



Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2021.10.27
1.1	The “Operable Temperature Range” changed	<i>Amway</i>	2021.11.18



1. Electrical Parameters

MODEL: O11H-1202-10.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	10.00			MHz	
	Output Waveform	LVCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=30pF$
	Output High Voltage	2.4			V	$V_{cc}=3.3V, O_{load}=30pF$
	Duty Cycle	45	50	55	%	@50%
	RF Output Current			4	mA	
	Rise/Fall Time (10%~90%)			5	ns	
	Load			30	pF	
	Start-up time			0.3	sec	@ -40°C ~ +95°C
Frequency Stabilities	Initial Frequency Tolerance	-10		+10	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=3.3V$, and after 15 minutes of operation.
	Frequency Stability vs. Operating Temperature Range	-1.5		+1.5	$\times 10^{-9}$	T_A varied from $-40^\circ C \sim 95^\circ C$, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=3.3V, O_{load}=30pF$, temperature variable more than $2^\circ C$ per minute, after 20 minute of operation, test time ≤ 2 hours, ageing effects are excluded.
	Frequency Stability Over Any 15°C Of Ambient Temperature	-0.5		+0.5	$\times 10^{-9}$	T_A varied from $20^\circ C \sim 95^\circ C$, measurement relative to the frequency at the start of the $15^\circ C$ window, temperature variable more than $0.5^\circ C$ per minute, after 2 days of operation.
		-0.5		+0.5	$\times 10^{-9}$	T_A varied from $-40^\circ C \sim 20^\circ C$, measurement relative to the frequency at the start of the $15^\circ C$ window, temperature variable more than $0.5^\circ C$ per minute, after 2 days of operation.



	Frequency Stability Over Ambient Temperature	-0.3		+0.3	$\times 10^{-9}$	At 75°C~ 95°C, temperature variation 0.5°C per minute, after 2 days of operation, with temperature $\leq \pm 0.03\text{ppb}/^\circ\text{C}$.
	Frequency Stability vs. Supply Voltage	-0.2		+0.2	$\times 10^{-9}$	V _{cc} varied from 3.27V to 3.33V, and O _{Load} =30pF.
	Overall tolerance over 15 years lifetime from 1H post-reflow frequency	-1.5		+1.5	$\times 10^{-6}$	after warm-up time including all frequency drift effects
	Frequency stability over any 20 min period	-5		+5	$\times 10^{-9}$	@25°C, after 20 minutes of operation
	Aging Tolerance Per Day	-0.05		+0.05	$\times 10^{-6}$	@25°C, after 5 min
		-5		+5	$\times 10^{-9}$	@25°C, after 24 hours
		-2		+2	$\times 10^{-9}$	@25°C, after 7 days
		-1		+1	$\times 10^{-9}$	@25°C, after 30 days
	Aging Tolerance 1 Month	-25		+25	$\times 10^{-9}$	@25°C, after 7 days
		-15		+15	$\times 10^{-9}$	@25°C, after 30 days
	Aging Tolerance 1 Years	-0.2		+0.2	$\times 10^{-6}$	@25°C, after 7 days
		-0.15		+0.15	$\times 10^{-6}$	@25°C, after 30 days
	Maximum daily ageing variation, based on mean ageing slope for running 24 hour segments throughout minimum of 48 hour measurement period	-0.05		0.05	$\times 10^{-9}$	Measured during minimum of 30 days of operation at stable temperature.
	G-sensitivity		0.3	1	$\times 10^{-9}/\text{G}$	
Warm Up Time	Frequency change during warm-up (after start-up time)			400	$\times 10^{-6}$	@ -40°C~ +95°C symmetric or asymmetric referred to 2h frequency (f _{2h})
	Warm-up @ -40°C		15	20	min	Oscillator frequency within $\pm 0.015 \times 10^{-6}$, With reference to 2 hours value.
			3	5	min	Oscillator frequency within $\pm 0.15 \times 10^{-6}$, With reference to 2 hours value.
	Warm-up @ -10°C		12	18	min	Oscillator frequency within $\pm 0.015 \times 10^{-6}$, With reference to 2 hours value .
		2	4	min	Oscillator frequency within $\pm 0.15 \times 10^{-6}$, With reference to 2 hours value.	



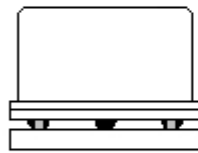
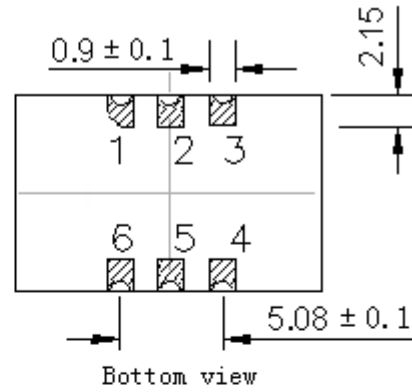
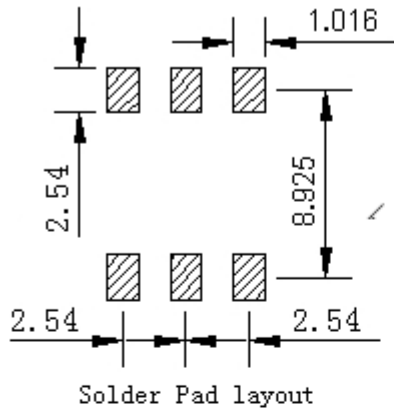
	Warm-up @ +25°C		10	15	min	Oscillator frequency within $\pm 0.015 \times 10^{-6}$, With reference to 2 hours value.
			1.5	3	min	Oscillator frequency within $\pm 0.15 \times 10^{-6}$, With reference to 2 hours value.
	Warm-up @ +55°C		8	12	min	Oscillator frequency within $\pm 0.015 \times 10^{-6}$, With reference to 2 hours value.
			1	2	min	Oscillator frequency within $\pm 0.15 \times 10^{-6}$, With reference to 2 hours value.
Retrace	Retrace Accuracy			± 20	$\times 10^{-9}$	@ -40°C ~ +95°C, On 24h, Off 24h, On df after warm-up time.
	Retrace time to $\leq \pm 5$ ppb			10	min	@ -40°C ~ +95°C, On 1h, Off 15 min
	Retrace time to $\leq \pm 50$ ppb			15	min	@ 25°C, on 24h, Off 1 week
	Retrace time to $\leq \pm 150$ ppb			45	s	@ -10°C ~ +95°C, Off 10s
Power Supply	Supply Voltage	3.27	3.3	3.33	V	
	Steady Consumption			300	mA	@ 25°C
					500	mA
Warm up current			900	mA	@ -40°C ~ +95°C	
Phase Noise	Phase Noise @ -40 to 95°C		-85	-80	dBc/Hz	1Hz
			-115	-110		10Hz
			-145	-140		100Hz
			-158	-153		1KHz
			-163	-158		10KHz
			-163	-158		100KHz
Spurs And Harmonic	Accumulated Power Of Spurs And Harmonic Distortions @ -40 to 95°C			-58		$1 \text{ Hz} \leq f_{\text{Offset}} < 10 \text{ Hz}$
				-83		$10 \text{ Hz} \leq f_{\text{Offset}} < 100 \text{ Hz}$
				-98		$100 \text{ Hz} \leq f_{\text{Offset}} < 1 \text{ K Hz}$
				-98		$1 \text{ KHz} \leq f_{\text{Offset}} \leq 10 \text{ kHz}$
				-78		$10 \text{ kHz} \leq f_{\text{Offset}}$



Environmental Conditions	Operating Temperature Range	-40		+95	°C		
	Operable Temperature Range	-45		+100	°C		
	Rate Of Temperature Variation			2	°C/min		
	Relative Humidity Range	5		95	%		
	Absolute Humidity Range	1		29	g/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 2.					
	Vibration	Three-dimensional vibration, sinusoidal according to EN 300 019-2-4 Class 4M5 with amplitude modified by a gain of 10. <ul style="list-style-type: none"> • Amplitude of displacement: 12mm (5-9Hz) • Amplitude of acceleration: 40 m/ s² (9-200Hz) 					
Shock	Pretest sine sweep vibration testing of all axes based on IEC 60068-2-6 (test Fc), with the following parameter severities: <ul style="list-style-type: none"> • Amplitude of displacement: ≥0.75mm (0.3-9Hz) • Frequency range: 0.3Hz to 50Hz • Amplitude of acceleration: ≥2 m/ s² or simulation of mechanical resonances for: <ul style="list-style-type: none"> • Frequency range: 0.3Hz to 50Hz Pretest result: <ul style="list-style-type: none"> • Vibration testing/ simulation doesn't exhibit any resonance Shock per EN 300 019-2-4 Class 4M5 with amplitude modified by a gain of 1.5. <ul style="list-style-type: none"> • Amplitude of acceleration: 75 m/ s² Device shall be operating after the shock event. <ul style="list-style-type: none"> • Frequency shift df/f ≤ 10 ppb 						
Full Package Storage	Relative humidity (%)	20% ~ 70%					
	Temperature (°C)	-10~35°C					

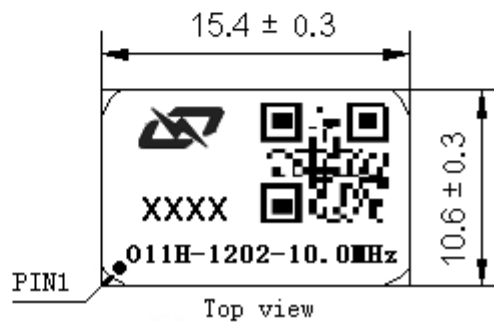


2. Mechanical Structure (mm)



PIN FUNCTION

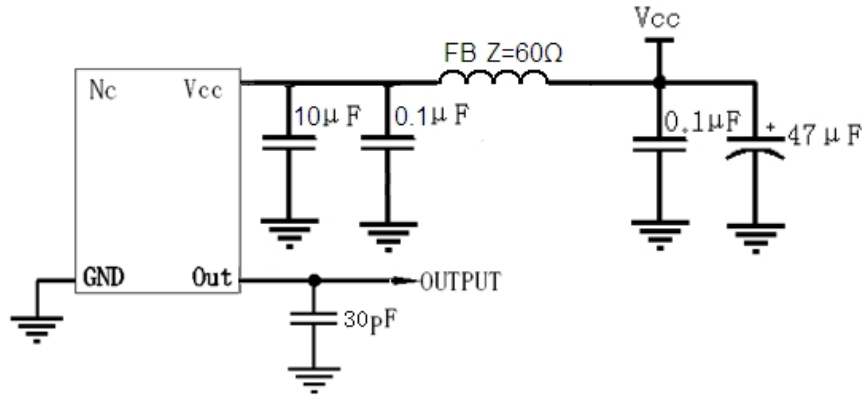
PIN	NOTATION	FUNCTION
1	NC	Not Connect
2,5	NC	Not Connect
3	GND	GND
4	OUTPUT	RF Output
6	VCC	Supply Voltage



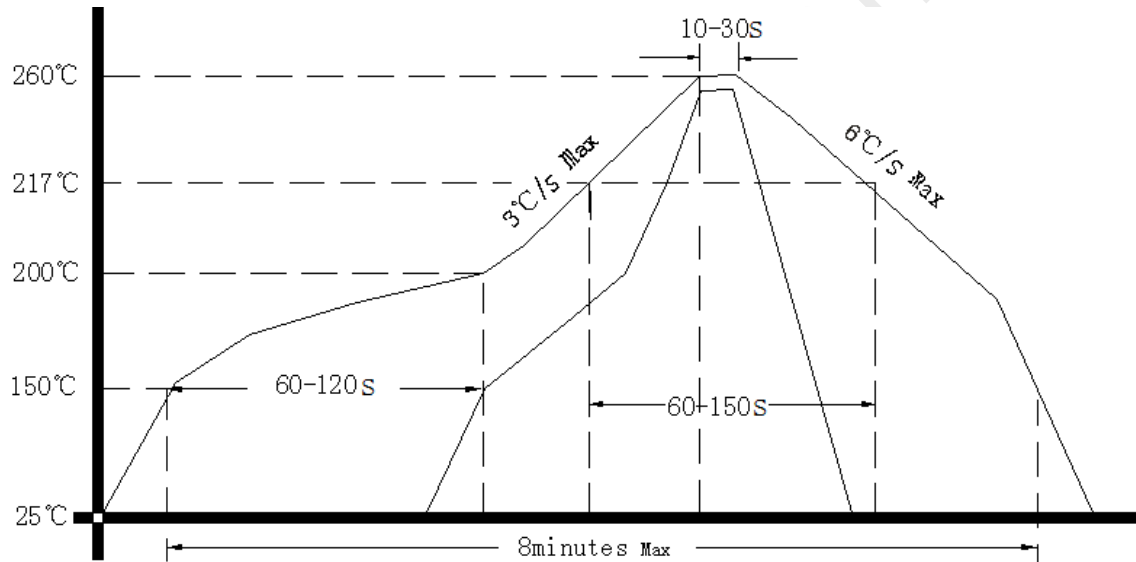
- Note1:** Tolerance $\pm 0.2\text{mm}$ without mark
- Note2:** The first two xx representative: week
After two xx representative: year
- Note3:** Referential weight $<30\text{g}$
- Note4:** NC is not connect



3. Test Circuit



4. Reflow Soldering Curve (RoHS)



5. Package: Tape & Reel (mm)

