

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


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

VG3225EFN / VFN

VG5032EFN / VFN

VG7050EFN / VFN

- Frequency range : 25 MHz to 500 MHz (VG3225EFN / VFN)
25 MHz to 250 MHz (All other)
- Supply voltage : 3.3 V Typ.
- Output : LV-PECL or LVDS
- Function : Output enable (OE)


Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks	
		LV-PECL	LVDS		
		VG3225EFN / VG5032EFN / VG7050EFN	VG3225VFN / VG5032VFN / VG7050VFN		
Output frequency range	fo	25 MHz to 500 MHz		VG3225EFN / VG3225VFN	Please contact us for available frequencies.
		25 MHz to 250 MHz		All other	
Supply voltage	V _{CC}	C: 3.3 V ± 0.165 V			
Control voltage	V _c	1.65 V ±1.65 V			
Storage temperature range	T _{stg}	-55 °C to +125 °C			
Operating temperature range	T _{use}	G: -40 °C to +85 °C, H: -40 °C to +105 °C			
Frequency tolerance	f _{tol}	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	
Absolute Pull range *1	APR	B: ±50 × 10 ⁻⁶ Min.		25 MHz ≤ fo ≤ 42.5 MHz, 50 MHz ≤ fo ≤ 85 MHz, 100 MHz ≤ fo ≤ 170 MHz	
		M: ±20 × 10 ⁻⁶ Min.		25 MHz ≤ fo ≤ 250 MHz	
		S: ±10 × 10 ⁻⁶ Min.		25 MHz ≤ fo ≤ 250 MHz 250 MHz < fo ≤ 500 MHz, T _{use} : G (-40 °C to +85 °C)	
Current consumption	I _{CC}	60 mA Max.	25 mA Max.	OE = V _{CC} , L _{ECL} = 50 Ω or L _{LVDS} = 100 Ω	
Disable current	I _{dis}	25 mA Max.	15 mA Max.	OE = GND	
Input impedance	Z _{in}	10 MΩ Min.		DC level	
Frequency change polarity	-	Positive slope		V _c = 0 V to 3.3 V	
Symmetry	SYM	45 % to 55 %		At output crossing point	
Output voltage (LV-PECL)	V _{OH}	V _{CC} - 1.1 V Min.	—	DC characteristics	
	V _{OL}	V _{CC} - 1.5 V Max.	—		
Output voltage (LVDS)	V _{OD}	—	250 mV to 450 mV	Differential output voltage, V _{OD1} , V _{OD2}	
	V _{OS}	—	1.15 V to 1.35 V		
ECL load condition	L _{ECL}	50 Ω	—	Offset voltage, V _{OS1} , V _{OS2}	
LVDS load condition	L _{LVDS}	—	100 Ω	Terminated to V _{CC} - 2.0 V	
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}) LVDS: Between 20 % and 80 % of Differential Output peak to peak voltage	
Startup time	t _{str}	10 ms Max.		Time at minimum supply voltage to be 0 s	
Phase Jitter	t _{pj}	120 fs Max.	160 fs Max.	fo = 122.88 MHz	Offset Frequency 12 kHz to 20 MHz
		80 fs Max.	80 fs Max.	fo = 245.76 MHz	
		70 fs Max.	80 fs Max.	fo = 491.52 MHz	

*1 Absolute pull range = Frequency control range - Frequency tolerance

* Please keep V_C pin open or ground while powering up V_{CC}.

Product Name **VG3225 EFN 122.880000MHz C J G H B A**
(Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
①Model ②Output (E: LV-PECL, V: LVDS) ③Frequency
④Supply voltage (C: 3.3 V Typ.) ⑤Frequency tolerance ⑥Operating temperature
⑦OE Function ⑧Absolute Pull Range ⑨Output Standby Type (A: High-Z)

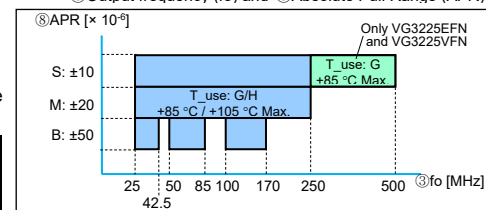
⑤Frequency tolerance
J ±50 × 10 ⁻⁶

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

⑦OE Function
H Active High

⑧Absolute Pull Range
B ±50 × 10 ⁻⁶
M ±20 × 10 ⁻⁶
S ±10 × 10 ⁻⁶

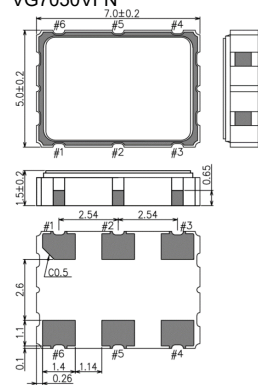
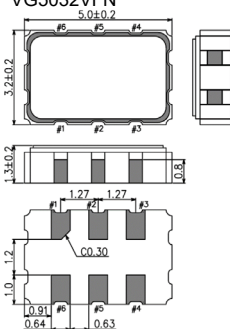
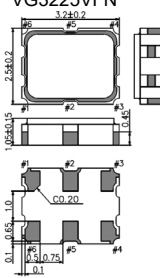
Figure 1 Available combination of
③Output frequency (fo) and ⑧Absolute Pull Range (APR)





External dimensions

(Unit:mm)

VG7050EFN
VG7050VFNVG5032EFN
VG5032VFNVG3225EFN
VG3225VFN

Pin map

Pin	Connection
1	V _c
2	OE
3	GND
4	OUT
5	OUT
6	V _{CC}

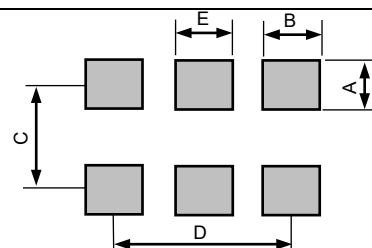
Note:

OE pin = HIGH or "Open": Specified frequency output.

OE pin = LOW: Output is high impedance

Footprint (Recommended)

(Unit:mm)



	VG3225EFN VG3225VFN	VG5032EFN VG5032VFN	VG7050EFN VG7050VFN
A	1.05	1.60	2.00
B	0.92	0.89	1.80
C	1.85	2.60	4.20
D	2.58	2.54	5.08
E	0.80	0.89	1.80

In order to achieve optimum jitter performance, it is recommended that 0.1 μ F and 10 μ F bypass capacitors should be connected between V_{CC} and GND and placed as close to the V_{CC} pin as possible.

► 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 general equipment.
	► Designed for automotive applications related to driving and safety.

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