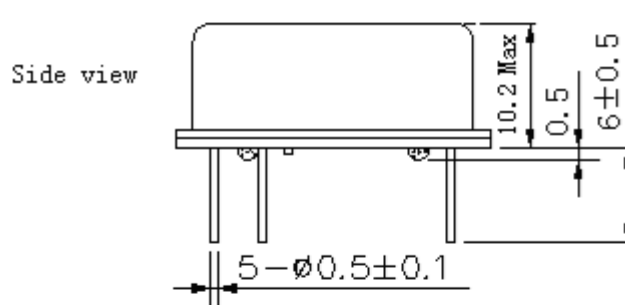
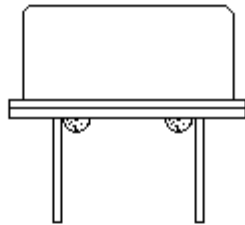
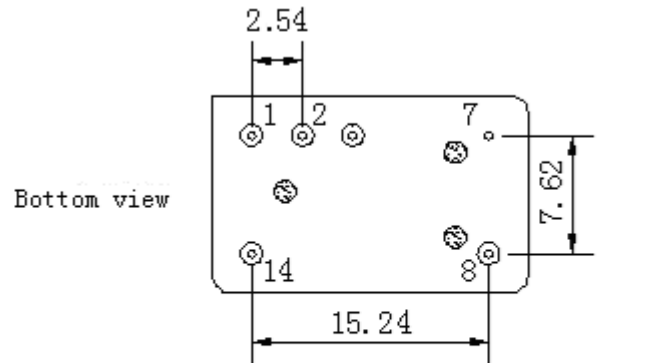
MODEL: O21L-H312-16.384MHZ						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	16.384			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15pF$
	Output High Voltage	2.4			V	$V_{cc}=3.3V, O_{load}=15pF$
	Duty Cycle	45		55	%	@50%
	Rise / Fall Time (10%~90%)			10	ns	
	Load	15			pF	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-1		+1	$\times 10^{-9}$	$T_A$ varied from $-10^{\circ}C$ to $45^{\circ}C$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, O_{load}=15pF$ , temperature variable speed less than $2^{\circ}C$ per minute.
	Initial Frequency Tolerance	-0.2		+0.2	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V, V_c=1.4V$ , at time of shipment.
	Frequency Tolerance vs. Supply Voltage	-1		+1	$\times 10^{-9}$	measurement referenced to frequency observed $T_A=25^{\circ}C, V_{cc}$ varied from 3.13V to 3.47V, and $O_{load}=15pF$ .
	Short-Term Stability: Allan Variance		1.5		$\times 10^{-11}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to $25^{\circ}C; 1s$ .
	G-Sensitivity		0.3	1	$\times 10^{-9}/g$	
	Aging Tolerance Per day	-0.5		+0.5	$\times 10^{-9}$	$V_{cc}, T_A$ constant measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V$ , and after 30 days of operation.
	Aging Tolerance First Year	-0.05		+0.05	$\times 10^{-6}$	
Power Supply	Supply Voltage	3.13	3.3	3.47	V	
	Reference Voltage	2.7	2.8	2.9	V	
	Steady Consumption			30	mA	@ $25^{\circ}C$ , no wind.
	Warm up Current			120	mA	
	Warm-Up Time			5	min	@ $25^{\circ}C$ within $\pm 0.05 \times 10^{-6}$ of final Frequency with reference after 1 hour on.



Voltage Control Characteristics	Frequency Tuning Range			-0.4	$\times 10^{-6}$	$V_c=0V$ . measurement referenced to $V_c=1.4V$
		-0.2		+0.2	$\times 10^{-6}$	$V_c=1.4V$ . measurement referenced to Exactly16.384MHz
		+0.4			$\times 10^{-6}$	$V_c=2.8V$ . measurement referenced to $V_c=1.4V$
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100				K $\Omega$
Phase Noise	Phase Noise		-122	-117	dBc/Hz	10Hz
			-140	-135		100Hz
			-150	-145		1KHz
			-152	-147		10KHz
	Operable Temperature	-10		+55	$^{\circ}C$	
	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	Not humidity sensitive.				
	Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz~500Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X , Y , Z), IEC 68-2-06 Test Fc.				
Shock	50g; 11ms; 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 $^{\circ}C$				

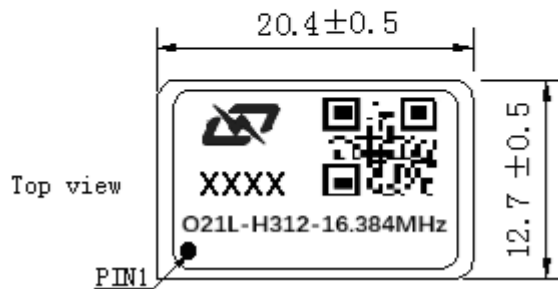


## 2. Mechanical Structure (mm)



### PIN FUNCTION

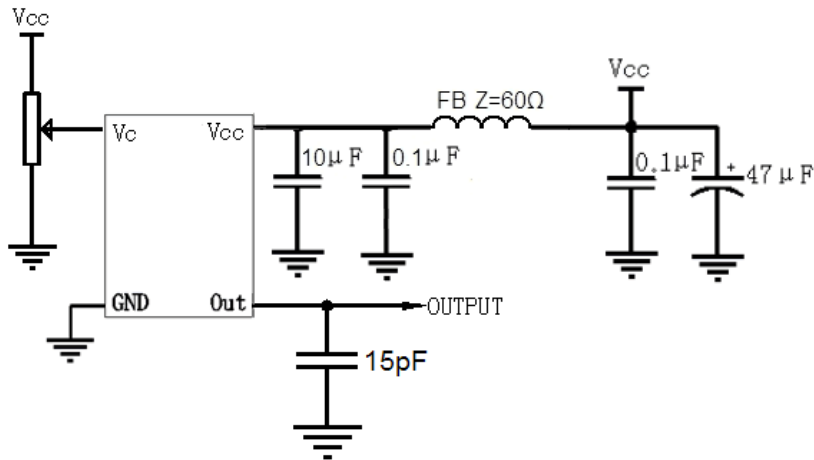
PIN	NOTATION	FUNCTION
1	VC	Control Voltage
2	VREF	VREF
7	GND	GND
8	OUTPUT	RF Output
14	VCC	Supply Voltage



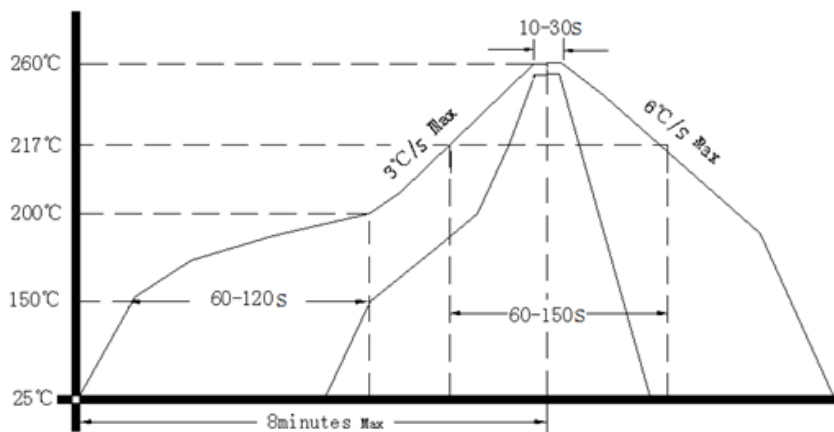
- Note1:** Tolerance  $\pm 0.2\text{mm}$  without mark
- Note2:** Referential weight 4.2g
- Note3:** The first two xx representative: year  
After two xx representative: week



### 3. Test Circuit



### 4. Reflow Soldering Curve (RoHS)



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

