





**Table of amendment**

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2015.10.20
1.1	“Pin Length” changed	<i>Amway</i>	2015.11.03
1.2	“Frequency Tolerance vs. Operating Temperature Range” , “Linearity” , “Operable Temperature Range” , “Operating Environmental Condition”, “Storage Condition”, “Mechanical Structure” and “Test Circuit” changed Add “Start up time” , “Function curve” and “RoHS”	<i>Amway</i>	2017.02.15
1.3	The “Marking” changed	<i>Amway</i>	2017.04.10
1.4	Added “note 4”	<i>Amway</i>	2018.03.27



## 1. Electrical Parameters

MODEL: O23B-0802-10.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	10.00			MHz	
	Output Waveform	LVTTL				
	Output Low Voltage			0.4	V	$V_{cc}=5.0V, O_{load}=15pF$
	Output High Voltage	2.8			V	$V_{cc}=5.0V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			5	ns	
	Output overshoot			10	%	
	Load	15			pF	
	Spurious Suppression			-70	dBc	
	Start up time		0.7	1	s	
	Jitter			1	ps	RMS(12KHz~50MHz)
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.2		+0.2	$\times 10^{-9}$	$T_A$ varied from $-20^{\circ}C$ to $80^{\circ}C$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=5.0V, O_{load}=15pF$ , temperature variable speed less than $2^{\circ}C$ per minute.
		-1.0		+1.0	$\times 10^{-9}$	$T_A$ varied from $-40^{\circ}C$ to $85^{\circ}C$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=5.0V, O_{load}=15pF$ , temperature variable speed less than $2^{\circ}C$ per minute.
		-0.05		+0.05	$\times 10^{-6}$	$T_A$ varied from $-40^{\circ}C$ to $90^{\circ}C$ , measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2, V_{cc}=5.0V, O_{load}=15pF$ , temperature variable speed less than $2^{\circ}C$ per minute.
		-0.03		+0.03	$\times 10^{-9}$	within arbitrarily continuous $15^{\circ}C$ ( $-20^{\circ}C \sim 70^{\circ}C$ )
	Initial Frequency Tolerance	-0.05		+0.05	$\times 10^{-6}$	Measurement referenced to frequency observed with $T_A=60^{\circ}C$ or $25^{\circ}C, V_{cc}=5.0V, DAC=0x7FFF$ , and after 30 minutes of operation.
Frequency Tolerance vs. Supply Voltage	-0.1		+0.1	$\times 10^{-9}$	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	-0.1		+0.1	$\times 10^{-9}$	10% load change measurement referenced to frequency observed with $T_A=25^\circ\text{C}$ , $V_{cc}=5.0\text{V}$ , and $O_{Load}=15\text{pF}$ .
	Micro Jump	-0.05		+0.05	$\times 10^{-9}$	Continuous testing for 48 hours, temperature fluctuations $<3^\circ\text{C}$ , one sampling/10s.
	Temper Hysteresis Effect	-0.2		+0.2	$\times 10^{-9}$	Over temperature range( $10^\circ\text{C}/\text{hour}$ )
	MTIE			1.5	$\mu\text{s}$	12 hours period, temperature fluctuations $<15^\circ\text{C}$ .
	Retrace	-5		+5	$\times 10^{-9}$	After 24 hour off at $25^\circ\text{C}$ , 15min power on.
	Short-Term Stability: Allan Variance			0.005	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to $25^\circ\text{C}$ ; 1s, using PN9000 equipment.
				0.02	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1hour ref. to $25^\circ\text{C}$ ; 100s, using PN9000 equipment.
	Aging Tolerance Per Day	-0.1		+0.1	$\times 10^{-9}$	$V_{cc}$ , $T_A$ constant measurement referenced to frequency observed with $T_A=25^\circ\text{C}$ , $V_{cc}=5.0\text{V}$ , before shipment.
	Aging Tolerance 1 Year	-0.015		+0.015	$\times 10^{-6}$	
	Aging Tolerance 10 Years	-0.15		+0.15	$\times 10^{-6}$	
	Aging Tolerance 15 Years	-0.2		+0.2	$\times 10^{-6}$	
	Power Supply	Supply Voltage	4.75	5.0	5.25	V
Steady Consumption				700	mA	@ $25^\circ\text{C}$
Warm up current				1500	mA	
Warm-Up Time				8	min	@ $25^\circ\text{C}$ within $\pm 0.01 \times 10^{-6}$ of final frequency with reference after 1 hour on.
DAC Control Characteristics	Frequency Tuning Range	-0.5		-0.3	$\times 10^{-6}$	DAC=0x0000. measurement referenced to DAC=0x7FFF
		-0.05		+0.05	$\times 10^{-6}$	DAC=0x7FFF. measurement referenced to Exactly 10.00MHz
		+0.3		+0.5	$\times 10^{-6}$	DAC=0xFFFF. measurement referenced to DAC=0x7FFF
	Linearity			10	%	
	Slope	Positive				

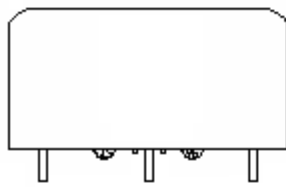
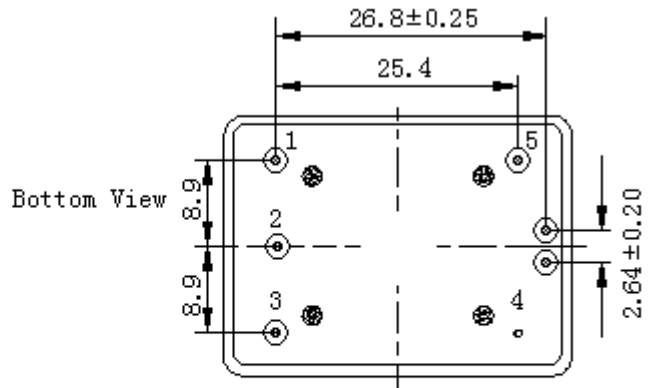


Phase Noise	Phase Noise			-85	dBc/Hz	1Hz
				-115		10Hz
				-135		100Hz
				-145		1KHz
				-145		10KHz
				-150		100KHz
				-155		1MHz
Environmental Conditions	Operable Temperature Range	-40		+90	°C	
	Operating Environmental Condition	-40		+85	°C	
	Storage Condition	-40		+105	°C	
	Operating Humidity	5		85	%	
	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:30m/s <sup>2</sup> ;5Hz~500Hz, test 2 hours for each 3 directions (X , Y , Z) , IEC 68-2-06 Test Fc.				
Shock	200m/s <sup>2</sup> ; 6ms; half sine wave (3 times for each 3 directions X, Y, Z), IEC 68-2-27 Test Ea/Severity 50A.					
Free Fall	Height:300mm					
RoHS	Pb Free					
Full Package Storage	Relative humidity (%)	20% ~70%				
	Temperature (°C)	-10~35°C				

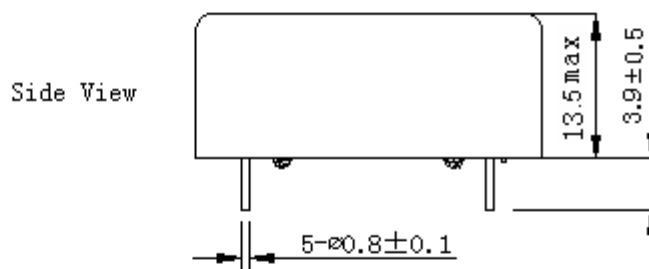
**Note:** The frequency difference between before and after the test (Vibration, Shock, Free Fall) is less than  $0.5 \times 10^{-6}$ .



## 2. Mechanical Structure (mm)



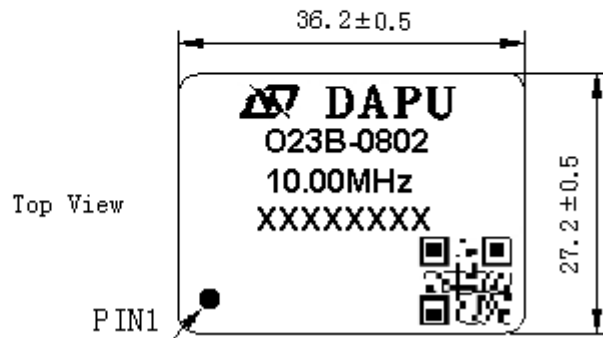
Right View



Side View

### PIN FUNCTION

PIN	FUNCTION
1	VCC
2	SDA
3	SCL
4	GND
5	OUTPUT



**Note1:** Tolerance  $\pm 0.20\text{mm}$  without mark

**Note2:** The first two xx representative: week

After two xx representative: year

At last four xxxx representative: serial number

**Note3:** Referential weight 20.7g

**Note4:** Bar-code should include supplier code (20004800),

batch No, week and year code, serial No.

For example, the 200th part produced in the 48th week in 2017,

bar-code is 2000480048170200.



### 3. I<sup>2</sup>C Devices Address

#### 3.1 DIGITAL-TO-ANALOG CONVERTER,VOLTAGE OUTPUT

Device name : DAC8571

Device supplier : TI

Device address : 1001100

#### 3.2.1 256kbit I<sup>2</sup>C SERIAL EEPROM

Device name : AT24C256

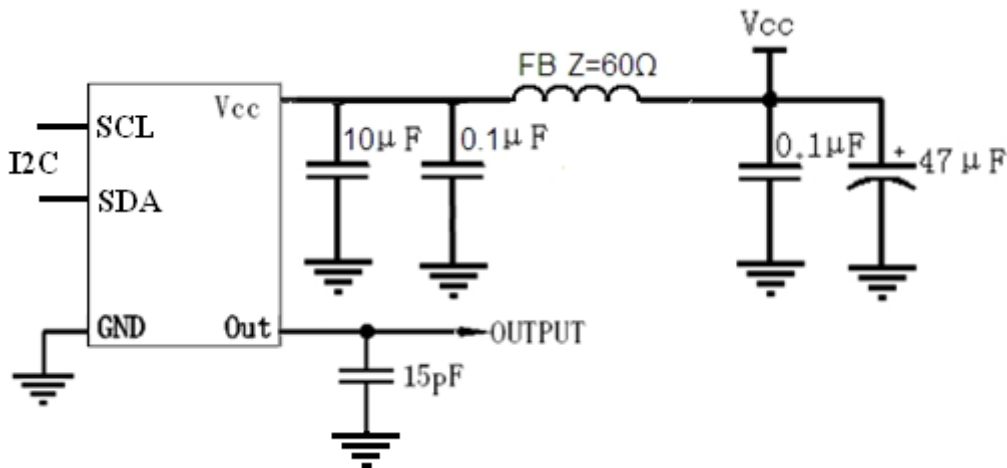
Device supplier : Atmel

Device address : 1010100

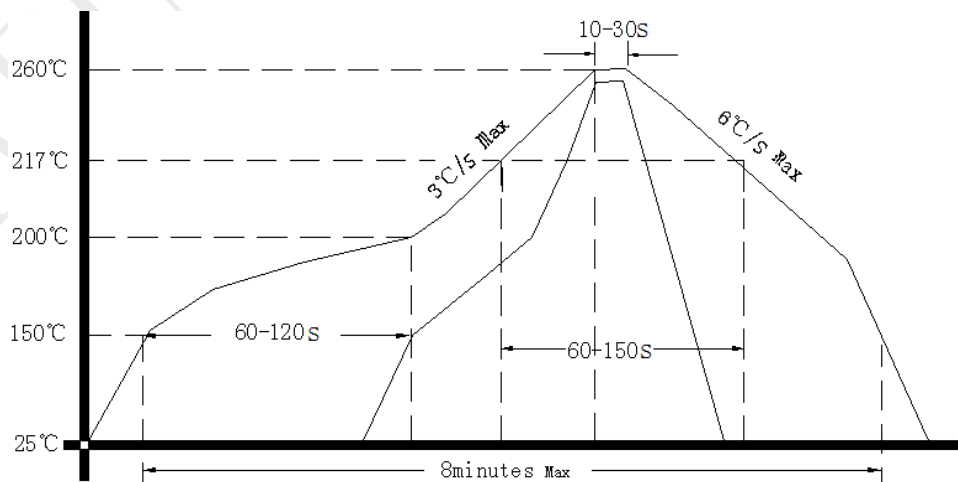
#### 3.2.2 EEPROM for inventory and data storage

**Note:** Pls refer to *EEPROM Data Storage Definition of High Stability OCXO* for the detailed information.

### 4. Test Circuit

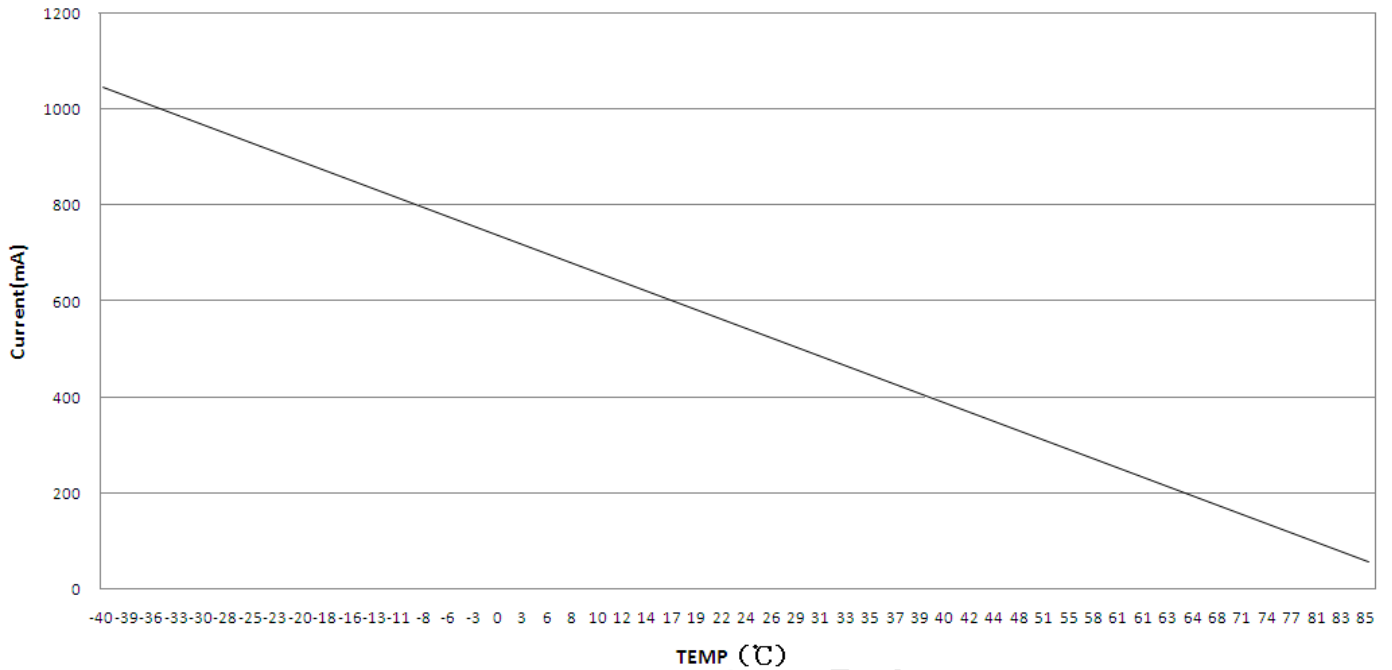


### 5. Reflow Soldering Curve (RoHS)

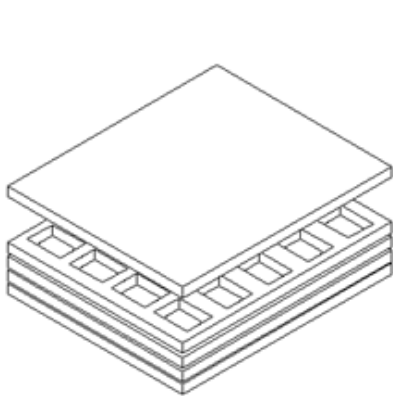




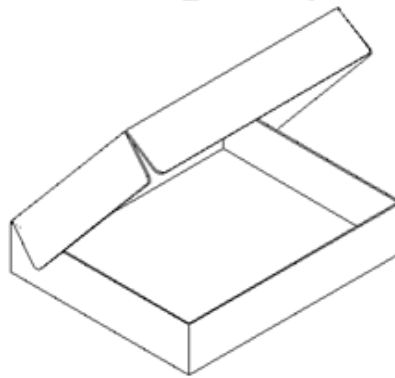
## 6. Power Curve



## 7. Package (mm)



Buffer material



Cardboard  
Max 20pcs. circulator

