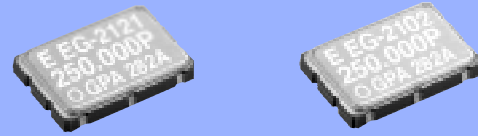


CRYSTAL OSCILLATOR
LOW-JITTER SAW OSCILLATOR

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



Specifications (characteristics)

Item	Symbol	Specifications				Remarks
		EG-2121CA	EG-2102CA	EG-2121CA	EG-2102CA	
Output frequency range	f_0	Differential LV-PECL		LV-DS		Please contact us for inquiries regarding available frequencies.
		53.125 MHz to 500 MHz	100 MHz to 700 MHz	53.125 MHz to 700 MHz		
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	T _{stg} T _{use}	-40 °C to +100 °C				Store as bare product after unpacking
		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 _{OL}	0.8 V Typ.	1.6 V Typ.	—		
	V _{OD}	V _{cc} -1.025 to V _{cc} -0.88		—		
	ΔV _{OD}	V _{cc} -1.81 to V _{cc} -1.62		—		
	V _{OS}	—		350 mV Typ. 247 mV to 454 mV		
	ΔV _{OS}	—		50 mV		
Output load condition	R _L	50 Ω		100 Ω		Differential output, DC characteristics
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. 1 ps Max.				Offset frequency: 12 kHz to 20 MHz
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 EG-2102CA	All range		f ₀ ≤ 175 MHz f ₀ ≤ 350 MHz		All range		f ₀ ≤ 175 MHz	
Symmetry	EG-2121CA EG-2102CA	50 ± 10 % (f ₀ > 350 MHz) 50 ± 5 % (f ₀ ≤ 350 MHz)		50 ± 2 %		50 ± 10 % (f ₀ > 350 MHz) 50 ± 5 % (f ₀ ≤ 350 MHz)		50 ± 2 %	
Details of frequency tolerance		A *4	N *5	A *4	N *5	A *4	N *5	A *4	N *5
Frequency tolerance	HP: ±100 × 10 ⁻⁶ (0°C to +70°C)	PHPA	PHPN	DHPA	DHPN	LHPA	LHPN	VHPA	VHPN
	HR: ±100 × 10 ⁻⁶ (-5°C to +85°C)	PHRA*6	PHRN*6	DHRA*6	DHRN*6	LHRA*6	LHRN*6	VHRA*6	VHRN*6
	GP: ±50 × 10 ⁻⁶ (0°C to +70°C)	PGPA*6	PGPN*6	DGPA*6	DGPN*6	LGPA*6	LGPN*6	VGPA*6	VGPN*6
	GR: ±50 × 10 ⁻⁶ (-5°C to +85°C)	—	PGRN*6	—	DGRN*6	—	LGRN*6	—	VGRN*6

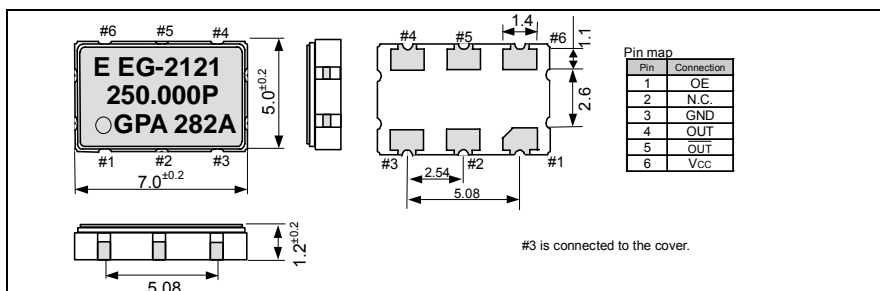
*4 This includes initial frequency tolerance, temperature variation, supply voltage variation, reflow drift, and aging(+25 °C,10 years).

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

*6 53.125 MHz ≤ f₀ < 100 MHz : Unavailable.

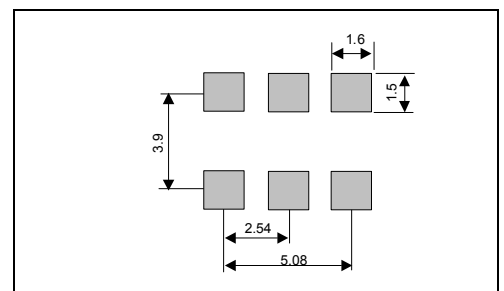
External dimensions

(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.

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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.

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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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/ traffic control equipment / and others requiring equivalent reliability.
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