

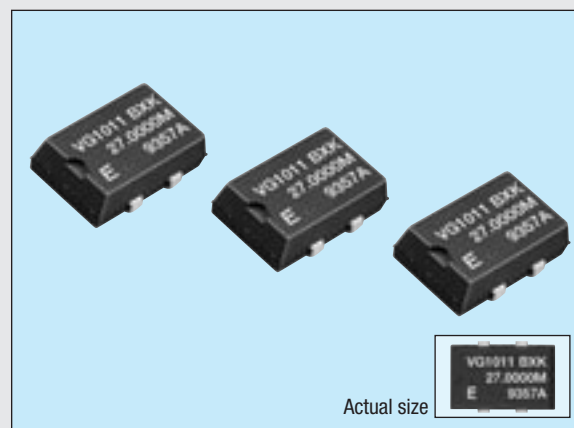
VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR

VG-1011JA

Product number (please refer to page 4)

Q3602JA0xxxxx00

- High accuracy and high reliability due to trimmerless design.
- Use of CMOS IC assures low current consumption.
- Excellent environmental capability.
- Supply voltage: 5 V
- Available for lead (Pb)-free soldering.
- Available for lead (Pb)-free terminal.



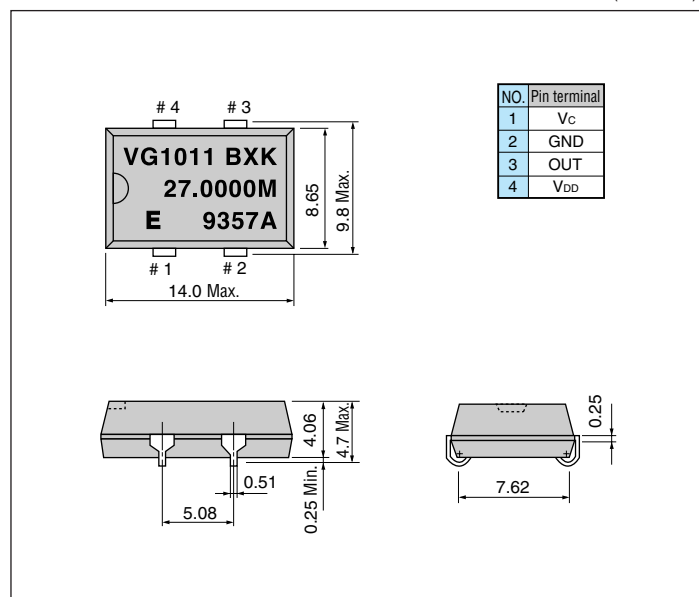
■ Specifications (characteristics)

| Item | Symbol | Specifications | Remarks |
|---------------------------------|-----------------------|------------------------------|--|
| Output frequency range | f_o | 1.5000 MHz to 28.63636 MHz * | |
| Power source voltage | Max. supply voltage | V_{DD-GND} | -0.5 V to +7.0 V |
| | Operating voltage | V_{DD} | 5.0 V \pm 0.5 V |
| Temperature range | Storage temperature | T_{STG} | -55 °C to +125 °C |
| | Operating temperature | T_{OPR} | As per below table * |
| Frequency stability | $\Delta f/f_o$ | As per below table * | |
| Current consumption | I_{OP} | 10 mA Max. | No load condition |
| Pull range | Δf_c | As per below table * | $V_c = 2.5 \pm 2.0$ V |
| Input resistance | Z_{IN} | 10 M Ω Min. | DC Level |
| Frequency change polarity | | Positive polarity | $V_c = 0.5$ to 4.5 V |
| Duty | t_w / t | 40 % to 60 % | 1.4 V or 50 % V_{DD} level |
| Output voltage | V_{OH} | $V_{DD} - 0.4$ V Min. | $I_{OH} = -0.8$ mA |
| | V_{OL} | 0.4 V Max. | $I_{OL} = 1.6$ mA |
| Output load condition (fan out) | CL | 2 TTL or 15 pF Max. | TTL load / CMOS load |
| Output rise time | t_r | 8 ns Max. | CMOS load: 20 % \rightarrow 80 % V_{DD} |
| | | 5 ns Max. | TTL load: 0.4 V \rightarrow 2.4 V |
| Output fall time | t_f | 8 ns Max. | CMOS load: 80 % \rightarrow 20 % V_{DD} |
| | | 5 ns Max. | TTL load: 2.4 V \rightarrow 0.4 V |
| Oscillation start up time | t_{OSC} | 4 ms Max. | Time at 4.5 V to be 0 s |
| Aging | f_a | $\pm 5 \times 10^{-6}$ Max. | $T_a = +25$ °C, $V_{DD} = 5$ V, first year |
| Shock resistance | S.R. | $\pm 5 \times 10^{-6}$ Max. | Three drops on a hard board from 750 mm or excitation test with 29400 m/s ² x 0.3 ms x 1/2sine wave in 3 directions |

Note: * Please contact us for inquiries about operating temperature, frequency stability, pull range.

■ External dimensions

(Unit: mm)



■ Stability / Temperature range

■ Pull range

| Stability | Temperature range | | | Pull range |
|-------------------------|-------------------|------------------|------------------|------------|
| | -20 °C to +70 °C | -30 °C to +75 °C | -40 °C to +85 °C | |
| | V | W | X | B |
| $\pm 15 \times 10^{-6}$ | S | B | - | G |
| $\pm 20 \times 10^{-6}$ | A | G, K, N | - | K |
| $\pm 25 \times 10^{-6}$ | B | - | G, K, N | N |

*Please contact us for inquiries about the available frequency.

■ Recommended soldering pattern

(Unit: mm)

