Travelling Merchant:_____

DATASHEET

Standard: **O77A-M329-10.00MHz**

P/N: _____

Plot			The Label
Drew	Audited	Approved	
Amway.wei	Tony · Wang	James.Liu	
Date: 2014.01.15			Stamp, please! Thanks!

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Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	Amway	2012.09.20
1.1	"Frequency Tuning Range" changed	Amway	2012.09.28
1.2	"EEPROM" added	Amway	2013.06.08
1.3	"phase noise" changed	Amway	2013.06.08
1.5	"LABEL OR MARKING" added "Output Waveform" and "Short-Term Stability: Allan Variance" and "Current Consumption" and "8K I2C SERIAL EEPROM" changed	Amway	2013.06.21
1.6	"Inventory record in EEPROM- Comcode" changed	Amway	2013.08.09
1.7	"Frequency Tolerance vs. Operating Temperature Range- Test Condition" changed	Amway	2013.08.30
1.8	"Frequency Tolerance vs. Operating Temperature Range- Test Condition"、"Warm-up completion time- Test Condition"、"Environmental Conditions" 、"Mechanical Structure"、"I2C Devices Address" 、"Inventory record in EEPROM" change "Random Vibration" add	Amway	2013.12.09
1.9	"Mechanical Structure -LABEL" change	Amway	2014.01.15

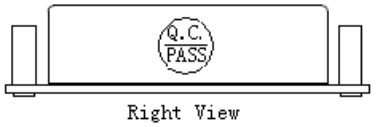
1. Electrical Parameters

MODEL： O77A-M329-10.00MHz						
Item	Description	Parameters			Unit	Test Condition
		Min.	Typ.	Max.		
Output	Frequency		10.00		MHz	
	Output Waveform		LVTTL			
	Output Low Voltage			0.8	V	V_{cc}=5.0V, O_{load}=15pF
	Output High Voltage	2.4			V	V_{cc}=5.0V, O_{load}=15pF
	Duty Cycle	45	50	55	%	@50%
	Rise / Fall Time (10%~90%)		2	3	ns	@25℃
	Load		15		pF	
	5MHz sub-harmonic peak			-37	dBc	
	Start up time			2	s	
Frequency Stabilities	Frequency Tolerance vs. Operating Temperature Range			0.2	$\times 10^{-9}$	T_A varied from -10℃ to 85℃, f-T=(f_{max}-f_{min})/2f_0, V_{cc}=5.0V, O_{load}=15pF, temperature variable speed less than 2℃per minute.
		-0.12		+0.12	$\times 10^{-9}$	ΔT°C<15°C within range -10℃ to 1℃ V_{cc}=5.0V, O_{load}=15pF, temperature variable speed less than 1℃per minute, DAC range from 0x0400 to 0xFC00.
		-0.06		+0.06	$\times 10^{-9}$	ΔT°C<15°C within range 1℃ to 70℃ V_{cc}=5.0V, O_{load}=15pF, temperature variable speed less than 1℃per minute, DAC range from 0x0400 to 0xFC00.
		-0.08		+0.08	$\times 10^{-9}$	ΔT°C<15°C within range 70℃ to 85℃ V_{cc}=5.0V, O_{load}=15pF, temperature variable speed less than 1℃per minute, DAC range from 0x0400 to 0xFC00.
	Warm-up stability	-0.015		+0.015	$\times 10^{-6}$	T_A=25℃,within 30 days power off, After 12 minutes of warm-up with reference to 24 hours value
	Flywheel Time			24	hours	
	Time shift during Flywheel			10	us	Respect to PRC and ΔTAmb=15°C within operating range
	Frequency variation During Thermal Shock (up to 3 minutes duration)	-2		+2	$\times 10^{-9}$	Ramp rate : 5C/min up to 3 minutes duration, within entire operating temperature range.

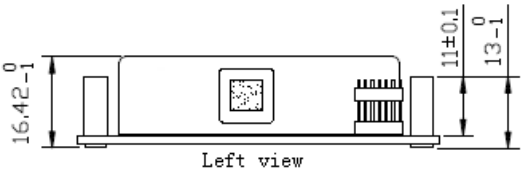
	Initial Frequency Tolerance	-0.05		+0.05	$\times 10^{-6}$	Measurement referenced to frequency observed with T_A=25℃, V_{cc}=5.0V, DAC=0x7FFF, and after 12 minutes of operation, within 30 days after ex-works
	Frequency Tolerance vs. Supply Voltage	-0.04		+0.04	$\times 10^{-9}$	measurement referenced to frequency observed T_A=25℃, V_{cc} varied from 4.75V to 5.25V, and O_{Load}=15pF.
	Frequency Tolerance vs. Load	-0.04		+0.04	$\times 10^{-9}$	5% load change measurement referenced to frequency observed with T_A=25℃, V_{cc}=5.0V, and O_{Load}=15pF.
	Short-Term Stability: Allan Variance			0.025	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference，test after power for 1hour ref. to 25℃; 1s, using PN9000 equipment.
				0.01	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference，test after power for 1hour ref. to 25℃; 10s, using PN9000 equipment.
				0.01	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference，test after power for 1hour ref. to 25℃; 100s, using PN9000 equipment.
	Aging Tolerance 8 hours	-0.48		+0.48	$\times 10^{-9}$	V_{cc}, T_A constant measurement referenced to frequency observed with T_A=25℃, V_{cc}=5.0V, and after 16 hours of operation, within 30 days power off
	Aging Tolerance 16 hours	-0.18		+0.18	$\times 10^{-9}$	V_{cc}, T_A constant measurement referenced to frequency observed with T_A=25℃, V_{cc}=5.0V, and after 60 hours of operation, within 30 days power off
	Aging Tolerance 24 hours	-0.08		+0.08	$\times 10^{-9}$	V_{cc}, T_A constant measurement referenced to frequency observed with T_A=25℃, V_{cc}=5.0V, and after 7 days of operation, within 30 days power off
	Aging Tolerance 1 Year	-0.02		+0.02	$\times 10^{-6}$	V_{cc}, T_A constant measurement referenced to frequency observed with T_A=25℃, V_{cc}=5.0V, and after 30 days of operation.
	Overall Stability	-0.3		+0.3	$\times 10^{-6}$	Inclusive of the following: operating temperature -10℃ to 85℃ 5.0V ±5% 15pF load ±5% 10 years aging reference to nominal frequency
Power Supply	Supply Voltage	4.75	5.0	5.25	V	
	Current Consumption			600	mA	@25℃

	Warm-up completion time			12	min	T_A=25℃, Warm-up completion bit 0 to 1 transition. Using ALU test scheme 1
	Warm up current			1200	mA	
	Ripple noise on power supply			100	mV	Peak to peak
DAC Control Characteristics	Frequency Tuning Range	-0.3			$\times 10^{-6}$	DAC=0x0400. measurement referenced to DAC=0x7FFF
		-0.05		+0.05	$\times 10^{-6}$	DAC=0x7FFF. measurement referenced to Exactly 10.00MHz
				+0.3	$\times 10^{-6}$	DAC=0xFC00. measurement referenced to DAC=0x7FFF
	Linearity			10	%	
	Slope	Positive				
Phase Noise	Phase Noise		-100	-70	dBc/Hz	1Hz
			-128	-90		10Hz
			-140	-110		100Hz
			-148	-130		1KHz
			-152	-130		10KHz
			-152	-130		100KHz
			-155	-130		1MHz
Environmental Conditions	Operable Temperature	-40		+85	℃	
	Storage Temperature	-55		+105	℃	
	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 (10Hz～55Hz);acceleration:10g（10Hz～500Hz）, one cycle per 30 min. (3 times for each 3 directions X ,Y , Z)， IEC 68-2-06 Test Fc.				
	Random Vibration	Test Condition: ASD:0.02g^2/Hz（10Hz～500Hz）, one cycle per 30 min. (3 times for each 3 directions X ,Y , Z)， IEC 68-2-64 Test Fd.				
	Shock	50g; 11ms; half sine wave (3 times for each 3 directions X ,Y, Z),IEC 68-2-29 Test Eb。				

2. Mechanical Structure(mm)



Right View

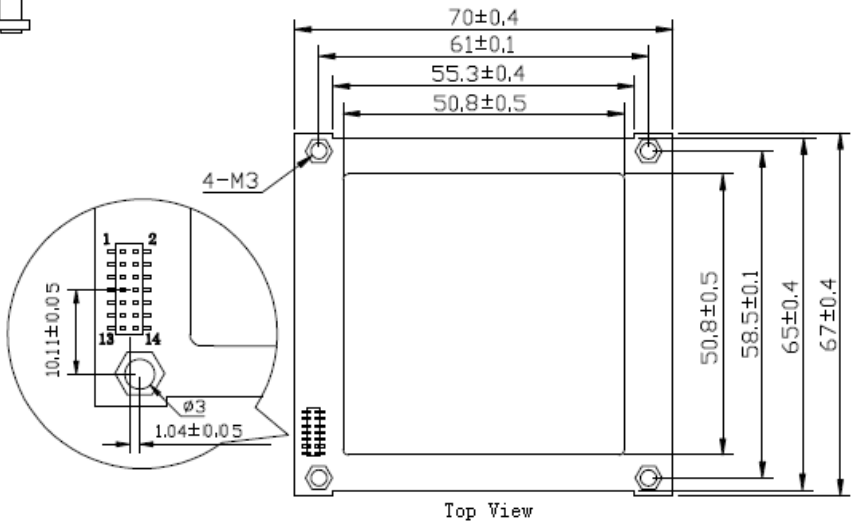


Left view

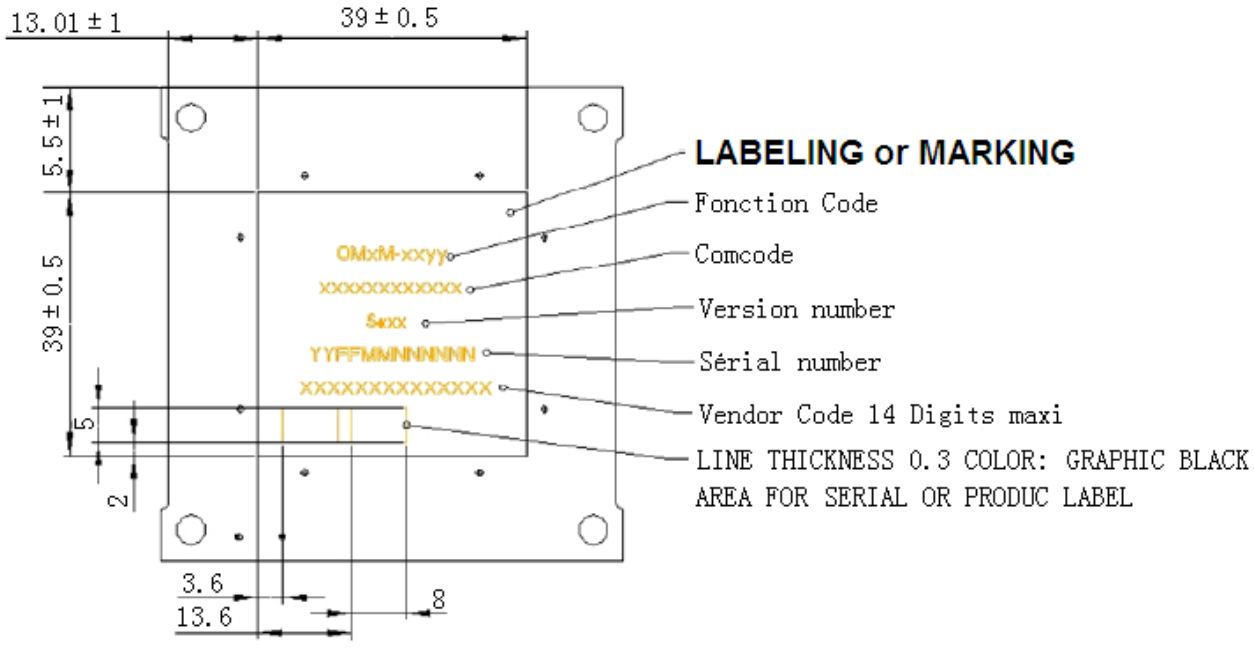

Side View

PIN FUNCTION

PIN	FUNCTION
1	I2C_SCL
2	I2C_SDA
3	VCC
4	VCC
5	VCC
6	VCC
7	Presence
8	Ready (Warm-up Complete=Logic high)
9	GND
10	GND
11	10MHz output
12	GND
13	GND
14	GND



Top View



Note: Referential Weight 60g

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LABEL OR MARKING NOTES:

- The label marking shall agree with information stored in the OMxM memory at the time of delivery.
- Graphic shown is a visual representation only. Do not use to make an art master.
- Label shall be 0.25mm thick polycarbonate/polyester. Text shall be rear printed black on Lucent Central Office White per OS-11150 background, backed with 3M 468 permanent acrylic adhesive or equivalent.
  Finish shall be matte over clear. Approved equivalents are allowed.
- Label shall meet UL 969 requirements. Material must be of UL recognized component plastic. Supplier must be UL approved.
- A certification sheet verifying the suppliers UL approval for this material shall be provided by the supplier with each package/container or verification may be part of the adhesive release liner
- All dimensions millimeters Unless otherwises ta listed, all tolerances are ±0.38mm.
- All corners shall have a 1.52mm radius.
- Line 1 shall be 12 point Helvetica Bold Condensed font with text 'OMQM-08' for List 1, 'OMQM-24' for List 2 and 'OMAMAT' for List 3 ,'OMQM-08PB' for L4 and 'OMQM-24PB' for L5
- Line 2 shall be 10 point Helvetica Light Condensed font with a 9 characters per line maximum consisting of the Alcatel-Lucent Supplier's part number .
- Line 3 shall be 10 point Helvetica Light Condensed font with a 6 characters per line maximum consisting of the Version Number.
- Line 4 shall be 8 point Helvetica Light Condensed font with a 12 characters per line maximum consisting of the supplier Serial Number.
- The supplier's company name shall be black in color.(DAPU)

3. I^2C Devices Address

3.1 I2C Interface and supported devices:

The OM plug-in will support I2C interface (3.3V) up to 100KHz rate support. The following I2C device shall be supported:

- 16-bit DAC (compatible to TI DAC8571 performance and software programmable register map)
  - I2C 7-bit address : 1001100
- EEPROM (compactable to 24C08 EEPROM and software programmable register map)
  - I2C 7-bit address : 1010100
- Temperature sensor for checking internal temperature of OM plug-in
  - I2C 7-bit address : 1001000

Note: I2C 7-bit address : 0101110 already occupied by product, not allowed to be used.

3. 2 EEPROM for inventory and data storage

Address	Total number of bytes	Usage
0x000 – 0x05F	96	Inventory record

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3.2.1 Inventory record in EEPROM

The inventory record inside the EEPROM will be in the following format. This is a 96 byte format.

Identification Fields	D#	# of bytes	Values (in Hex)
Header	D0	1	80
Function Code: OM-24 for 24 hour flywheel	D1-D11	11	5 ASCII bytes to show "OM-24" See note 1 for unused position filling
Serial Number: "$Y_1Y_0F_1F_0M_1M_0N_5N_4N_3N_2N_1N_0$" Y_1Y_0=year,F1F0=factory code, M_1M_0=month $N_5N_4N_3N_2N_1N_0$=unit number	D12-D24	13	Variable Note 1, 4
Doc Number	D25-D36	12	9 ASCII bytes to show "DD/026696" See note 1 for unused position filling
Doc Issue No. "$I_1.I_0$" (e.g. 1.6)	D37-D41	5	Note 1
Version "SS_2:S_1S_0 " (eg. S1:9)	D42-D47	6	Note 1,4
DAPU's Part Number : numbering scheme (12-digit)	D48-D62	15	12 ASCII bytes to show "O77A-M329-10"
Supplier Specific Information (If applicable)	D63-D73	11	Note 1
Specific information per function code	D74-D80	7	Note 1, 3
Supplier Code (Supplier's company name in capital letter)	D81-D94	14	"DAPU" See note 1 for unused position filling
End of File	D95	1	04

Notes

1. The I/D values are in ASCII representation except where explicitly noted. Unused positions in a field are filled with the ASCII space character (20h). A null character (00h) is in the last byte of each field, except header and End-of-file. The end-of-file ASCII character (04h) indicates end of inventory data.
2. The variable values will be provided by or agreed to by SCN contact for use here.
3. This field is reserved for future use
4. F1F0 is defined by DAPU to identify different factory of the DAPU to manufacture the part.
   SS2:S1S0 is defined by DAPU to differentiate different version of the part.

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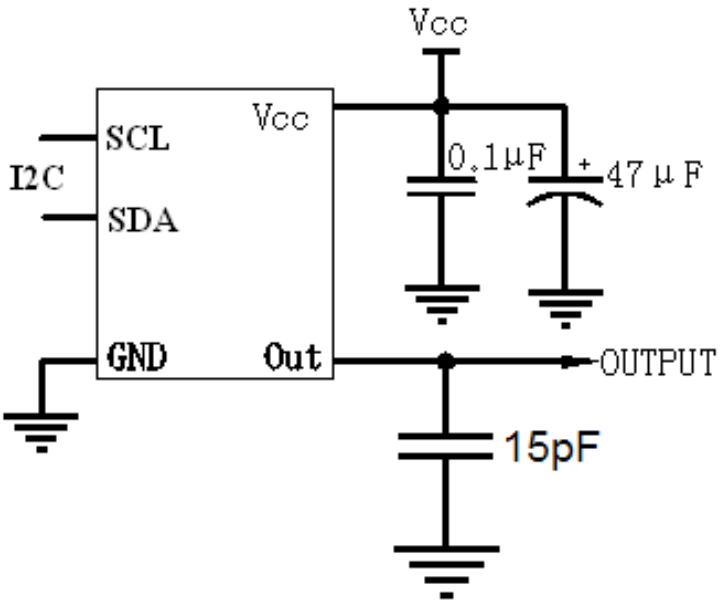
4. Test Circuit



5. Package(mm)