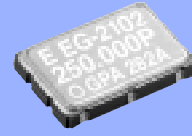
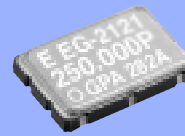


CRYSTAL OSCILLATOR

LOW-JITTER SAW OSCILLATOR

EG - 2121 / 2102CA series

- Frequency range : 53.125 MHz to 700 MHz
- Supply voltage : 2.5 V (EG-2121CA)
3.3 V (EG-2102CA)
- Output : Differential LV-PECL or LV-DS
- Function : Output enable(OE)
- Thickness : 1.2 mm Typ.
- Very low jitter and low phase noise by SAW unit.



Actual size

EG-2121CA

EG-2102CA

Specifications (characteristics)

Item		Symbol	Specifications				Remarks	
			EG-2121CA	EG-2102CA	EG-2121CA	EG-2102CA		
			Differential LV-PECL		LV-DS			
Output frequency range		f ₀	53.125 MHz to 500 MHz	100 MHz to 700 MHz	53.125 MHz to 700 MHz		Please contact us for inquiries regarding available frequencies.	
Supply voltage		V _{cc}	2.5 V ±0.125 V	3.3 V ±0.3 V	2.5 V ±0.125 V	3.3 V ±0.3 V		
Temperature range	Storage temperature	T _{stg}	-40 °C to +100 °C				Store as bare product after unpacking	
	Operating temperature	T _{use}	P:0 °C to +70 °C ,R:-5 °C to +85 °C					
Frequency tolerance		F _{tol(osc)}	G: ± 50 × 10 ⁻⁶ ,H: ±100 × 10 ⁻⁶				P:0 °C to +70 °C,R:-5 °C to +85 °C *1	
Current consumption		I _{cc}	80 mA Max.	100 mA Max.	30 mA Max	45 mA Max.	OE=V _{cc} ,R _L =50 Ω or 100 Ω	
Output disable current		I _{dis}	20 mA Max.	32 mA Max	20 mA Max	30 mA Max.	OE=GND	
Symmetry		SYM	P:45 % to 55 %	P:45 % to 55 %	L:45 % to 55 %	L:45 % to 55 %	f ₀ =350 MHz (at outputs crossing point) *1	
Output voltage		V _{OH}	1.55 V Typ.	2.35 V Typ.	—		DC characteristics	
			V _{cc} -1.025 to V _{cc} -0.88					
		V _{OL}	0.8 V Typ.	1.6 V Typ.	—			
			V _{cc} -1.81 to V _{cc} -1.62					
		V _{OD}	—		350 mV Typ. 247 mV to 454 mV			Differential output, DC characteristics
		ΔV _{OD}	—		50 mV			Output change, DC characteristics
		V _{OS}	—		1.25 V Typ. 1.125 V to 1.375 V			Offset, DC characteristics
Output load condition		R _L	50 Ω		100 Ω		Offset change, DC characteristics	
							LV-PECL: Terminated to V _{cc} -2.0 V	
							LV-DS: Connected between OUT to OUT	
Output enable input voltage		V _{IH}	70 % V _{cc} Min.				OE terminal	
Output disable input voltage		V _{IL}	30 % V _{cc} Max.				OE terminal	
Output rise and fall time		t _r / t _f	400 ps Max.				LV-PECL: 80 % to 20 % (V _{OH} -V _{OL}) LV-DS: 80 % to 20 % (V _{OD} ×2)	
Oscillation start up time		t _{OSC}	10 ms Max.				Time at minimum supply voltage to be 0 s	
Jitter *2		t _{DJ}	0.2 ps Typ.				Deterministic Jitter	
		t _{RJ}	3 ps Typ.				Random Jitter	
		t _{RMS}	3 ps Typ.				σ (RMS of total distribution)	
		t _{p-p}	25 ps Typ.				Peak to Peak	
		t _{acc}	4 ps Typ.				Accumulated Jitter(σ) n=2 to 50000 cycles	
Phase Jitter		t _{PJ}	0.05 × 10 ⁻³ UI Typ.				Offset frequency: 12 kHz to 20 MHz	
			1 ps Max.					
Frequency aging *3		F _{aging}	± 10 × 10 ⁻⁶ / year Max.				+25 °C,First year,V _{cc} =2.5 V,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: ***A

Output mode		P:Differential LV-PECL		D: Differential LV-PECL		L:LV-DS		V:LV-DS	
Frequency range	EG-2121CA	All range		$f_0 \leq 175 \text{ MHz}$		All range		$f_0 \leq 175 \text{ MHz}$	
	EG-2102CA			$f_0 \leq 350 \text{ MHz}$					
Symmetry	EG-2121CA	$50 \pm 10 \text{ \%} (f_0 > 350 \text{ MHz})$ $50 \pm 5 \text{ \%} (f_0 \leq 350 \text{ MHz})$		$50 \pm 2 \text{ \%}$		$50 \pm 10 \text{ \%} (f_0 > 350 \text{ MHz})$ $50 \pm 5 \text{ \%} (f_0 \leq 350 \text{ MHz})$		$50 \pm 2 \text{ \%}$	
	EG-2102CA	$50 \pm 5 \text{ \%}$							
Details of frequency tolerance		A *4	N *5	A *4	N *5	A *4	N *5	A *4	N *5
Frequency tolerance	HP: $\pm 100 \times 10^{-6} (0^\circ\text{C to } +70^\circ\text{C})$	PHPA	PHPN	DHPA	DHPN	LHPA	LHPN	VHPA	VHPN
	HR: $\pm 100 \times 10^{-6} (-5^\circ\text{C to } +85^\circ\text{C})$	PHRA*6	PHRN*6	DHRA*6	DHRN*6	LHRA*6	LHRN*6	VHRA*6	VHRN*6
	GP: $\pm 50 \times 10^{-6} (0^\circ\text{C to } +70^\circ\text{C})$	PGPA*6	PGPN*6	DGPA*6	DGPN*6	LGPA*6	LGPN*6	VGPA*6	VGPN*6
	GR: $\pm 50 \times 10^{-6} (-5^\circ\text{C to } +85^\circ\text{C})$	—	PGRN*6	—	DGRN*6	—	LGRN*6	—	VGRN*6

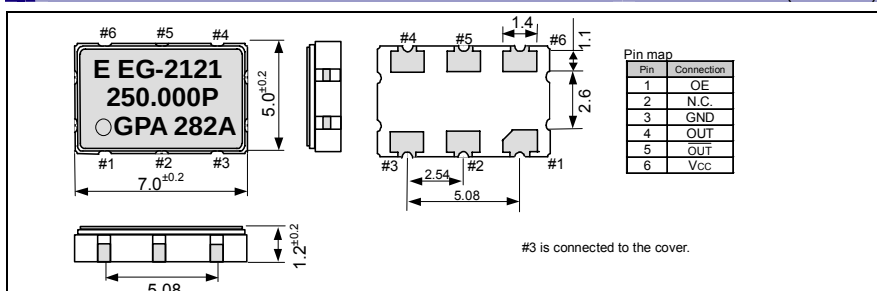
*4 This includes initial frequency tolerance, temperature variation, supply voltage variation, reflow drift, and aging(+25 °C, 10 years).

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

*6 53.125 MHz $\leq$ f₀ < 100 MHz : Unavailable.

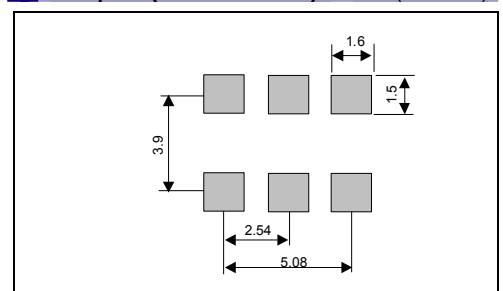
External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)



“3D STRATEGY” 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.

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.

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Epson Toyocom, all environmental initiatives operate under the Plan-Do-Check-Action(PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard. All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification. In the future, new group companies will be expected to acquire the certification around the third year of operations.

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

Epson Toyocom quickly began working to acquire company-wide ISO 9000 series certification, and has acquired ISO 9001 or ISO 9002 certification for all targeted products manufactured in Japanese and overseas plants.

Epson Toyocom has acquired QS-9000 certification, which is of a higher level. Also, TS 16949 certification, which is also of a higher level, has been acquired.

QS-9000 is an enhanced standard for quality assurance systems formulated by leading U.S. automobile manufacturers based on the international ISO 9000 series.

ISO/TS 16949 is a global standard based on QS-9000, a severe standard corresponding to the requirements from the automobile industry.

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 - / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment
 - / traffic control equipment / and others requiring equivalent reliability.
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We apologize for the inconvenience, but we will eventually have a unified part numbering system for Epson Toyocom that will be user friendly.