







## 1. Electrical Parameters

MODEL: O11H-2104-20.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	20.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=3.3V, O_{load}=15pF$
	Output High Voltage	2.4			V	$V_{cc}=3.3V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	$\pm 5\%$
	Rise / Fall Time (10%~90%)			5	ns	
	Start-up Time			100	ms	
	Spurious Suppression			-70	dBc	
	Load	13.5	15	16.5	pF	$\pm 10\%$
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range			$\pm 5$	$\times 10^{-9}$	$T_A$ varied from $-40^{\circ}C$ to $85^{\circ}C$ , measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V, O_{load}=15pF$ , temperature variable speed less than $2^{\circ}C$ per minute.
	Initial Frequency Tolerance			$\pm 0.2$	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V$ , and after 15 minutes of operation, within 30 days after ex-works.
	Frequency Tolerance vs. Supply Voltage			$\pm 5$	$\times 10^{-9}$	No overshooting on frequency plot
	Frequency Tolerance vs. Load			$\pm 5$	$\times 10^{-9}$	10% load change measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V$ , and $O_{Load}=15pF$ .
	Frequency slope at Temperature Range			$\pm 2$	$\times 10^{-9}/^{\circ}C$	$T_A$ varied from $-40^{\circ}C$ to $85^{\circ}C$ , measurement referenced to frequency observed with $T_A=25^{\circ}C, V_{cc}=3.3V, O_{load}=15pF$ , temperature variable speed less than $2^{\circ}C$ per minute.
	Resistance to reflow Soldering			$\pm 0.4$	$\times 10^{-6}$	
	Anti-airflow			$\pm 5$	$\times 10^{-9}$	@ $60^{\circ}C$
Compliant to Clock Stratum :3E compliant per GR-1244-Core Telcordia						



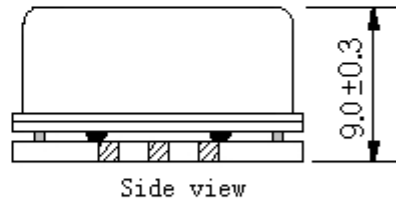
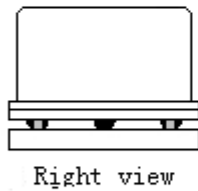
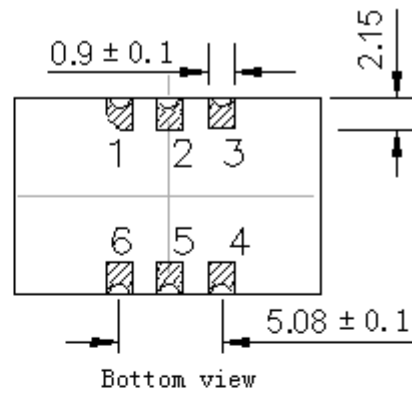
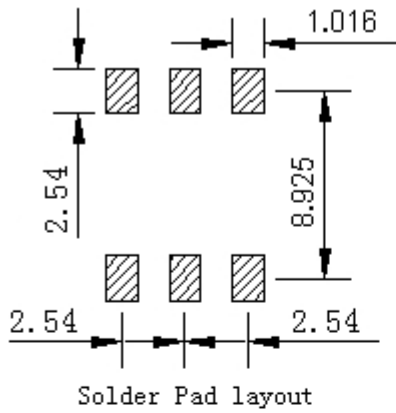
	ADEV			0.05	$\times 10^{-9}$	ADEV 1sec.
				0.1	$\times 10^{-9}$	ADEV 10sec.
				0.2	$\times 10^{-9}$	ADEV 100sec.
				0.3	$\times 10^{-9}$	ADEV 1000sec.
				0.6	$\times 10^{-9}$	ADEV 10000sec.
	Aging Tolerance Per Day			$\pm 1$	$\times 10^{-9}$	V <sub>cc</sub> ,T <sub>A</sub> constant measurement referenced to frequency observed withT <sub>A</sub> =25°C,V <sub>cc</sub> =3.3V, and after 30 days of operation.
	Aging Tolerance Per Month			$\pm 0.025$	$\times 10^{-6}$	
	Aging Tolerance 1 Year			$\pm 0.2$	$\times 10^{-6}$	
	Aging Tolerance 10 Years			$\pm 1.0$	$\times 10^{-6}$	
	Aging Tolerance 15 Years			$\pm 1.3$	$\times 10^{-6}$	
Overall stability			$\pm 2$	$\times 10^{-6}$	Inclusive of the following: - operating temperature -40°C to 85°C - 3.3V $\pm 5\%$ - 15pF load $\pm 5\%$ - 2 times reflow soldering - 15 years aging reference to nominal frequency	
Drift			$\pm 2$	$\times 10^{-9}$	24hours @25°C	
Frequency Retrace			$\pm 0.05$	$\times 10^{-6}$	@25°C, after stabilization /24h Off & 1h On	
Power Supply	Supply Voltage	3.13	3.3	3.47	V	$\pm 5\%$
	Steady Consumption			300	mA	@25°C
	Warm up current			750	mA	
	Warm-Up Time			3	minutes	< $\pm 100$ ppb of final frequency after 1 hour power-on
Phase Noise	Phase Noise			-70	dBc/Hz	1Hz
				-100		10Hz
				-120		100Hz
				-130		1KHz
				-140		10KHz
				-145		100KHz
Jitter			1.0	ps	RMS(12KHz to 20MHz)	



Environmental Conditions	Operable Temperature Range	-40		+85	°C	
	Storage Temperature	-55		+105	°C	
	ESD Level	Human Body Model, class2:2000Vto4000V; ANSI/ESDA/JEDEC JS-001-2010.				
		Machine Model, class B: 200V to 400V; ANSI/ESDA/JEDEC JS-001-2010.				
	Moisture Sensitivity Level	Level 2.				
	Vibration	20G, 20-2000Hz 4x in each 3axis 4 min				
	Thermal Shock	0.5h@-40°C, 0.5h@+85°C, switching time < 30 seconds, 100 cycles				
Shock	100g, 6ms duration,1/2 sine wave, 3 shocks for each direction, Severity 50A.					
Full Package Storage	Relative humidity (%)	20% ~ 70%				
	Temperature (°C)	-10~35°C				



## 2. Mechanical Structure (mm)



### PIN FUNCTION

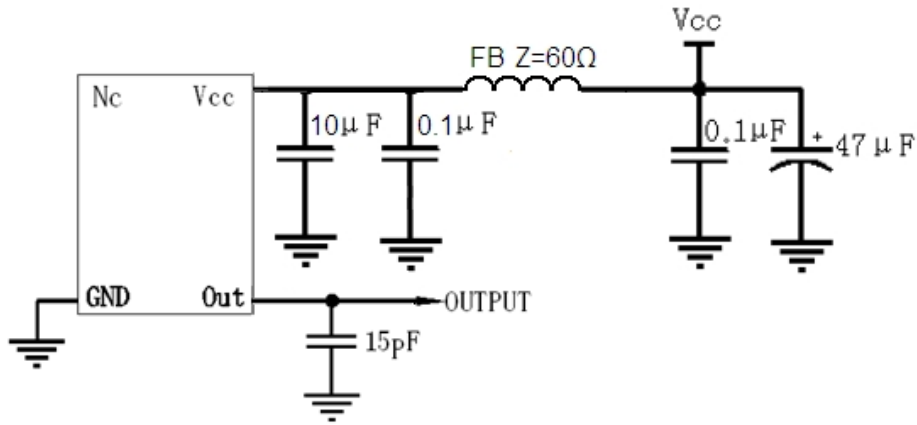
PIN	NOTATION	FUNCTION
1	NC	Not Connect
2,5	NC	Not Connect
3	GND	GND
4	OUTPUT	RF Output
6	VCC	Supply Voltage



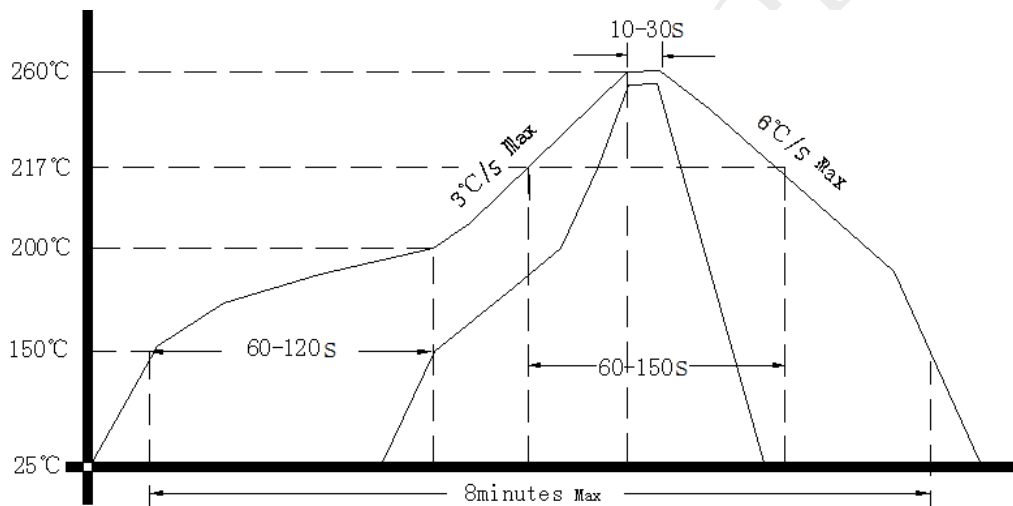
- Note1:** Tolerance  $\pm 0.2\text{mm}$  without mark
- Note2:** Referential weight 2.6g
- Note3:** The first two xx representative: week  
After two xx representative: year
- Note4:** NC is not connect



### 3. Test Circuit



### 4. Reflow Soldering Curve (RoHS)



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

