

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

# DATASHEET

DAPU P/N: 011A-A321-32.768MHz

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DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
<i>Amway.wei</i>	<i>Tony · Wang</i>	<i>James.Liu</i>	
Date: 2019.05.22			

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### Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2018.03.07
1.1	The “Frequency Stabilities” changed	<i>Amway</i>	2018.03.15
1.2	The “Mechanical Structure” changed	<i>Amway</i>	2018.03.20
1.3	The “Moisture Sensitivity Level” changed	<i>Amway</i>	2019.05.22



## 1. Electrical Parameters

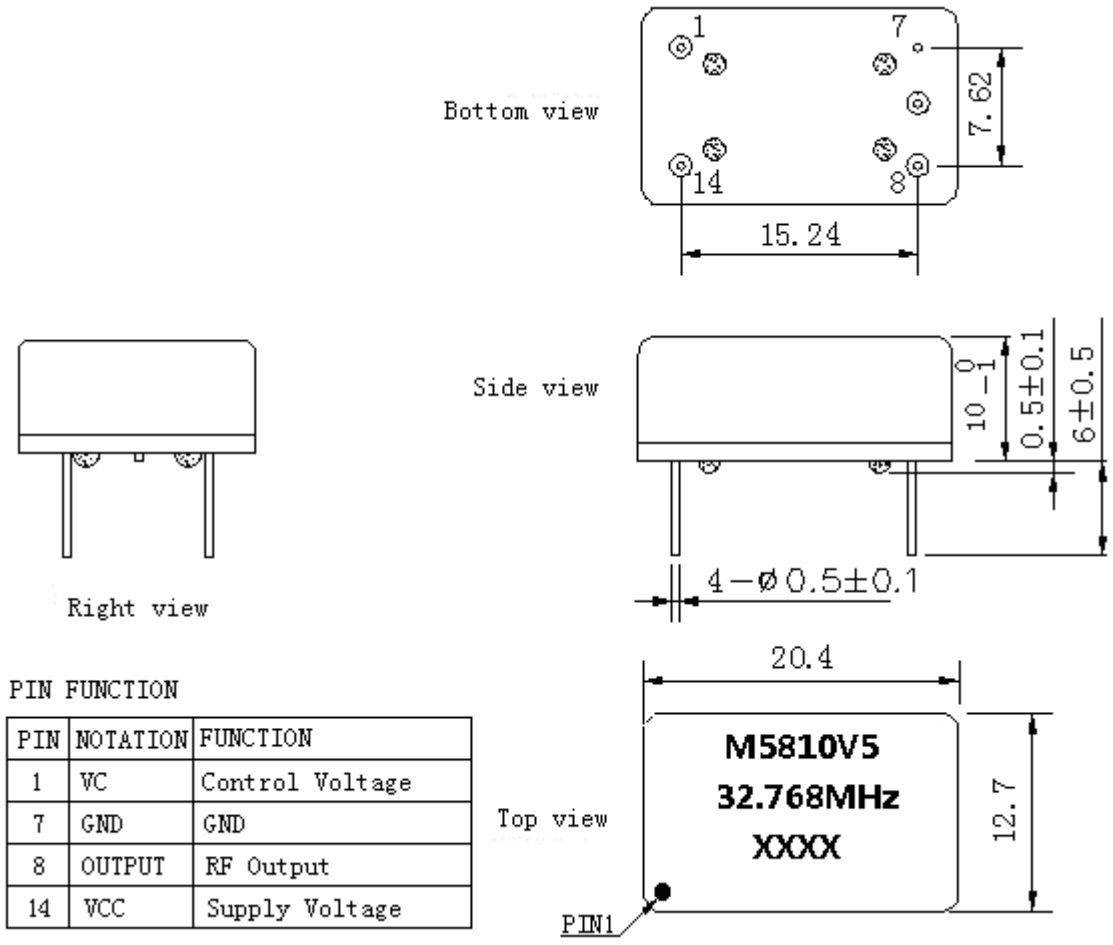
MODEL: O11A-A321-32.768MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	32.768			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=5V, O_{load}=15pF$
	Output High Voltage	2.7			V	$V_{cc}=5V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			10	ns	
	Load	15			pF	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.02		+0.02	$\times 10^{-6}$	$T_A$ varied from $-40^{\circ}C$ to $80^{\circ}C$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=5V, V_c=2.5V, O_{load}=15pF$ , 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 $T_A=25^{\circ}C, V_{cc}=5V, V_c=2.5V$ and after 15 minutes of operation, within 30 days after ex-works.
	Frequency Tolerance vs. Supply Voltage	-3		+3	$\times 10^{-9}$	measurement referenced to frequency observed $T_A=25^{\circ}C, V_{cc}$ varied from 4.75V to 5.25V and $O_{Load}=15pF$ .
	Frequency Tolerance vs. Load	-3		+3	$\times 10^{-9}$	5% load change measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=5V, V_c=2.5V$ and $O_{Load}=15pF$ .
	Short-Term Stability Allan Variance			0.01	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to $25^{\circ}C$ ; 1s, using PN9000 equipment.
	Aging Tolerance Per Day	-2		+2	$\times 10^{-9}$	$V_{cc}, V_c, T_A$ constant measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=5V, V_c=2.5V$ and after 30 days of operation.
	Aging Tolerance 1 Year	-0.2		+0.2	$\times 10^{-6}$	
Power Supply	Supply Voltage	4.75	5.0	5.25	V	
	Steady Consumption			300	mA	@ $25^{\circ}C$
	Warm up current			700	mA	



Voltage Control Characteristics	Frequency Tuning Range	-1.0		-0.5	$\times 10^{-6}$	$V_c=0V$ . measurement referenced to $V_c=2.5V$
		-0.1		0.1	$\times 10^{-6}$	$V_c=2.5V$ . measurement referenced to exactly 32.768MHz
		0.5		1.0	$\times 10^{-6}$	$V_c=5V$ . measurement referenced to $V_c=2.5V$
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100				K $\Omega$
Phase Noise	Phase Noise @25°C		-115	-105	dBc/Hz	10Hz
			-135	-125		100Hz
			-140	-135		1KHz
			-145	-140		10KHz
			-145	-140		100KHz
Environmental Conditions	Operable Temperature	-40		+80	°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; ANSI/ESDA/JEDEC JS-001-2010.				
	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 (°C)	-10~35°C				



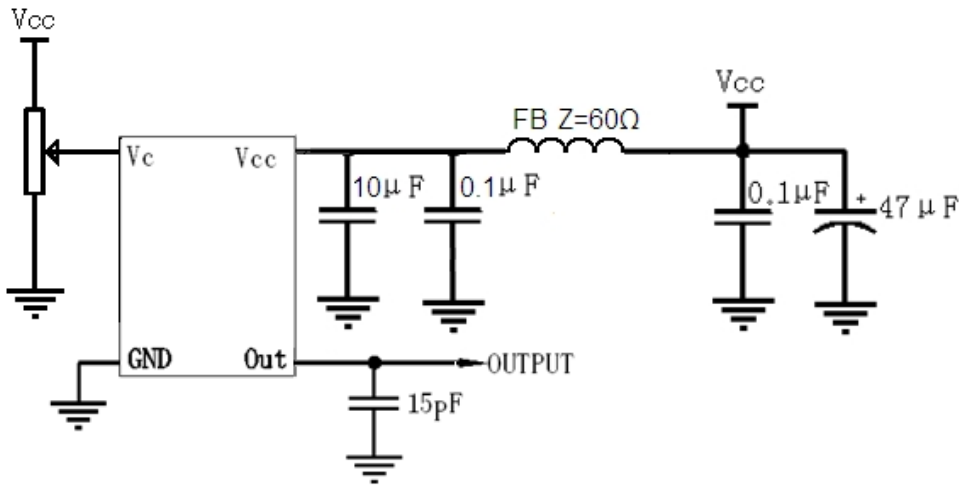
## 2. Mechanical Structure (mm)



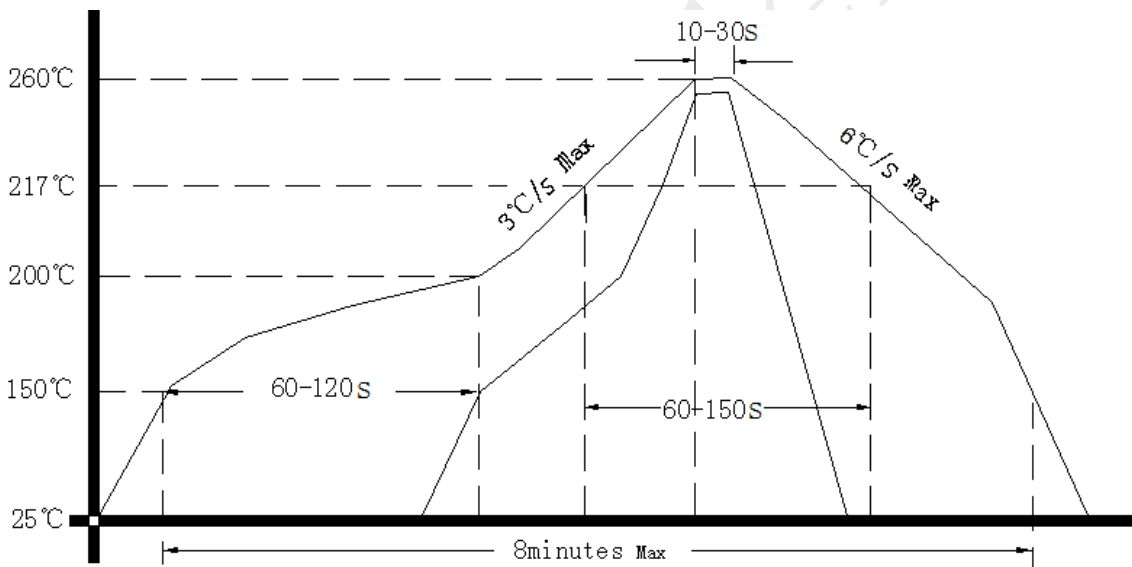
- Note1:** Tolerance ±0.20mm without mark
- Note2:** The first two xx representative: year  
After two xx representative: week
- Note3:** Referential weight 8.0g
- Note4:** NC is not connect



### 3. Test Circuit



### 4. Reflow Soldering Curve (RoHS)



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

