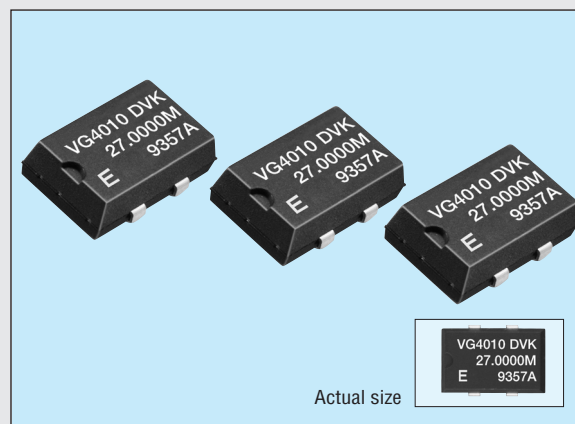


VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR

VG-4000 series

- 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 C-MOS IC assures low current consumption.
- Excellent shock resistance and environmental capability.
- Supply voltage: 5 V(VG-4010JA)
- Supply voltage: 3.3 V(VG-4030JA)



Specifications (characteristics)

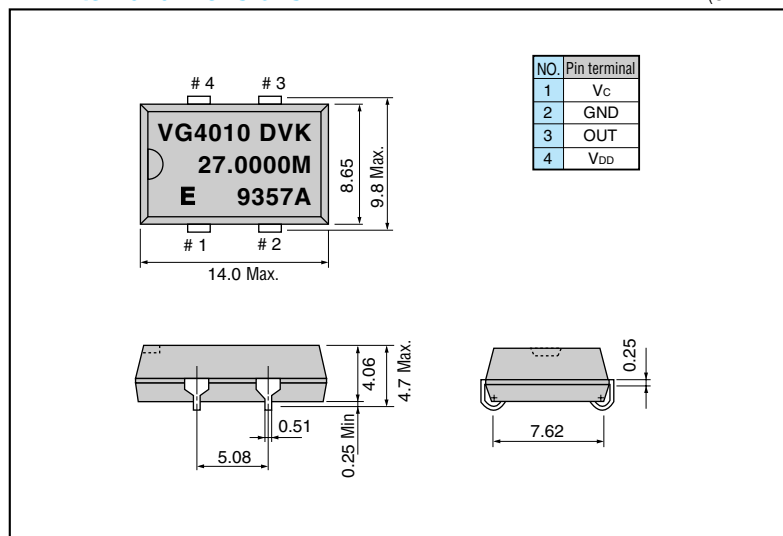
Item	Symbol	Specifications		Remarks
		VG-4010JA DVK	VG-4030JA DVK	
Output frequency range	f_0	2.0000 MHz to 28.63636 MHz		*
Power source voltage	Max. supply voltage	$V_{DD}-GND$ -0.5 V to +7.0 V		
	Operating voltage	V_{DD} 5.0 V ± 0.25 V	3.3 V ± 0.17 V	
Temperature range	Storage temperature	T_{STG} -55 °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 s		
Frequency stability	$\Delta f/f_0$	$\pm 35 \times 10^{-6}$ Max.	$\pm 37 \times 10^{-6}$ Max.	VC=0.5 to 4.5 V(4010JA) / VC=0.0 to 3.0 V(4030JA)
Current consumption	I_{OP}	35 mA Max.	18 mA Max.	No load condition
Pull range	Δf_c	$\pm 75 \times 10^{-6}$	As per below table	VC=0.5 to 4.5 V(4010JA) / VC=0.0 to 3.0 V(4030JA)
Input resistance	Z_{IN}	10 M Ω Min.		DC Level
Frequency change polarity		Positive polarity		VC=0.5 to 4.5 V(4010JA) / VC=0.0 to 3.0 V(4030JA)
Duty	t_w/t	45 % to 55 % (40 % to 60 %)	40 % to 60 %	1/2VDD 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/C	2 TTL or 30 pF Max.	30 pF Max.	TTL load/C-MOS load
Output rise time	t_{TLH}	5 ns Max.	6 ns Max.	C-MOS load: 20 % $\rightarrow$ 80 % V_{DD} level
		8 ns Max.	—	TTL load: 0.4 V $\rightarrow$ 2.4 V level
Output fall time	t_{THL}	5 ns Max.	6 ns Max.	C-MOS load: 20 % $\rightarrow$ 80 % V_{DD} level
		8 ns Max.	—	TTL load: 0.4 V $\rightarrow$ 2.4 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 ² x 0.3 ms x 1/2sine wave in 3 directions

Vc should be "GND" or "OPEN" when power is on.

* Please contact us for inquiries about the available frequency.

External dimensions

(Unit: mm)



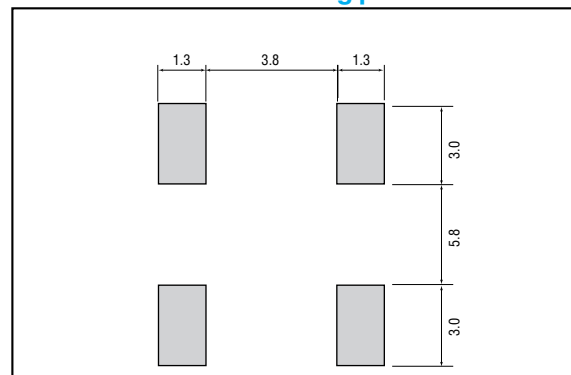
Pull range

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

Please consult us for pull range.

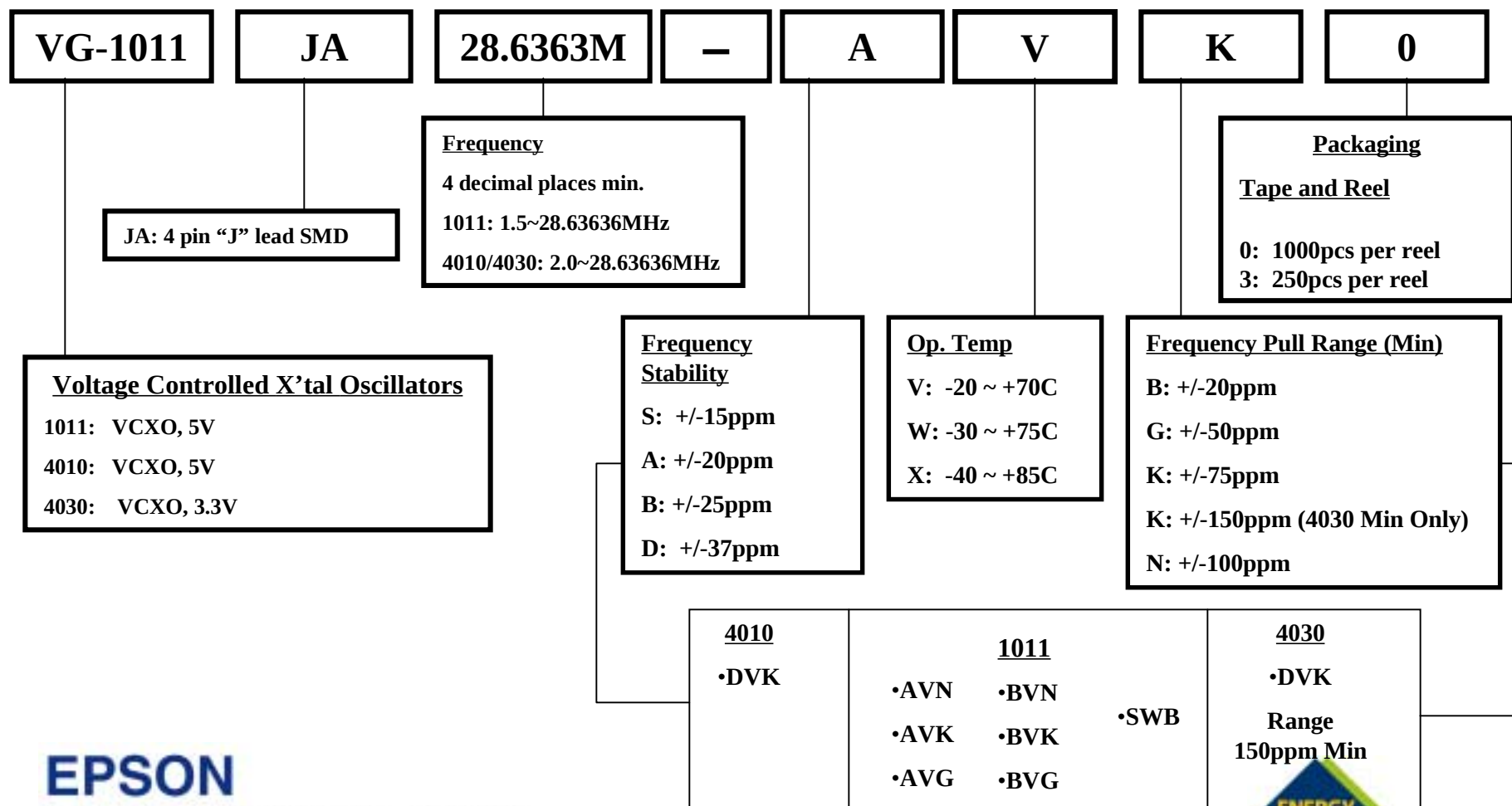
Recommended soldering pattern

(Unit: mm)



Part Numbering System

Voltage Controlled Crystal Oscillators (VCXO)



EPSON

EPSON ELECTRONICS AMERICA, INC.

