



CRYSTAL OSCILLATOR

LOW-JITTER SAW OSCILLATOR

EG-2121 / 2102CA

- 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 or HCSSL
 - 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)

EG-2121CA: Q3805CAx0xxx00

: X1M000101xxx00

EG-2102CA: Q3806CA00xxx00

: X1M000091xxx00



Actual size

EG-2121CA



EG-2102CA



Specifications (characteristics)

► Differential LV-PECL Output

| Item | Symbol | EG-2121CA | EG-2102CA | Conditions / Remarks |
|-----------------------------|---|---|--------------------|--|
| | | Differential LV-PECL | | |
| Output frequency range | f _o | 53.125 MHz to 500 MHz | 100 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 | |
| Storage temperature | T _{stg} | -40 °C to +100 °C | | Store as bare product . |
| Operating temperature *1 | T _{use} | P:0 °C to +70 °C ,R:-5 °C to +85 °C ,S:-20 °C to +70 °C | | |
| Frequency tolerance *1 | f _{tol} | G: ± 50 × 10 ⁻⁶ ,H: ±100 × 10 ⁻⁶ | | |
| Current consumption | I _{cc} | 80 mA Max. | 100 mA Max. | OE=V _{cc} , L_ECL=50 Ω |
| Disable current | I _{dis} | 20 mA Max. | 32 mA Max | OE=GND |
| Symmetry | SYM | P:40 % to 60 % (fo > 350 MHz) | P:45 % to 55 % | at outputs crossing point |
| | | P:45 % to 55 % (fo ≤ 350 MHz) | | |
| | | D:48 % to 52 % (fo ≤ 175 MHz) | | |
| Output voltage | V _{OH} | 1.55 V Typ. | 2.35 V Typ. | DC characteristics |
| | V _{cc} -1.025 V to V _{cc} -0.88 V | | | |
| | V _{OL} | 0.8 V Typ. | 1.6 V Typ. | |
| Output load condition (ECL) | L_ECL | V _{cc} -1.81 V to V _{cc} -1.62 V | | Terminated to V _{cc} -2.0 V |
| Input voltage | V _{IH} | 50 Ω | | OE terminal |
| | V _{IL} | 70 % V _{cc} Min. 30 % V _{cc} Max. | | |
| Rise time / Fall time | t _r / t _f | 400 ps Max. | | Between 20% and 80% of (V _{OH} -V _{OL}) |
| Start-up time | t _{str} | 10 ms Max. | | Time at minimum supply voltage to be 0 s |
| Phase Jitter | t _{pj} | 0.8 ps Max. | | fo < 100 MHz |
| | | 0.5 ps Max. | | 100 MHz ≤ fo < 200 MHz |
| | | 0.3 ps Max. | | 200 MHz ≤ fo |
| Frequency aging *2 | f _{aging} | ± 10 × 10 ⁻⁶ / year Max. | | +25 °C, First year, V _{cc} =2.5 V,3.3 V |

*1 As per below table 1.

*2 Except: ***A

► LVDS Output

| Item | Symbol | EG-2121CA | EG-2102CA | Conditions / Remarks |
|------------------------------|---------------------------------|---|----------------------------------|---|
| | | LVDS | | |
| Output frequency range | f _o | 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 | |
| Storage temperature | T _{stg} | -40 °C to +100 °C | | Store as bare product. |
| Operating temperature *1 | T _{use} | P:0 °C to +70 °C ,R:-5 °C to +85 °C ,S:-20 °C to +70 °C | | |
| Frequency tolerance *1 | f _{tol} | G: ± 50 × 10 ⁻⁶ ,H: ±100 × 10 ⁻⁶ | | |
| Current consumption | I _{cc} | 30 mA Max | 45 mA Max. | OE=V _{cc} , L_LVDS= 100 Ω |
| Disable current | I _{dis} | 20 mA Max | 30 mA Max. | OE=GND |
| Symmetry | SYM | L:40 % to 60 % (fo > 350 MHz) | L:40 % to 60 % (fo > 350 MHz) | at outputs crossing point |
| | | L:45 % to 55 % (fo ≤ 350 MHz) | L:45 % to 55 % (fo ≤ 350 MHz) | |
| | | V:48 % to 52 % (fo ≤ 175 MHz) | V:48 % to 52 % (fo ≤ 175 MHz) | |
| Output voltage | V _{OD} | 350 mV Typ. 247 mV to 454 mV | | DC characteristics |
| | dV _{OD} | 50 mV Max. | | |
| | V _{OS} | 1.25 V Typ. 1.125 V to 1.375 V | | |
| | dV _{OS} | 150 mV Max. | | |
| Output load condition (LVDS) | L_LVDS | 100 Ω | | Connected between OUT to OUT |
| Input voltage | V _{IH} | 70 % V _{cc} Min. | | OE terminal |
| | V _{IL} | 30 % V _{cc} Max. | | |
| Rise time / Fall time | t _r / t _f | 400 ps Max. | | 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 |
| Phase Jitter | t _{pj} | 0.8 ps Max. | | fo < 100 MHz |
| | | 0.5 ps Max. | | 100 MHz ≤ fo < 200 MHz |
| | | 0.3 ps Max. | | 200 MHz ≤ fo |
| Frequency aging *2 | f _{aging} | ± 10 × 10 ⁻⁶ / year Max. | | +25 °C, First year, V _{cc} =2.5 V,3.3 V |

*1 As per below table 1.

*2 Except: ***A

► HCSL Output

| Item | Symbol | EG-2121CA | | EG-2102CA | | Conditions / Remarks |
|------------------------------|---------|--|--|--------------|--|--|
| | | HCSL | | | | |
| Output frequency range | fo | 100 MHz to 350 MHz | | | | Please contact us for inquiries regarding available frequencies. |
| Supply voltage | Vcc | 2.5 V ±0.125 V | | 3.3 V ±0.3 V | | |
| Storage temperature | T_stg | -40 °C to +125 °C | | | | Store as bare product. |
| Operating temperature | T_use | P: 0 °C to +70 °C, R: -5 °C to +85 °C, S: -20 °C to +70 °C | | | | |
| Frequency tolerance *1 | f_tol | G: ±50 × 10 ⁻⁶ , H: ±100 × 10 ⁻⁶ | | | | |
| Current consumption | Icc | 80 mA Max. | | 85 mA Max. | | OE=Vcc, L_HCSL=50 Ω |
| Disable current | I_dis | 20 mA Max. | | 35 mA Max. | | OE=GND |
| Symmetry | SYM | 45 % to 55 % | | | | at outputs crossing point |
| Output Voltage | VoH | 0.75 V Typ. | | | | DC characteristics |
| | VoL | -0.3 V Typ. | | | | |
| Output load condition (HCSL) | L_HCSL | 50 Ω | | | | Terminated to GND |
| Input voltage | ViH | 70 % Vcc Min. | | | | OE terminal |
| | ViL | 30 % Vcc Max. | | | | |
| Rise time / Fall time | tr / tf | 500 ps Max. | | | | Between 0.175 V and 0.525 V of output |
| Start-up time | t_str | 10 ms Max. | | | | Time at minimum supply voltage to be 0 s |
| Phase Jitter | tpj | 0.8 ps Max. | | | | fo < 100 MHz |
| | | 0.5 ps Max. | | | | 100 MHz ≤ fo < 200 MHz |
| | | 0.3 ps Max. | | | | 200 MHz ≤ fo |
| Frequency aging *2 | f_aging | ±10 × 10 ⁻⁶ / year Max. | | | | +25 °C, First year, Vcc=2.5 V, 3.3 V |

*1 As per below table 1.

*2 Except: ***A

Table 1 Frequency tolerance and aging

| Output and Symmetry | | P: Differential LV-PECL | | D: Differential LV-PECL | | L: LVDS | | V: LVDS | | H: HCSL | |
|---|--|-------------------------|---------|-------------------------|---------|-----------|---------|--------------|---------|-----------|------|
| Frequency range | | All range | | | | All range | | fo ≤ 175 MHz | | All range | |
| Aging | | A *3 | N *4 | A *3 | N *4 | A *3 | N *4 | A *3 | N *4 | A *3 | N *4 |
| Frequency tolerance and operating temperature | HP: ±100 × 10 ⁻⁶ (0°C to +70°C) | PHPA | PHPN | DHPA | DHPN | LHPA | LHPN | VHPA | VHPN | HHPA | HHPN |
| | HR: ±100 × 10 ⁻⁶ (-5°C to +85°C) | PHRA *5 | PHRN *5 | DHRA *5 | DHRN *5 | LHRA *5 | LHRN *5 | VHRA *5 | VHRN *5 | HHRA | HHRN |
| | GP: ±50 × 10 ⁻⁶ (0°C to +70°C) | PGPA *5 | PGPN *5 | DGPA *5 | DGPN *5 | LGPA *5 | LGPN *5 | VGPA *5 | VGPN *5 | HGPA | HGPN |
| | GR: ±50 × 10 ⁻⁶ (-5°C to +85°C) | — | PGRN *5 | — | DGRN *5 | — | LGRN *5 | — | VGRN *5 | — | HGRN |
| | HS: ±100 × 10 ⁻⁶ (-20°C to +70°C) | PHSA *5 | PHSN *5 | DHSA *5 | DHSN *5 | LHSA *5 | LHSN *5 | VHSA *5 | VHSN *5 | HHSA | HHSN |
| | GS: ±50 × 10 ⁻⁶ (-20°C to +70°C) | — | PGSN *5 | — | DGSN *5 | — | LGSN *5 | — | VGSN *5 | — | HGSN |

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

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

*5 53.125 MHz ≤ fo < 100 MHz : Unavailable.

Table 2 Jitter

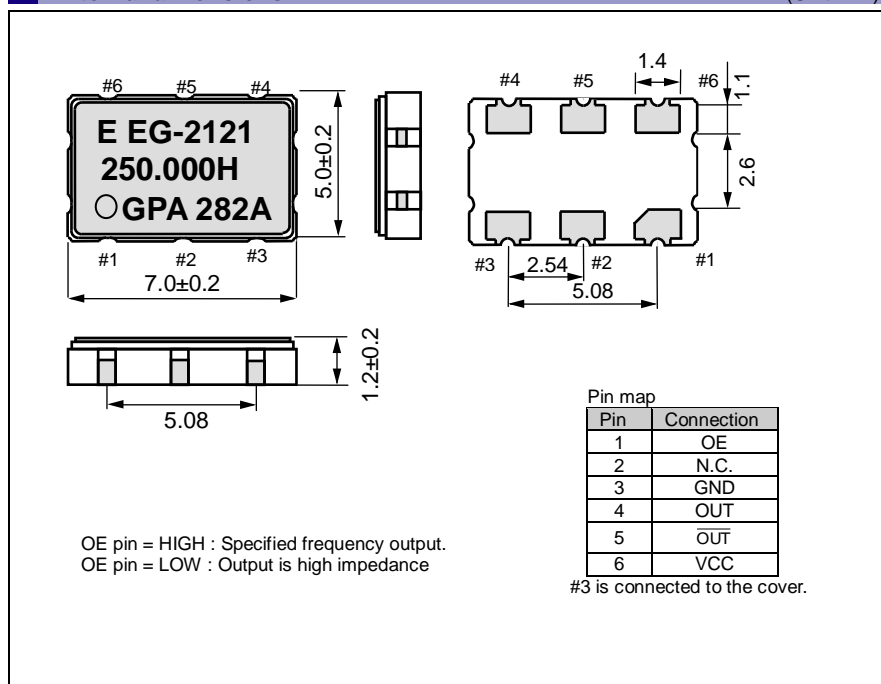
| Item | Symbol | Specifications | Remarks |
|----------|--------|----------------|---|
| Jitter * | tdj | 0.2 ps Typ. | Deterministic Jitter |
| | trj | 3 ps Typ. | Random Jitter |
| | trms | 3 ps Typ. | σ (RMS of total distribution) |
| | tp-p | 25 ps Typ. | Peak to Peak |
| | tacc | 4 ps Typ. | Accumulated Jitter(σ) n=2 to 50000 cycles |

* Based on DTS-2075 Digital timing system made from WAVECREST with jitter analysis software VISI6. : Differential LV-PECL, LVDS output

* Based on SIA-3100C signal integrity analyzer made from WAVECREST. : HCSL output

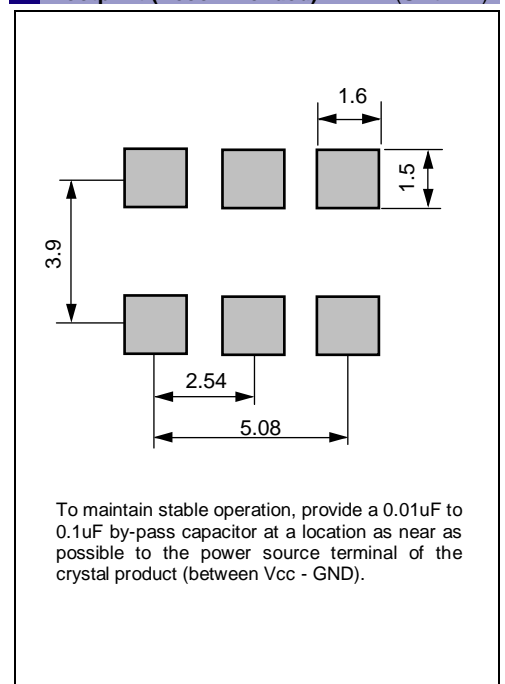
External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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