



Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2013.01.29
1.1	Modified according to customer requirements	<i>Amway</i>	2014.08.14
1.2	Modified according to customer requirements	<i>Amway</i>	2014.08.26
1.3	“Mechanical Structure” change	<i>Amway</i>	2014.09.04
1.4	Modified the 1 st page “Full Package Storage” added “Frequency Tuning Range” changed “Operable Temperature” change to “Operating Temperature”	<i>Amway</i>	2016.01.19



1. Electrical Parameters

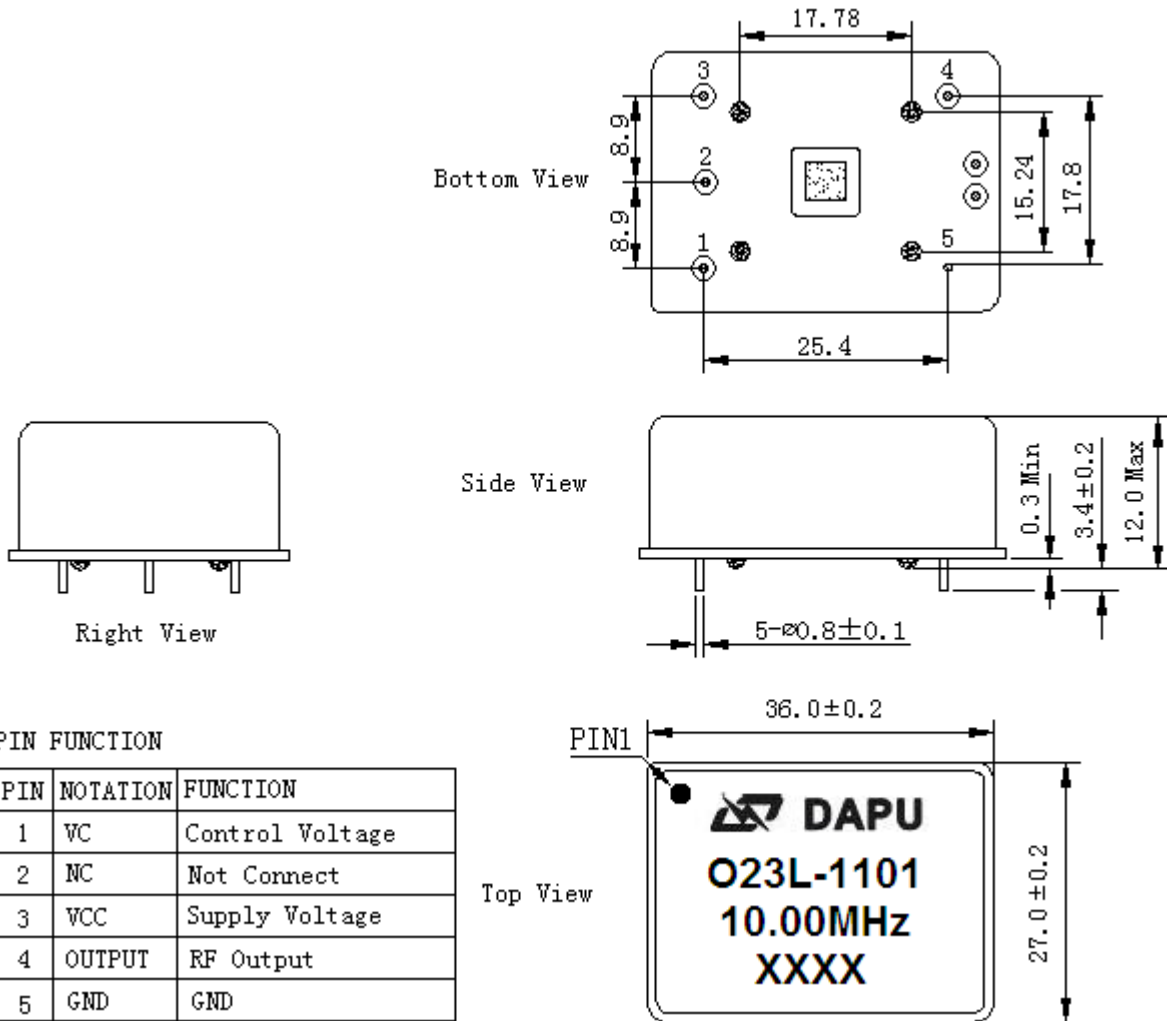
MODEL: O23L-1101-10.00MHZ						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	10.00			MHz	
	Output Waveform	LVTTL				
	Output Low Voltage			0.4	V	$V_{cc}=12.0V, O_{load}=15pF$
	Output High Voltage	2.4		3.3	V	$V_{cc}=12.0V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			6	ns	
	Load	15			pF	
	Spurious Suppression			-70	dBc	Spurious Suppression
	Start-up Time			200	ms	@25°C
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-3		+3	$\times 10^{-9}$	T_A varied from -10°C to 70°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=12.0V, V_c=2.5V, O_{load}=15pF$, 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 $T_A=25^\circ C, V_{cc}=12.0V, V_c=2.5V$, and after 10 minutes of operation, within 90 days after ex-works.
	Frequency Tolerance vs. Supply Voltage	-1		+1	$\times 10^{-9}$	measurement referenced to frequency observed $T_A=25^\circ C, V_{cc}$ varied from 11.4V to 12.6V, $V_c=2.5V$ and $O_{Load}=15pF$.
	Frequency Tolerance vs. Load	-1		+1	$\times 10^{-9}$	10% load change measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=12.0V, V_c=2.5V$, 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°C; 1s, using PN9000 equipment.
	Aging Tolerance Per Day	-0.5		+0.5	$\times 10^{-9}$	V_{cc}, V_c, T_A constant measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=12.0V, V_c=2.5V$, and after 30 days of operation.
	Aging Tolerance 1 Year	-0.05		+0.05	$\times 10^{-6}$	
	Aging Tolerance 15 Years	-0.5		+0.5	$\times 10^{-6}$	



	Retrace	-5		+5	$\times 10^{-9}$	$V_c = 2.5V$. After 48 hours operation ,record the frequency f1.Power off the oscillator at least 24 hours. Then power on , measurement frequency f2 after 1 hour operation. $\Delta fr=f1-f2$
Power Supply	Supply Voltage	11.4	12	12.6	V	
	Steady Consumption			150	mA	@25°C
	Warm up current			400	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	-0.8		-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		+0.8	$\times 10^{-6}$	$V_c=5.0V$. measurement referenced to $V_c=2.5V$
	Linearity			10	%	For each test point 0.5V
	Slope	Positive				
	Input Impedance	100			K Ω	
Phase Noise	Phase Noise		-95	-90	dBc/Hz	1Hz
			-120	-115		10Hz
			-140	-135		100Hz
			-150	-145		1KHz
			-155	-150		10KHz
			-155	-150		100KHz
Environmental Conditions	Operating Temperature	-10		+70	°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 ±0.2mm without mark

Note2: Marking

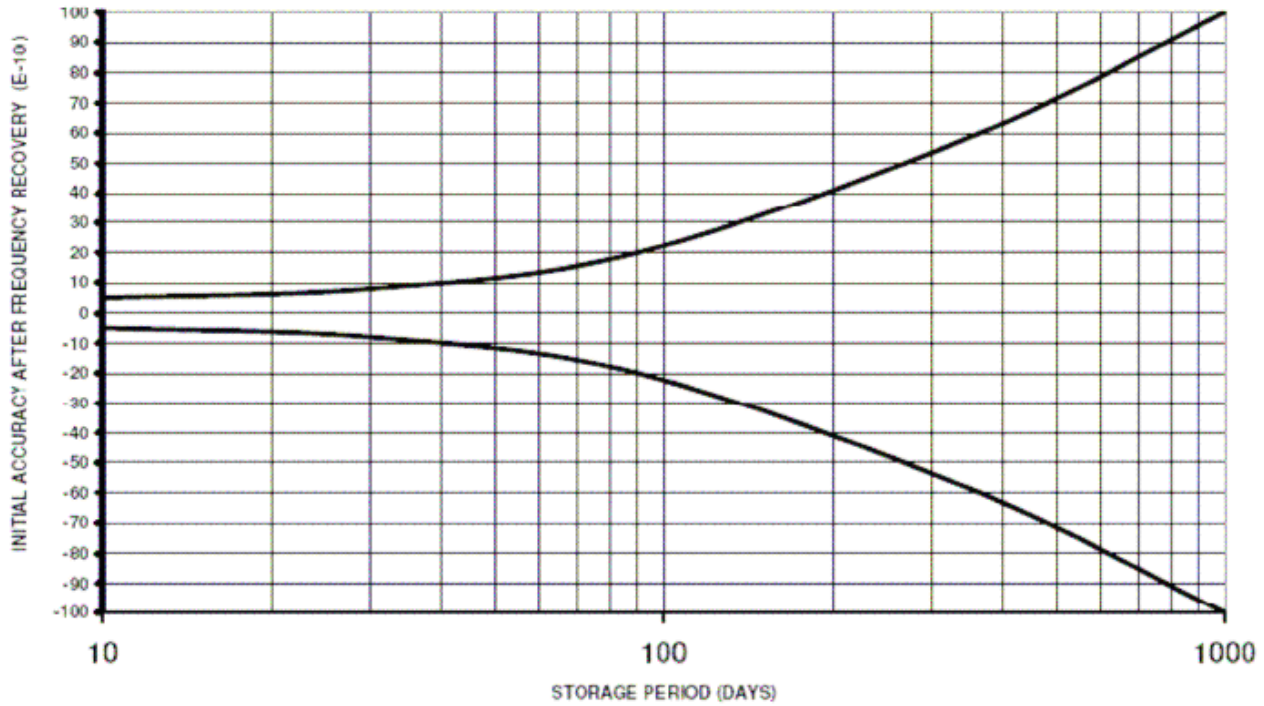
- 1) Line 1 is DAPU's logo
- 2) Line 2-3 is product model
- 3) Line 4 is manufacture date code:
The first two xx representative: week
After two xx representative: year

Note3: Referential Weight 19.0g

Note4: NC is not connect

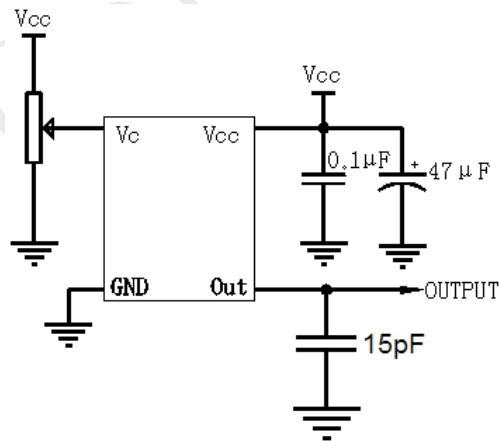


3. Initial accuracy at IQC after frequency recovery



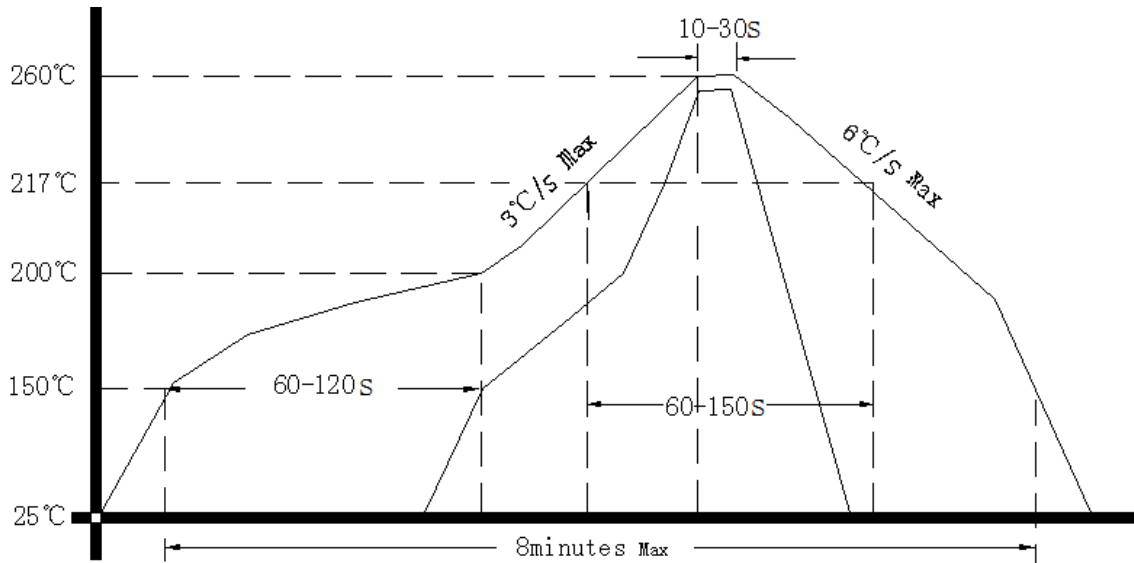
Note : Initial accuracy with time of storage and retrace measured at 25 °C after frequency recovery time

4. Test Circuit





5. Reflow Soldering Curve (RoHS)



6. Package (mm)

