

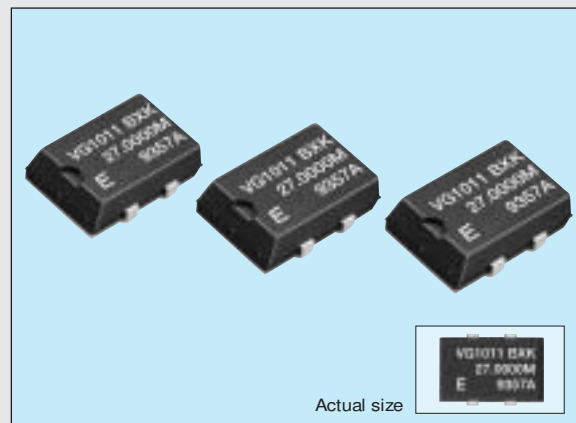
VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR

VG-1011JA

Product number (please refer to page 2)

Q3602JA0xxxxxx00

- High accuracy and high reliability due to trimmerless design.
- Built-in heat resistive AT-cut crystal provides heat resistance equivalent to that of general-purpose ICs.
- Use of CMOS IC assures low current consumption.
- Excellent environmental capability.
- Supply voltage: 5 V



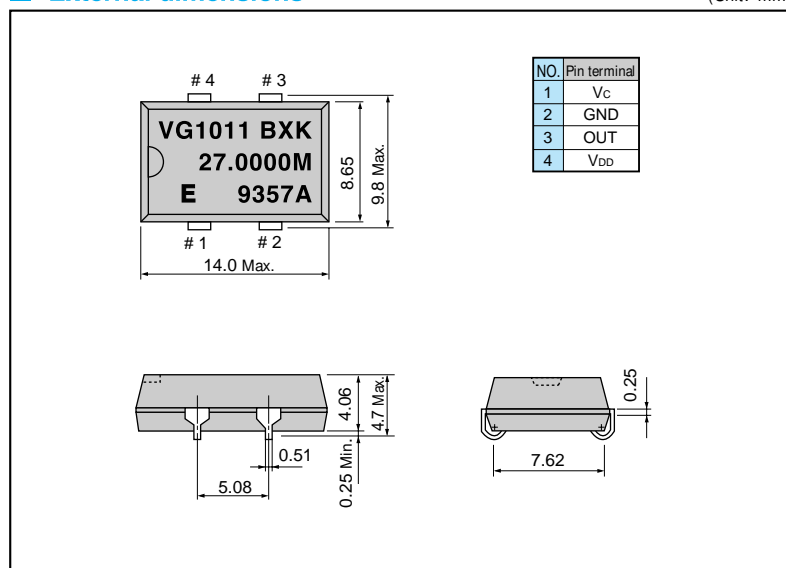
Specifications (characteristics)

Item	Symbol	Specifications	Remarks
Output frequency range	f_0	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	$\Delta f/f_0$	As per below table *	Stored as bare product after unpacking
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 1/2VDD 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)	N/Q.	2 TTL or 15 pF Max.	TTL load/CMOS load
Output rise time	t_{TLH}	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_{THL}	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		
$\pm 15 \times 10^{-5}$	S	-	B	-	B	$\pm 20 \times 10^{-6}$ Min.
$\pm 20 \times 10^{-5}$	A	G, K, N	-	-	G	$\pm 50 \times 10^{-6}$ Min.
$\pm 25 \times 10^{-5}$	B	-	-	G, K, N	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)

