

## VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR

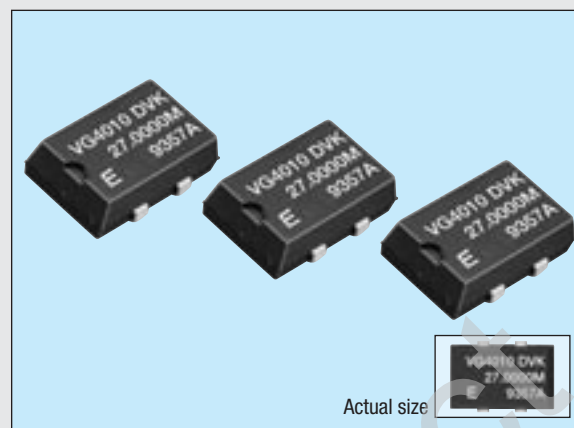
## VG-4010JA / 4030JA

Product number (please refer to page 4)

Q3611JA0xxxxx00

Q3612JA0xxxxx00

- High accuracy and high reliability due to trimmerless design.
- Use of CMOS IC assures low current consumption.
- Excellent environmental capability.
- Supply voltage: 5 V (VG-4010JA)
- Supply voltage: 3.3 V (VG-4030JA)
- Available for lead (Pb)-free soldering.
- Available for lead (Pb)-free terminal.

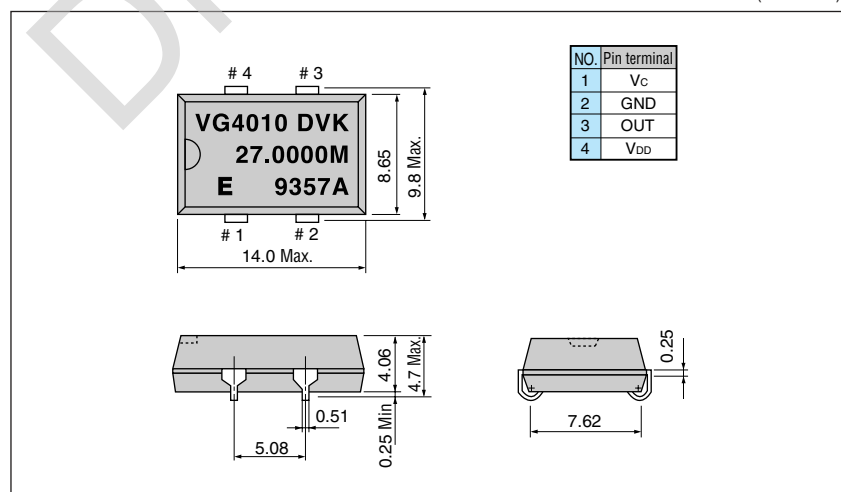


## ■ Specifications (characteristics)

Item	Symbol	Specifications		Remarks
		VG-4010JA DVK	VG-4030JA DVK	
Output frequency range	$f_0$	2.0000 MHz to 28.63636 MHz		Please contact us for inquiries about the available frequency.
Power source voltage	Max. supply voltage	$V_{DD-GND}$ -0.5 V to +7.0 V		
	Operating voltage	$V_{DD}$ 5.0 V $\pm 0.25$ V	3.3 V $\pm 0.17$ V	
Temperature range	Storage temperature	$T_{STG}$ -55 °C to +125 °C		Stored as bare product after unpacking
	Operating temperature	$T_{OPR}$ -20 °C to +70 °C		
Frequency stability	$\Delta f/f_0$	$\pm 35 \times 10^{-6}$ Max.	$\pm 37 \times 10^{-6}$ Max.	VC = 2.5 V (VG-4010JA) / VC = 1.8 V (VG-4030JA)
Current consumption	$I_{OP}$	35 mA Max.	18 mA Max.	No load condition
Pull range	$\Delta f_c$	$\pm 75 \times 10^{-6}$	As per below table	VC = 0.5 to 4.5 V (VG-4010JA) / VC = 0.0 to 3.0 V (VG-4030JA)
Input resistance	$Z_{IN}$	10 M $\Omega$ Min.		DC Level
Frequency change polarity		Positive polarity		VC = 0.5 to 4.5 V (VG-4010JA) / VC = 0.0 to 3.0 V (VG-4030JA)
Duty	$t_w / t$	45 % to 55 % (40 % to 60 %)	40 % to 60 %	1/2 $V_{DD}$ level (1.4 V level)
Output voltage	$V_{OH}$	$V_{DD} - 0.4$ V Min.		$I_{OH} = -0.8$ mA
	$V_{OL}$	0.4 V Max.		$I_{OL} = 3.2$ mA
Output load condition (fan out)	N/CL	2 TTL or 30 pF Max.	30 pF Max.	TTL load / CMOS load
Output rise time	$t_r$	5 ns Max.	6 ns Max.	CMOS load: 20 % $\rightarrow$ 80 % $V_{DD}$ level
		8 ns Max.	–	TTL load: 0.4 V $\rightarrow$ 2.4 V level
Output fall time	$t_f$	5 ns Max.	6 ns Max.	CMOS load: 80 % $\rightarrow$ 20 % $V_{DD}$ level
		8 ns Max.	–	TTL load: 2.4 V $\rightarrow$ 0.4 V level
Oscillation start up time	$t_{OSC}$	10 ms Max.		Time at minimum operating voltage to be 0 s
Aging	$f_a$	$\pm 5 \times 10^{-6}$ Max.		$T_a = +25$ °C, first year
Shock resistance	S.R.	$\pm 10 \times 10^{-6}$ Max.		Three drops on a hard board from 750 mm or excitation test with 29400 m/s <sup>2</sup> x 0.3 ms x 1/2sine wave in 3 directions

## ■ External dimensions

(Unit: mm)



## ■ Stability / Temperature range

Pull range	Remarks
$180 \times 10^{-6}$	Crystal unit's frequency < 20 MHz, $V_c = 0.0$ to 3.0 V
$150 \times 10^{-6}$	Crystal unit's frequency $\leq 20$ MHz, $V_c = 0.0$ to 3.0 V

## ■ Recommended soldering pattern (Unit: mm)

