

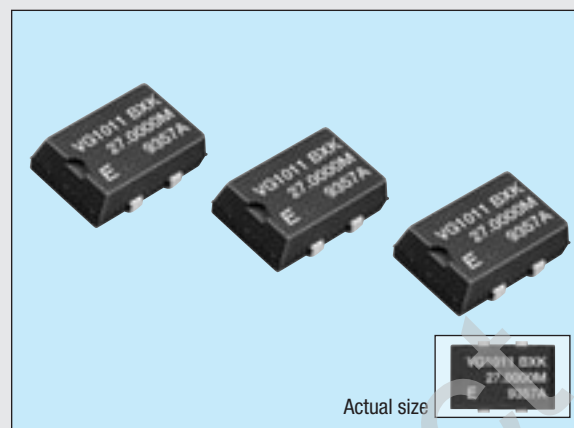
VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR

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.



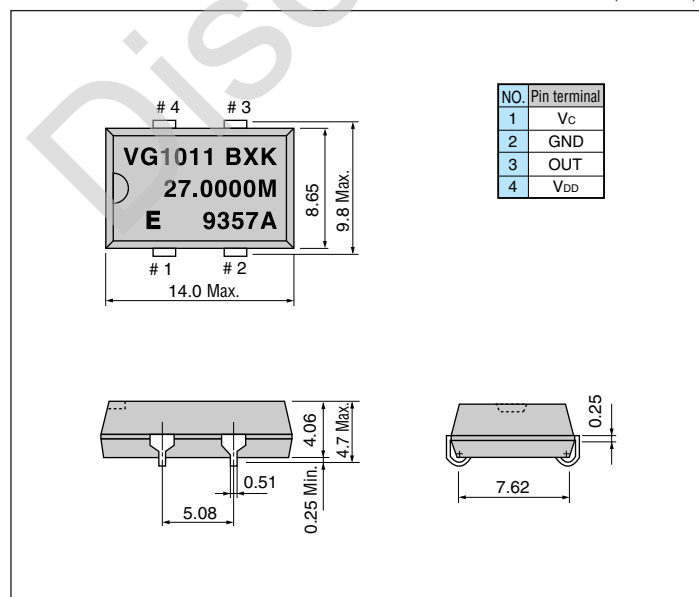
■ Specifications (characteristics)

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

	Pull range
B	$\pm 20 \times 10^{-6}$ Min.
G	$\pm 50 \times 10^{-6}$ Min.
K	$\pm 75 \times 10^{-6}$ Min.
N	$\pm 100 \times 10^{-6}$ Min.

*Please contact us for inquiries about the available frequency.

■ Recommended soldering pattern

(Unit: mm)

