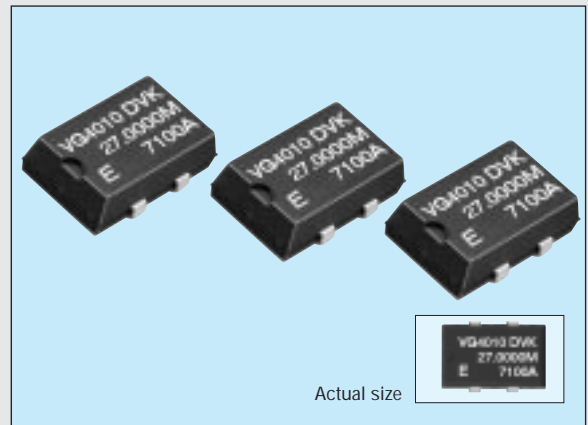


VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR

VG-4000 series

- High accuracy and high reliability due to trimmerless design.
- Built-in heat-resisting AT-cut crystal provides heat resistance equivalent to that of general-purpose ICs.
- Use of C-MOS IC assures low current consumption.
- Excellent shock resistance and environmental capability.
- Supply voltage: 5V(VG-4010JA)
- Supply voltage: 3.3V(VG-4030JA)



Specifications (characteristics)

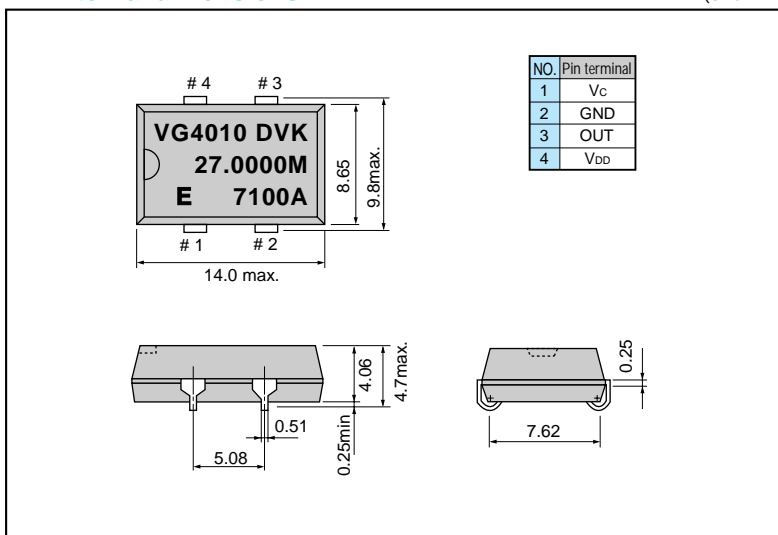
Item	Symbol	VG-4010JA DVK	VG-4030JA DVK	Remarks
		Specifications		
Output frequency range	f_0	2.0000 MHz to 28.63636 MHz		*
Power source voltage	Max. supply voltage	V_{DD-GND} -0.5V to +7.0V		
	Operating voltage	V_{DD} 5.0V \pm 0.25V	3.3V \pm 0.17V	
Temperature range	Storage temperature	T_{STG} -55°C to +125°C		
	Operating temperature	T_{OPR} -20°C to +70°C (-40°C to +85°C)		
Soldering condition	T_{SOL}	Twice at under 260°C within 10 sec.		
Frequency stability	$\Delta f/f_0$	\pm 35ppm max.	\pm 37ppm max.	VC=0.5 to 4.5V(4010JA) / VC=0.0 to 3.0V(4030JA)
Current consumption	I_{OP}	35mA max.	18mA max.	No load condition
Pull range	Δf_c	\pm 75ppm	As per below table	VC=0.5 to 4.5V(4010JA) / VC=0.0 to 3.0V(4030JA)
Input resistance	Z_{IN}	10M Ω min.		DC Level
Frequency change polarity		Positive polarity		VC=0.5 to 4.5V(4010JA) / VC=0.0 to 3.0V(4030JA)
Duty	t_w/t	45% to 55%(40% to 60%)	40% to 60%	1/2VDD level(1.4V level)
Output voltage	V_{OH}	V_{DD} -0.4V min.		$I_{OH} = -0.8mA$
	V_{OL}	0.4V max.		$I_{OL} = 3.2mA$
Output load condition (fan out)	N/CL	2TTL or 30pF max.	30pF max.	TTL load/C-MOS load
Output rise time	t_{TLH}	5ns. max.	6ns. max.	C-MOS load: 20% \rightarrow 80% V_{DD} level
		8ns. max.	—	TTL load: 0.4V \rightarrow 2.4V level
Output fall time	t_{THL}	5ns. max.	6ns. max.	C-MOS load: 20% \rightarrow 80% V_{DD} level
		8ns. max.	—	TTL load: 0.4V \rightarrow 2.4V level
Oscillation start up time	t_{OSC}	10ms. max.		Time at minimum operating voltage to be 0 sec.
Aging	f_a	\pm 5ppm max.		$T_a = 25^\circ C$, first year
Shock resistance	S.R.	\pm 10ppm max.		Three drops on a hard board from 75 cm or excitation test with 3000G x 0.3ms x 1/2sine wave in 3 directions

Vc should be "GND" or "OPEN" when power will be turn on.

* Please contact us for inquiries about the available frequency.

External dimensions

(Unit: mm)



Pull range

Pull range	Remarks
180ppm	$f_0 < 20MHz$, $V_c = 0.0$ to 3.0V
150ppm	$f_0 \geq 20MHz$, $V_c = 0.0$ to 3.0V

Recommended soldering pattern

(Unit: mm)

