



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 LVDS
- Function : Output enable(OE)
- External dimensions : 7.0 × 5.0 × 1.2 t (mm) Typ.
- Very low jitter and low phase noise by SAW unit.



Product Number (please contact us)
EG-2121CA: Q3805CAx0xxx00
EG-2102CA: Q3806CA00xxx00



Actual size

EG-2121CA

EG-2102CA

Specifications (characteristics)

Item	Symbol	EG-2121CA	EG-2102CA	EG-2121CA	EG-2102CA	Remarks	
		Differential LV-PECL		LVDS			
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	-40 °C to +100 °C				Store as bare product after unpacking	
	Operating temperature	P:0 °C to +70 °C ,R:-5 °C to +85 °C ,S:-20 °C to +70 °C				Please contact us for inquiries about S spec.	
Frequency tolerance	f_{tol}	G: $\pm 50 \times 10^{-6}$,H: $\pm 100 \times 10^{-6}$				P:0 °C to +70 °C,R:-5 °C to +85 °C *1 .S:-20 °C to +70 °C	
Current consumption	I_{CC}	80 mA Max.	100 mA Max.	30 mA Max	45 mA Max.	OE= V_{CC} , $R_L=50 \Omega$ or 100 Ω	
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 %	$f_0 \leq 350$ MHz (at outputs crossing point) *1	
	V_{OH}	1.55 V Typ. $V_{CC}-1.025$ V to $V_{CC}-0.88$ V	2.35 V Typ.	—		DC characteristics	
V_{OL}	0.8 V Typ. $V_{CC}-1.81$ V to $V_{CC}-1.62$ V	1.6 V Typ.	—				
Output voltage	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	
	ΔV_{OS}	—		150 mV		Offset change, DC characteristics	
Output load condition	R_L	50 Ω		100 Ω		LV-PECL: Terminated to $V_{CC}-2.0$ V LVDS: 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	
Rise time / Fall time	t_r / t_f	400 ps Max.				Between 20% V_{CC} and 80% of ($V_{OH}-V_{OL}$) Between 20 % and 80 % of Differential Output peek to peek voltage	
Start-up time	t_{str}	10 ms Max.				Time at minimum supply voltage to be 0 s	
	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}	$\pm 10 \times 10^{-9}$ / 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: LVDS		V: LVDS		
Frequency range	EG-2121CA	All range	$f_0 \leq 175$ MHz	$f_0 \leq 350$ MHz	All range		$f_0 \leq 175$ MHz		
	EG-2102CA								
Symmetry	EG-2121CA	50 ± 10 % ($f_0 > 350$ MHz) 50 ± 5 % ($f_0 \leq 350$ MHz)	50 ± 2 %		50 ± 10 % ($f_0 > 350$ MHz) 50 ± 5 % ($f_0 \leq 350$ MHz)		50 ± 2 %		
	EG-2102CA	50 ± 5 %							
Details of frequency tolerance									
Frequency tolerance	HP: $\pm 100 \times 10^{-9}$ (0°C to +70°C)	A *4	N *5	A *4	N *5	A *4	N *5	A *4	N *5
	HR: $\pm 100 \times 10^{-9}$ (-5°C to +85°C)	PHPA*6	PHPN	DHPA	DHPN	LHPA	LHPN	VHPA	VHPN
	GP: $\pm 50 \times 10^{-9}$ (0°C to +70°C)	PGPA*6	PGPN*6	DGPA*6	DGPN*6	LGPA*6	LGPN*6	VGPA*6	VGPN*6
	GR: $\pm 50 \times 10^{-9}$ (-5°C to +85°C)	—	PGRN*6	—	DGRN*6	—	LGRN*6	—	VGRN*6

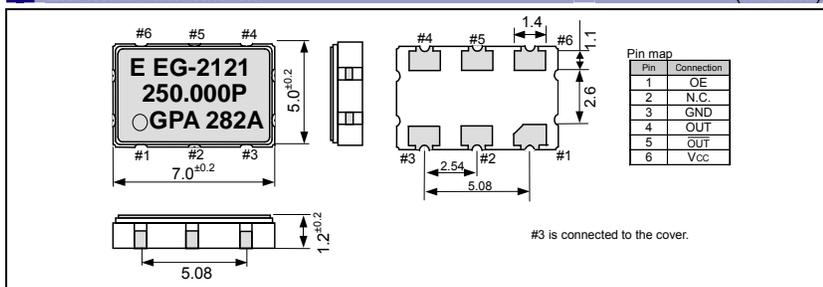
*4 This includes initial frequency tolerance, temperature variation, supply voltage variation, reflow drift, and aging(+25 °C, 10 years).

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

*6 53.125 MHz $\leq f_0 < 100$ MHz : Unavailable.

External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)

