

## CRYSTAL OSCILLATOR LOW-JITTER SAW OSCILLATOR

# EG-2101CA

- Frequency range : 62.5 MHz to 99.999 MHz
- Supply voltage : 3.3 V
- Output : Differential LV-PECL
- Function : Output enable(OE)
- External dimensions : 7.0 × 5.0 × 1.2 mm
- Very low jitter and low phase noise by SAW unit.



Product Number (please contact us)  
Q3803CA00xxxx00



Actual size



### Specifications (characteristics)

Item	Symbol	Specifications	Remarks
Output frequency range	$f_0$	62.500 MHz to 99.999 MHz	Please contact us for inquiries regarding available frequencies
Supply voltage	V <sub>CC</sub>	3.3 V ±0.15 V	
Temperature range	T <sub>stg</sub>	-40 °C to +100 °C	Store as bare product after unpacking
Operating temperature	T <sub>use</sub>	0 °C to +70 °C	
Frequency tolerance	f <sub>tol</sub>	±50 × 10 <sup>-6</sup> , ±100 × 10 <sup>-6</sup>	0 °C to +70 °C *1
Current consumption	I <sub>CC</sub>	60 mA Max.	OE=V <sub>CC</sub> , R <sub>L</sub> =50 Ω
Disable current	I <sub>OE</sub>	25 mA Max.	OE=GND
Symmetry *3	SYM	D:47.5 % to 52.5 %	DCH,DCY,DCZ at outputs crossing point
High output voltage	V <sub>OH</sub>	2.35 V Typ. V <sub>CC</sub> -1.025 V to V <sub>CC</sub> -0.88 V	DC characteristics
Low output voltage	V <sub>OL</sub>	1.60 V Typ. V <sub>CC</sub> -1.81 V to V <sub>CC</sub> -1.62 V	
Output load condition	R <sub>L</sub>	50 Ω	Terminated to V <sub>CC</sub> -2.0 V
High input voltage	V <sub>IH</sub>	70 % V <sub>CC</sub> Min.	OE terminal
Low input voltage	V <sub>IL</sub>	30 % V <sub>CC</sub> Max.	OE terminal
Rise time / Fall time	t <sub>r</sub> / t <sub>f</sub>	600 ps Max.	20 % to 80 % (V <sub>OH</sub> -V <sub>OL</sub> )
Start-up time	t <sub>str</sub>	10 ms Max.	Time at minimum supply voltage to be 0 s
Jitter *2	t <sub>DJ</sub>	0.2 ps Typ.	Deterministic Jitter
	t <sub>RJ</sub>	3 ps Typ.	Random Jitter
	t <sub>RMS</sub>	3 ps Typ.	σ (RMS of total distribution)
	t <sub>p-p</sub>	25 ps Typ.	Peak to Peak
	t <sub>acc</sub>	4 ps Typ.	Accumulated Jitter(σ) n=2 to 50000 cycles
Phase Jitter	t <sub>PJ</sub>	1 ps Max.	Offset frequency: 12 kHz to 20 MHz
Frequency aging *3	f <sub>aging</sub>	±5 × 10 <sup>-6</sup> /year Max.	+25 °C, First year, V <sub>CC</sub> =3.3 V

\*1 As per below table

\*2 Based on DTS-2075 Digital timing system made from WAVECREST with jitter analysis software VISI6.

\*3 Except : PCH,DCH

Output mode (Symmetry)		D:Symmetry 50 ±2.5 %
Details of frequency tolerance	H: ±100 × 10 <sup>-6</sup> (0 °C to +70 °C)*4	DCH
	Y: ±100 × 10 <sup>-6</sup> (0 °C to +70 °C)*5	DCY
	Z: ±50 × 10 <sup>-6</sup> (0 °C to +70 °C)*6	DCZ

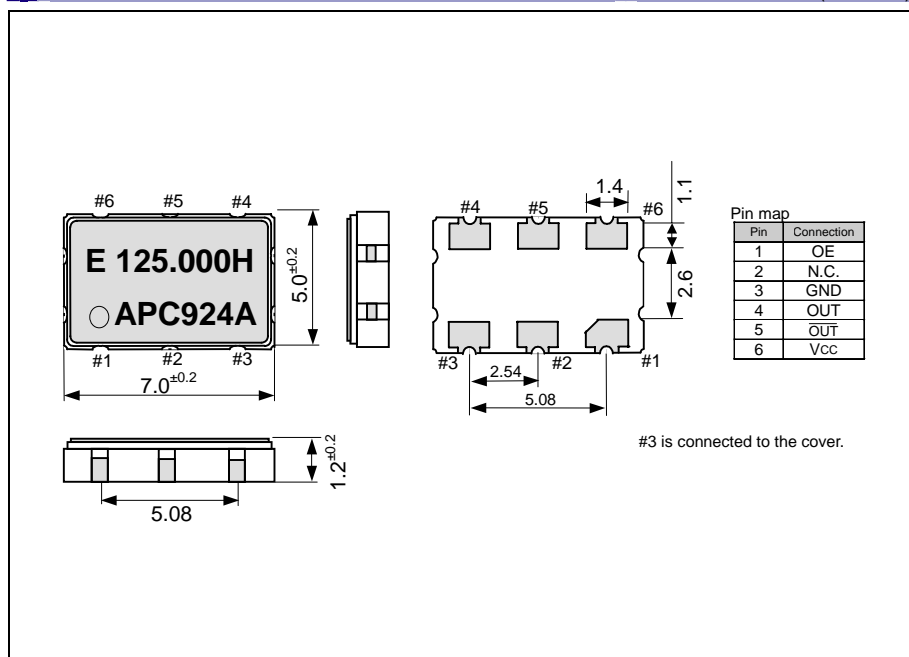
\*4 This includes initial frequency tolerance, temperature variation, supply voltage variation, reflow drift, and aging(+25 °C,10 years).

\*5 This includes initial frequency tolerance, temperature variation, supply voltage variation, and reflow drift(except aging).

\*6 This includes initial frequency tolerance and temperature variation(except supply voltage variation, reflow drift, aging).

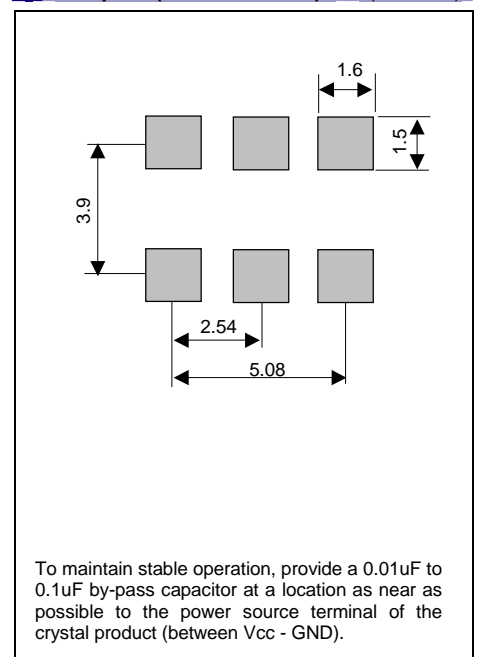
### External dimensions

(Unit:mm)



### Footprint (Recommended)

(Unit:mm)



# “QMEMS” EPSON TOYOCOM

In order to meet customer needs in a rapidly advancing digital, broadband and ubiquitous society, we are committed to offering products that are one step ahead of the market and a rank above the rest in quality. To achieve our goals, we follow a “3D (three device) strategy” designed to drive both horizontal and vertical growth. We will to grow our three device categories of “Timing Devices”, “Sensing Devices” and “Optical Devices”, and expand vertical growth through a combination of products from these categories.

A Quartz MEMS is any high added value quartz device that exploits the characteristics of quartz crystal material but that is produced using MEMS (micro-electro-mechanical system) processing technology.

Market needs are advancing faster than previously imagined toward smaller, more stable crystal products, but we will stay ahead of the curve by rolling out products that exceed market speed and quality requirements. We want to further accelerate the 3D strategy by QMEMS.

Quartz devices have become crucial in the network environment where products are increasingly intended for broadband, ubiquitous applications

and where various types of terminals can transfer information almost immediately via LAN and WAN on a global scale. Epson Toyocom Corporation addresses every single aspect within a network environment. The new corporation offers “Digital Convergence” solutions to problems arising with products for consumer use, such as, core network systems and automotive systems.



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## PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

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All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.




## WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

Epson Toyocom made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

### ► Explanation of the mark that are using it for the catalog

	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► The products have been designed for high reliability applications such as Automotive.

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