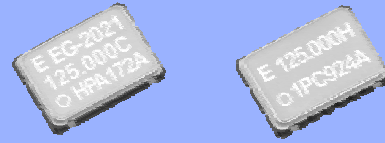


# CRYSTAL OSCILLATOR

## LOW-JITTER SAW OSCILLATOR

### EG - 2021 / 2001CA series

- Frequency range : 62.5 MHz to 250 MHz
- Supply voltage : 2.5V/ EG-2021CA  
3.3V/ EG-2001CA
- Output : CMOS
- Function : Output enable(OE)
- Thickness : 1.2 mm Typ.
- Very low jitter and low phase noise by SAW unit.



Actual size

EG-2021CA

EG-2001CA

### Specifications (characteristics)

Item	Symbol	Specifications		Remarks
		EG-2021CA	EG-2001CA	
Output frequency range	$f_0$	62.500 MHz to 170.000MHz	170.001MHz to 250.000MHz	106.250 MHz to 170.000 MHz
Supply voltage	Vcc	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		
Frequency tolerance	$f_{tol}(osc)$	G: ± 50 × 10 <sup>-6</sup> H: ± 100 × 10 <sup>-6</sup>		Z: ± 50 × 10 <sup>-6</sup> Y,H: ± 100 × 10 <sup>-6</sup>
Current consumption	Icc	25 mA Max.	30 mA Max.	50 mA Max.
Output disable current	I <sub>dis</sub>	600 μA Max.		10 μA Max.
Symmetry	SYM	45 % to 55 %	40 % to 60 %	45 % to 55 %
High output voltage	V <sub>OH</sub>	Vcc-0.35 V Min.		Vcc-0.4 V Min.
Low output voltage	V <sub>OL</sub>	0.35 V Max.		0.4 V Max.
Output load condition	L <sub>CMOS</sub>	15 pF Max.		Max. frequency and Max. supply voltage range
High input voltage	V <sub>IH</sub>	70 % Vcc Min.		OE terminal
Low input voltage	V <sub>IL</sub>	30 % Vcc Max.		OE terminal
Output rise and fall time	t <sub>r</sub> / t <sub>f</sub>	2 ns Max.		CMOS load:20 % Vcc to 80 % Vcc level
Oscillation start up time	t <sub>osc</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>	0.05 × 10 <sup>-3</sup> UI Typ. 1 ps Max.		Offset frequency: 12 kHz to 20 MHz
Frequency aging*3	f <sub>aging</sub>	± 10 × 10 <sup>-6</sup> / year Max.	± 5 × 10 <sup>-6</sup> / year Max.	+25 °C, First year, Vcc=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:CHPA,CHRA,PCH

Model	EG-2021CA		
	Details of frequency tolerance	A *4	N *5
Frequency tolerance	HP: ±100×10 <sup>-6</sup> (0°C to +70°C)	CHPA	CHPN
	HR: ±100×10 <sup>-6</sup> (-5°C to +85°C)	CHRA	CHRN
	GP: ±50×10 <sup>-6</sup> (0°C to +70°C)	—	CGPN
	GR: ±50×10 <sup>-6</sup> (-5°C to +85°C)	—	CGRN*7

Model	EG-2001CA	
	Output mode	P: Symmetry 50 ±5 %
Frequency tolerance	H: ±100×10 <sup>-6</sup> (0°C to +70°C) *4	PCH
	Y: ±100×10 <sup>-6</sup> (0°C to +70°C) *5	PCY
	Z: ±50×10 <sup>-6</sup> (0°C to +70°C) *6	PCZ

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

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

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

\*7 Please contact us for inquiries.

### External dimensions

(Unit:mm)

Footprint (Recommended) (Unit:mm)

