

VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR (VCXO)
OUTPUT : LV-PECL, LVDS



Product Number
VG3225EFN X1G005361xxxx00
VG5032EFN X1G005471xxxx00
VG7050EFN X1G005491xxxx00
VG3225VFN X1G005461xxxx00
VG5032VFN X1G005481xxxx00
VG7050VFN X1G005501xxxx00

VG3225 / 5032 / 7050EFN
VG3225 / 5032 / 7050VFN

- Frequency range : 25 MHz to 500 MHz (VG3225EFN / VG3225VFN)
25 MHz to 250 MHz (All other)
- Supply voltage : 3.3 V Typ.
- Output : LV-PECL or LVDS
- Function : Output enable (OE)
- Absolute pull range : $\pm 10 \times 10^{-6}$ Min. / $\pm 20 \times 10^{-6}$ Min. / $\pm 50 \times 10^{-6}$ Min
- Operating temperature : -40 °C to +85 °C / -40 °C to +105 °C

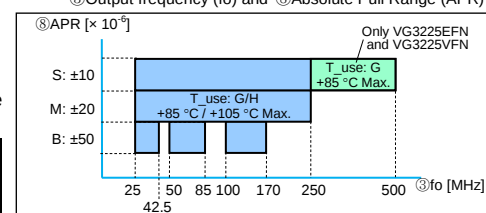


Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks	
		LV-PECL	LVDS		
		VG3225EFN / VG5032EFN / VG7050EFN	VG3225VFN / VG5032VFN / VG7050VFN		
Output frequency range	f _o	25 MHz to 500 MHz		VG3225EFN / VG3225VFN	Please contact us for available frequencies.
Supply voltage	V _{CC}	25 MHz to 250 MHz		All other	
Control voltage	V _c	C: 3.3 V ± 0.165 V			
Storage temperature	T _{stg}	1.65 V ±1.65 V			
Operating temperature	T _{use}	-55 °C to +125 °C			
Frequency tolerance	f _{tol}	G: -40 °C to +85 °C, H: -40 °C to +105 °C			
Absolute Pull range *1	APR	J: ±50 × 10 ⁻⁶ Max.		Includes initial frequency tolerance, temperature variation, supply voltage change and 10 years aging (+25 °C) at V _c = 1.65 V	
		B: ±50 × 10 ⁻⁶ Min.		25 MHz ≤ f _o ≤ 42.5 MHz, 50 MHz ≤ f _o ≤ 85 MHz, 100 MHz ≤ f _o ≤ 170 MHz	
		M: ±20 × 10 ⁻⁶ Min.		25 MHz ≤ f _o ≤ 250 MHz	
		S: ±10 × 10 ⁻⁶ Min.		25 MHz ≤ f _o ≤ 250 MHz	
Current consumption	I _{CC}	60 mA Max.	25 mA Max.	250 MHz < f _o ≤ 500 MHz, T _{use} : G (-40 °C to +85 °C)	
Disable current	I _{dis}	25 mA Max.	15 mA Max.	OE = V _{CC} , L _{ECL} = 50 Ω or L _{LVDS} = 100 Ω	
Input impedance	Z _{in}	10 MΩ Min.		OE = GND	
Frequency change polarity	-	Positive slope		DC level	
Symmetry	SYM	45 % to 55 %		V _c = 0 V to 3.3 V	
Output voltage (LV-PECL)	V _{OH}	V _{CC} - 1.1 V Min.	—	At output crossing point	
	V _{OL}	V _{CC} - 1.5 V Max.	—	DC characteristics	
Output voltage (LVDS)	V _{OD}	—	250 mV to 450 mV	Differential output voltage, V _{OD1} , V _{OD2}	DC characteristics
	V _{OS}	—	1.15 V to 1.35 V	Offset voltage, V _{OS1} , V _{OS2}	
ECL load condition	L _{ECL}	50 Ω	—	Terminated to V _{CC} - 2.0 V	
LVDS load condition	L _{LVDS}	—	100 Ω	Connected between OUT to OUT	
Input voltage	V _{IH}	70 % V _{CC} Min.		OE terminal	
	V _{IL}	30 % V _{CC} Max.			
Rise/Fall times	tr / tf	0.5 ns Max..	0.3 ns Max.	LV-PECL: Between 20 % and 80 % of (V _{OH} - V _{OL})	
Startup time	t _{str}	10 ms Max.		LVDS: Between 20 % and 80 % of Differential Output peak to peak voltage	
Phase Jitter	t _{pj}			Time at minimum supply voltage to be 0 s	
		120 fs Max.		fo = 122.88 MHz	
		80 fs Max.		fo = 245.76 MHz	
		70 fs Max.		fo = 491.52 MHz	
		80 fs Max.		Offset Frequency 12 kHz to 20 MHz	

*1 Absolute pull range = Frequency control range - Frequency tolerance
* Please keep V_c pin open or ground while powering up V_{CC}.

Figure 1 Available combination of
③ Output frequency (f_o) and ⑧ Absolute Pull Range (APR)



Product Name **VG3225 EFN 122.880000MHz C J G H B A**

(Standard form)

① Model ② Output (E: LV-PECL, V: LVDS) ③ Frequency

④ Supply voltage (C: 3.3 V Typ.) ⑤ Frequency tolerance

⑥ Operating temperature ⑦ OE Function ⑧ Absolute Pull Range ⑨ Output Standby Type (A: High-Z)

⑤ Frequency tolerance
J $\pm 50 \times 10^{-6}$

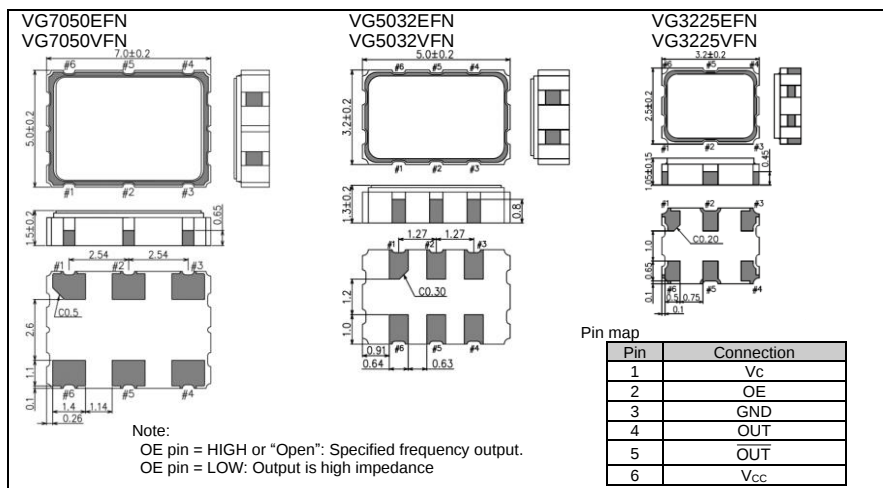
⑥ Operating temperature
G -40 to +85 °C
H -40 to +105 °C

⑦ OE Function
H Active High

⑧ Absolute Pull Range
B $\pm 50 \times 10^{-6}$
M $\pm 20 \times 10^{-6}$
S $\pm 10 \times 10^{-6}$

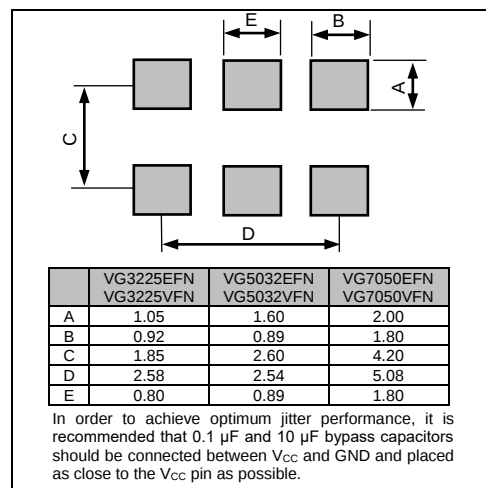
External dimensions

(Unit:mm)



Footprint (Recommended)

(Unit:mm)



PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

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In order provide high quality and reliable products and services than meet customer needs, Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired IATF 16949 certification that is requested strongly by major automotive manufacturers as standard.

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► Explanation of the mark that are using it for the catalog

	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
	► Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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