



Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2017.05.04
1.1	Add "Fine/Gross Leak"	<i>Amway</i>	2017.05.11
1.2	The "Short Term Stability" "ESD Level" "Mechanical Structure" changed	<i>Amway</i>	2020.06.12
1.3	The "Mechanical Structure" changed	<i>Amway</i>	2020.07.08
1.4	Add "Customer requirements"	<i>Amway</i>	2020.07.23



1. Electrical Parameters

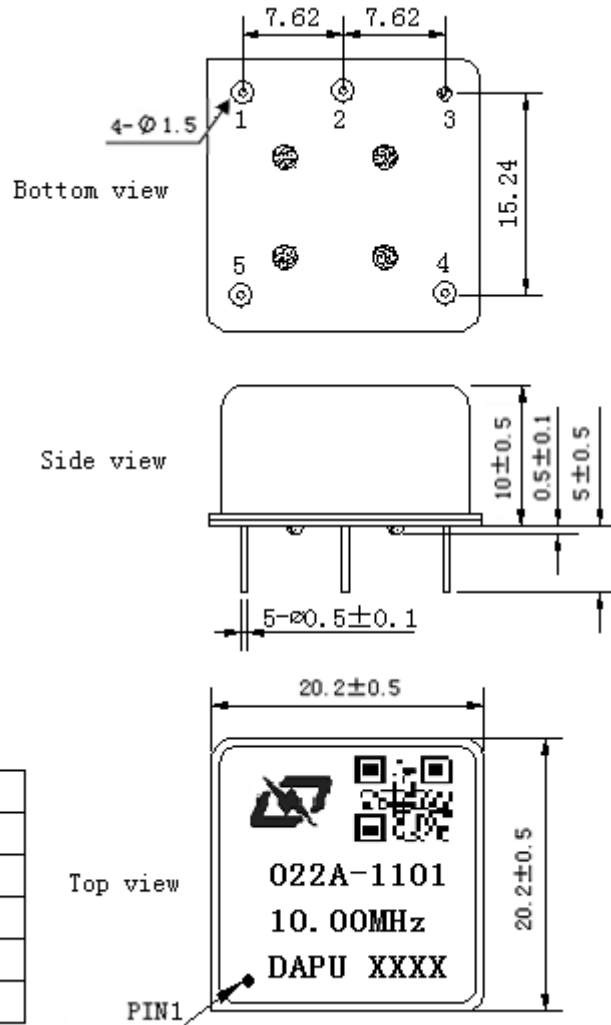
MODEL: O22A-1101-10.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	10.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.4	V	$V_{cc}=5.0V, O_{load}=15\text{ pF}$
	Output High Voltage	2.4		3.3	V	$V_{cc}=5.0V, O_{load}=15\text{ pF}$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			6	ns	@25°C
	Load	15			pF	
	Spurious Suppression			-70	dBc	
	Start up time			200	ms	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-5		+5	$\times 10^{-9}$	T_A varied from -40°C to 85°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=5.0V, V_c=2.5V, O_{load}=15\text{ pF}$, temperature variable speed less than 2°C per minute.
	Initial Frequency Tolerance	-0.1		+0.1	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=25^\circ\text{C} \pm 3^\circ\text{C}, V_{cc}=5.0V, V_c=2.5V$ and after 10 minutes of operation, within 30 days after ex-works.
	Frequency Tolerance vs. supply voltage	-2		+2	$\times 10^{-9}$	measurement referenced to frequency observed $T_A=25^\circ\text{C}, V_{cc}$ varied from 4.75V to 5.25V, $V_c=2.5V, O_{load}=15\text{ pF}$.
	Frequency Tolerance vs. Load	-2		+2	$\times 10^{-9}$	10% Load Change Measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=5.0V, V_c=2.5V, O_{load}=15\text{ pF}$.
	Short Term Stability			0.01	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to 25°C; 1s, test 10s.
	Retrace	-5.0		+5.0	$\times 10^{-9}$	Power off 24 hours, and then power on 1 hour before the frequency difference with the power before
	Aging Tolerance per day	-0.5		+0.5	$\times 10^{-9}$	V_{cc}, V_c, T_A constant Measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=5.0V, V_c=2.5V, O_{load}=15\text{ pF}$, Continuous
	Aging Tolerance 1 Year	-0.05		+0.05	$\times 10^{-6}$	work 7 days after the test
	Aging Tolerance 15 Year	-0.5		+0.5	$\times 10^{-6}$	



Power Supply	Supply Voltage	4.75	5.0	5.25	V	
	Steady Consumption			200	mA	@25°C
	Warm up current			600	mA	
	Warm-Up Time			8	minutes	@25°C within $\pm 0.05 \times 10^{-6}$ of final frequency with reference after 1 hour on.
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 10.00MHz.
		+0.5		+1.0	$\times 10^{-6}$	$V_c=5.0V$. measurement referenced to $V_c=2.5V$.
	Linearity			10	%	
	Slope	Positive				
	Input Impedance	100			K Ω	
Phase Noise	Phase Noise		-100	-90	dBc/Hz	1Hz
			-125	-115		10Hz
			-145	-135		100Hz
			-150	-145		1KHz
			-155	-150		10KHz
			-155	-150		100KHz
Environmental Conditions	Operable Temperature	-40		+85	°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; JEDEC JESD22-A115C.				
	Moisture Sensitivity Level	Not humidity sensitive.				
	Fine/Gross Leak	GJB360B Method 112				
	Vibration	Frequency range: 20Hz~2000Hz, acceleration :6g, ASD: 0.04g ² /Hz one cycle per 30 min, test 2 hour. (3 times for each 3 directions X , Y , Z), GJB 150.16A-2009				
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)



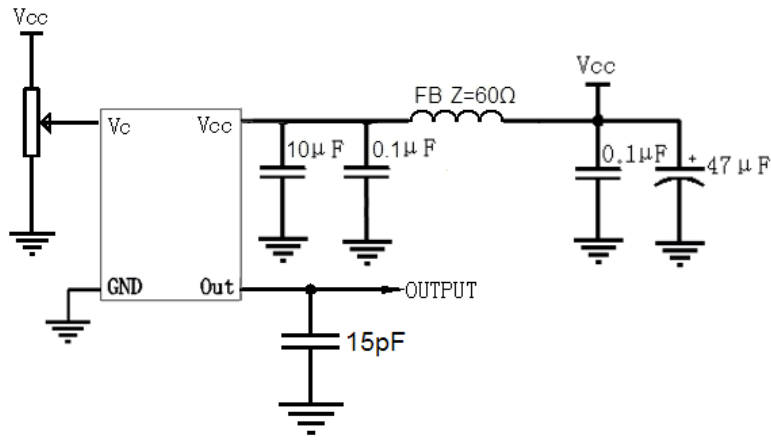
PIN FUNCTION

PIN	NOTATION	FUNCTION
1	VCC	Supply Voltage
2	OUTPUT	Output
3	GND	Ground
4	VC	Control Voltage
5	NC	Not Connect

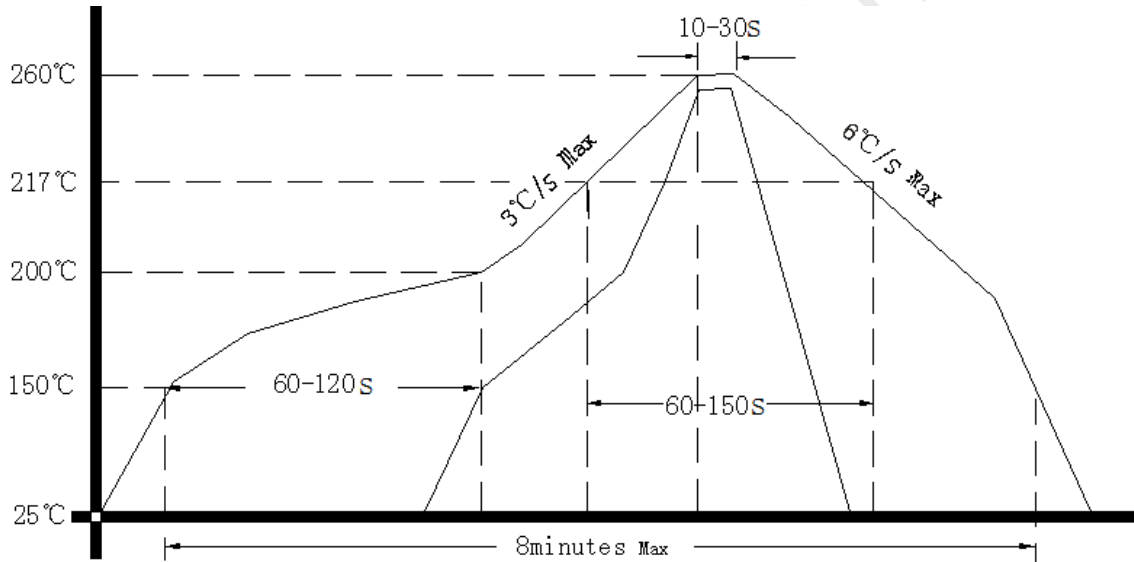
- Note1:** Tolerance ±0.2mm without mark
- Note2:** The first two xx representative: week
After two xx representative: year
- Note3:** Referential weight 13.6g
- Note4:** NC is not connect



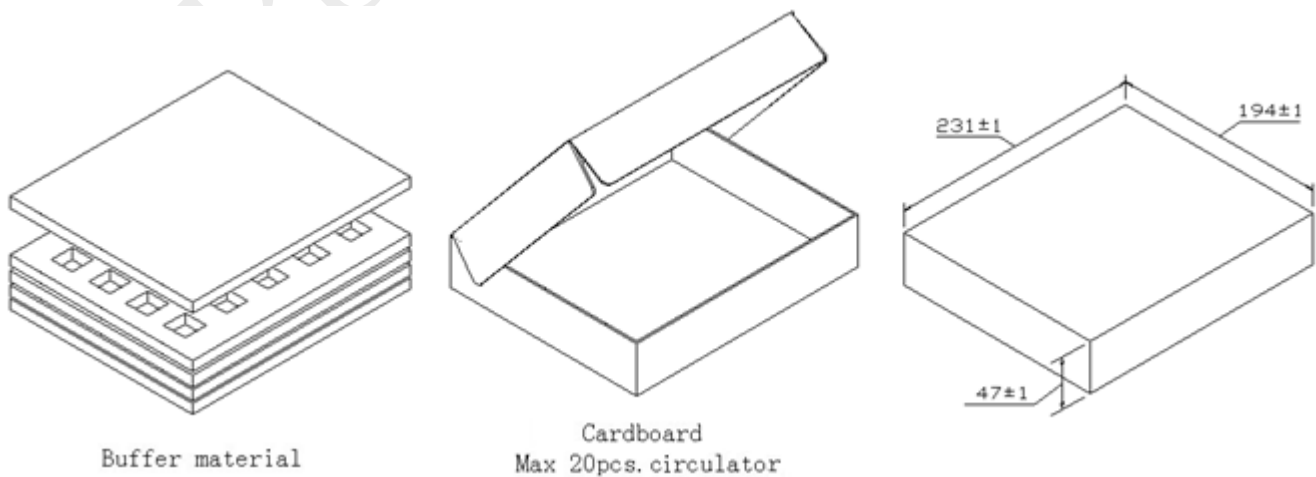
3. Test Circuit



4. Reflow Soldering Curve (RoHS)



5. Package(mm)





6. Customer requirements

6.6.1 晶体振荡器筛选项目及程序

外观检查→常温初测→温度循环→低温测试→高温测试→细检漏→粗检漏→常温终测→外观复查→打印标记

6.6.2 晶体振荡器筛选方法及条件

6.6.2.1 外观检查

晶体振荡器的外观检查按 GJB548B-2005 中方法执行。

6.6.2.2 常温初测

按 GJB548B-2005 的 4.5 节规定的试验条件,按产品详细规范或专用规范的规定及产品技术标准所要求的参数和方法进行常温初测。

6.6.2.3 温度循环

晶体振荡器按先低温后高温的顺序,-55℃~85℃,循环 5 次,高低温各保持 30min,转换时间≤1min。

6.6.2.4 高温功率老练

温度为 85℃,时间为 24 小时,按器件技术标准加载。

6.6.2.5 高、低温测试

晶体振荡器按产品技术标准所要求的测试项目和方法进行高、低温测试。测试条件:-55℃,85℃,保持 30 min。

6.6.2.6 密封

晶体振荡器密封检查先进行细检漏,再进行粗检漏。

6.6.2.7 常温终测

按 6.6.2.2 条进行常温终测。

6.6.2.8 外观检查

按 6.6.2.1 条进行外观检查。

6.6.2.9 允许不合格品率

- a)晶体振荡器高温老练试验的允许不合格率为 5% ;
- b) 晶体振荡器密封性检查允许不合格率为 12% ;
- c) 晶体振荡器二次筛选总的允许不合格率为 15% 。

6.6.2.10 打印标记

凡经过二次筛选的器件均按相关文件规定打印筛选标记。