





### Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	<i>Amway</i>	2017.02.14
1.1	The "Marking" changed	<i>Amway</i>	2017.06.01
1.2	The "Mechanical Structure" changed and added The "note 5"	<i>Amway</i>	2018.03.21
1.3	Modify "pin length" according to customer requirement	<i>Amway</i>	2018.10.08
1.4	The "ESD Level" "Marking" changed	<i>Amway</i>	2021.06.12
1.5	The "Voltage Control Characteristics" "Reflow Soldering Curve" changed , Add "Aging Calculation method"	<i>Amway</i>	2023.03.30
1.6	The "Mechanical Structure" changed	<i>Amway</i>	2024.02.20



## 1. Electrical Parameters

MODEL: O22B-0803-10.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency	10.00			MHz	
	Output Waveform	HCMOS				
	Output Low Voltage			0.3	V	$V_{cc}=5.0V, O_{load}=15pF$
	Output High Voltage	3.0			V	$V_{cc}=5.0V, O_{load}=15pF$
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)			6	ns	
	Load	15 ±10%			pF	
	Spurious			-60	dBc	
	Output overshoot			10	%	
	Dip			±0.01	× 10 <sup>-6</sup>	Continuous sampling (1s a point) temperature rise rate 2°C/min
	Jitter			1	ps	RMS (12kHz ~20MHz)
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range	-0.01		+0.01	× 10 <sup>-6</sup>	$T_A$ varied from -40°C to 75°C, measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=5.0V, V_c=2.5V, O_{load}=15 pF$ , temperature rise speed less than 2°C per minute.
		-0.02		+0.02	× 10 <sup>-6</sup>	$T_A$ varied from 75°C to 85°C, measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=5.0V, V_c=2.5V, O_{load}=15 pF$ , temperature rise speed less than 2°C per minute.
	Initial Frequency Tolerance	-0.2		+0.2	× 10 <sup>-6</sup>	Measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=5.0V, V_c=2.5V$ , within less than 6 months after IQC acceptance stage after 30mn at +50°C .
	Frequency Tolerance vs. Supply Voltage	-2		+2	× 10 <sup>-9</sup>	measurement referenced to frequency observed $T_A=25^\circ C, V_{cc}$ varied from 4.75V to 5.25V, $V_c=2.5V$ and $O_{Load}=15pF$ .
Frequency Tolerance vs. Load	-2		+2	× 10 <sup>-9</sup>	10% load change measurement referenced to frequency observed with $T_A=25^\circ C, V_{cc}=5.0V, V_c=2.5V$ , and $O_{Load}=15pF$ .	



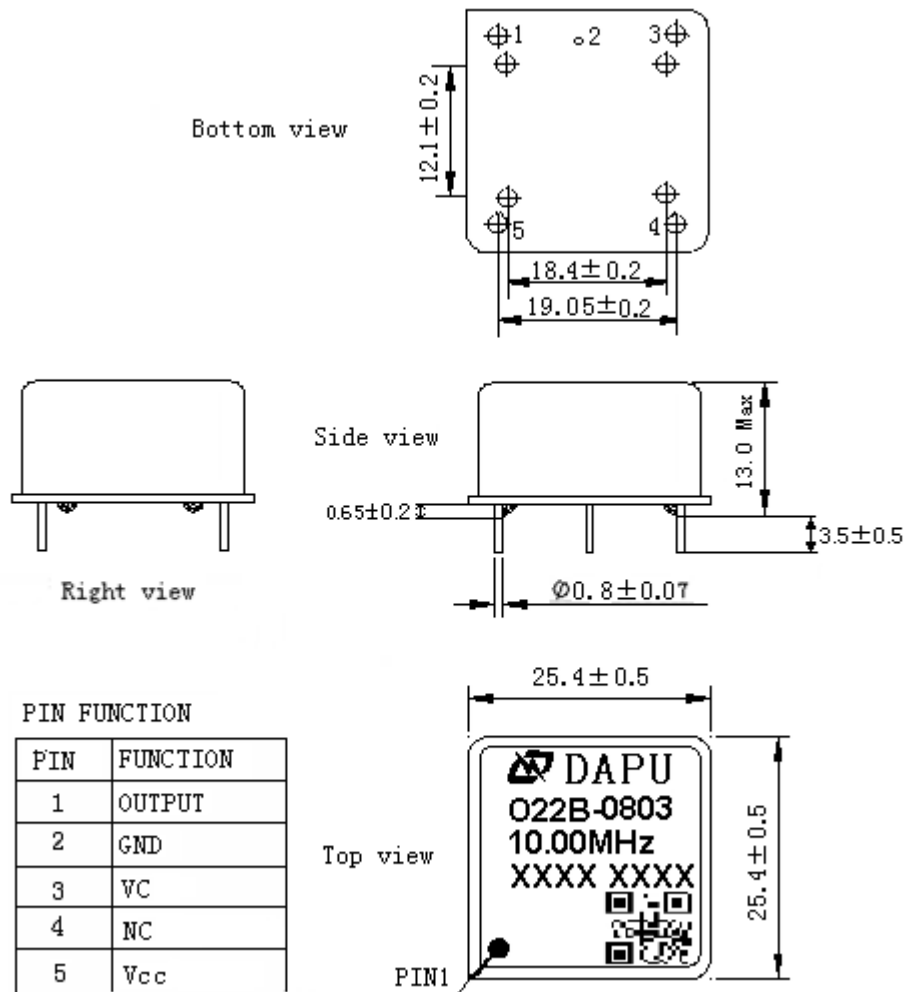
	Short-Term Stability:			0.05	$\times 10^{-9}$	After power on one hour and after stabilization after power on 30mins, Alan Variance
	Daily Fluctuation	-5		+5	$\times 10^{-9}$	25±5°C
	Retrace	-0.01		+0.01	$\times 10^{-6}$	1 hour continuous power on ,After 24 hour off at 25°C, 15min power on compared with before power failure.
	Aging Tolerance Per Day	-0.5		+0.5	$\times 10^{-9}$	V <sub>cc</sub> , V <sub>c</sub> , T <sub>A</sub> constant measurement referenced to frequency observed with T <sub>A</sub> =25°C, V <sub>cc</sub> = 5.0V, V <sub>c</sub> =2.5V, and after 30 days of operation. Calculation method: Annual Aging Rate:200*daily aging rate. 10-Years Aging Rate: 4* annual aging rate.
	Aging Tolerance 1 Year	-0.1		+0.1	$\times 10^{-6}$	
	Aging Tolerance 10Years	-0.4		+0.4	$\times 10^{-6}$	
Power Supply	Supply Voltage	4.75	5.0	5.25	V	Tolerate input voltage (no damage) -0.5VDC~6.5VDC
	Steady Consumption			250	mA	@25°C
	Warm up current			800	mA	-40°C~85°C
	Warm-Up Time			5	minutes	@25 °C within $\pm 0.01 \times 10^{-6}$ power on 5 minutes compared with 1 hour
Voltage Control Characteristics	Frequency Tuning Range	-2.4		-0.8	$\times 10^{-6}$	V <sub>c</sub> =0V. measurement referenced to exactly 10.00MHz
		-0.2		+0.2	$\times 10^{-6}$	V <sub>c</sub> =2.5V. measurement referenced to exactly 10.00MHz
		+0.8		+2.4	$\times 10^{-6}$	V <sub>c</sub> =5.0V. measurement referenced to exactly 10.00MHz
	Linearity			10	%	Frequency deviation of 0V, 5.0V relative to 2.5V.
	Slope	Positive				
	Input Impedance	100				KΩ
Phase Noise	Phase Noise		-80	-75	dBc/Hz	1Hz
			-120	-115		10Hz
			-140	-135		100Hz
			-145	-140		1KHz
			-150	-145		10KHz



Environmental Conditions	Operable Temperature	-40		+85	°C	
	Storage Temperature	-55		+125	°C	Storage 4 years
	Operating Humidity	10		85	%	
	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.				
	Vibration	Test Condition: 10Hz~55Hz;0.75mm ; 55Hz~2000Hz, acceleration 10g; Vertical axis in each direction 30min, (3 times for each 3 directions X ,Y , Z), IEC 68-2-06 Test Fc.				
	Shock	100g; 6ms; half sine wave; three mutually perpendicular axes (A total of six directions) in each direction three times, IEC 68-2-27 Test Ea.				
	Bump	40g;6ms; each directions 4000±10 times (Three mutually perpendicular axes) IEC60068-2-29 Test Eb .				
	Solderability	The solderability test temperature is 260°C,The duration is 5 seconds, Satisfy: GB/T2423.28-2005				
Vibration , Shock and Bump : after the test all indexes meet the requirement of “Output”, “Frequency Tolerance vs. Operating Temperature Range”, “Power Supply” and “Voltage Control Characteristics”						
Full Package Storage	Relative humidity (%)	20% ~ 70%				
	Temperature (°C)	-10~35°C				



## 2. Mechanical Structure (mm)



**Note1:** Tolerance ± 0.3mm without mark

**Note2:** Referential weight 13.6g

**Note3:** NC is not connect

**Note4:** The first two xx representative: year.

After two xx representative: week.

At last four xxxx representative: serial number.

Two dimensional code marking rules:

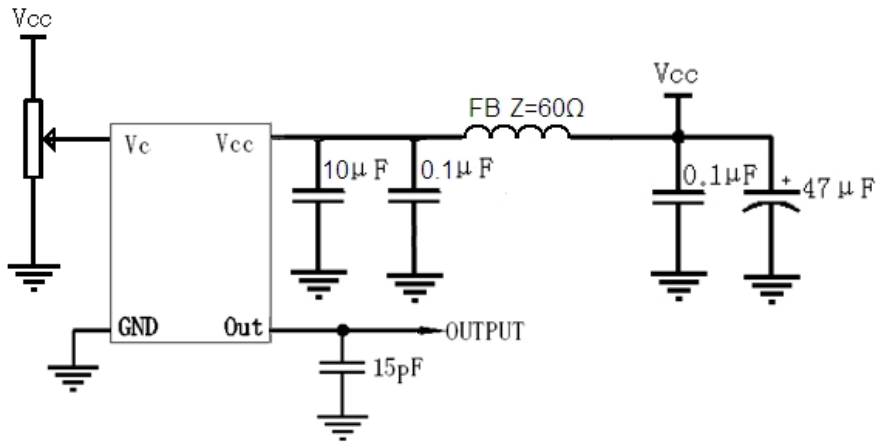
Material code + space + brand + space + batch (year week) + space + serial number.

The customer's material code is 030062000035

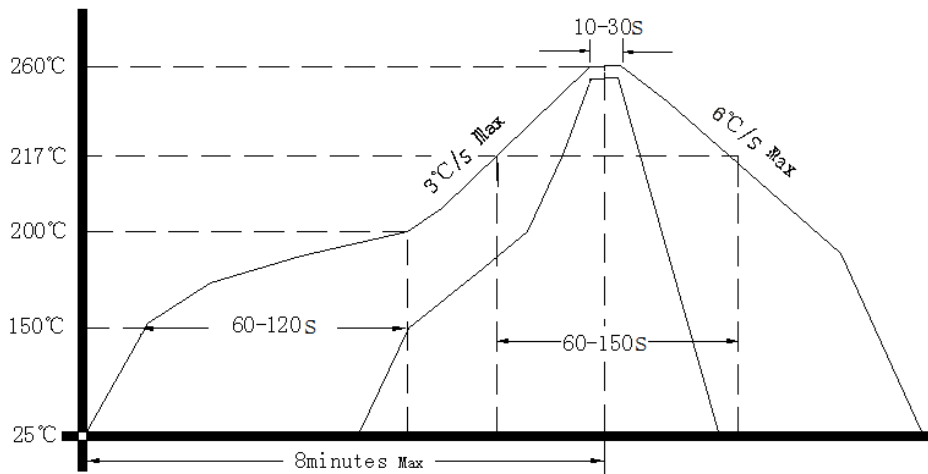
Take 62 in the middle and the last three digits as the material code number in the two dimensional code.



### 3. Test Circuit



### 4. Reflow Soldering Curve (RoHS)



### 5. Package (mm)

