Programmable Voltage Controlled Oscillator (VCXO)

OUTPUT: LV-PECL

VG7050ECN

- Frequency range : 50 MHz to 800 MHz (Tuning resolution: 2.2 ~ 2.8 x 10^{-9})
- Supply voltage : 2.5 V / 3.3 V
- External dimensions : 7.0 × 5.0 × 1.5 mm (10 pins)
- Absolute Pull Range : ±0 to ±180 x 10^{-6} (12 steps selectable)

Features

- User-specified four startup frequency, APR and 7-bit I^2C address
- User Programming : I^2C Interface
- Low jitter PLL technology

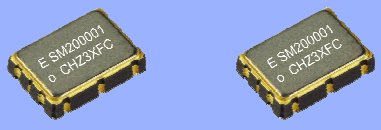
Applications

SONET/SDH, OTN, GbE, Fibre Channel

*The I2C-Bus is a trademark of NXP Semiconductors

Pb Free RoHS Compliant

Product Number (please contact us)
X1G004561xxxx00



Actual size

Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Output frequency range	f_0	50 MHz to 800 MHz	It can be changed by I^2C
Supply voltage	V_{CC}	D: 2.5 V ± 0.125 V, C: 3.3 V ± 0.33 V	
Storage temperature	T_stg	-55 ºC to +125 ºC	Storage as single product
Operating temperature	T_use	-40 ºC to +85 ºC	
Frequency tolerance *1	f_tol	±50 × 10^{-6} Max.	Includes frequency aging (10 years)
Current consumption	I_{CC}	90 mA Max.	OE Active, L_ECL=50 Ω
Disable current	I_dis	40 mA Max.	OE Inactive, Output Standby: Hi-Z mode
		70 mA Max.	OE Inactive, Output Standby: Fix mode
Absolute pull range	APR	±0 to ±180 x10^{-6}	Vc = 1.65 V ± 1.35 V (Vcc = 3.3 V)
		±0 to ±180 x10^{-6}	Vc = 1.25 V ± 1.00 V (Vcc = 2.5 V)
Control voltage tuning range	Vc	0 to Vcc	
Frequency change polarity	-	Positive slope	0 to Vcc
Symmetry	SYM	45 % to 55 %	At outputs crossing point
Output voltage	V_{OH}	Vcc-1.025 V Min.	DC characteristics
	V_{OL}	Vcc-1.62 V Max.	
Output load condition	L_ECL	50 Ω	Termination to V_{CC} - 2.0 V
Input voltage	V_{IH}	70% Vcc Min.	OE, FSEL0, FSEL1, SDA and SCL
	V_{IL}	30% Vcc Max.	
Rise time / Fall time	tr/tf	400 ps Max.	Between 20% and 80% of (V_{OH}-V_{OL})
Start-up time	t_str	10 ms Max.	Time at minimum supply voltage to be 0 s

*1 Frequency tolerance includes initial frequency tolerance, temperature variation, supply voltage change, reflow drift and 10 years aging at +25 ºC.

Product name (Standard form)

VG7050 ECN SM20xxxx C J G H P Z
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

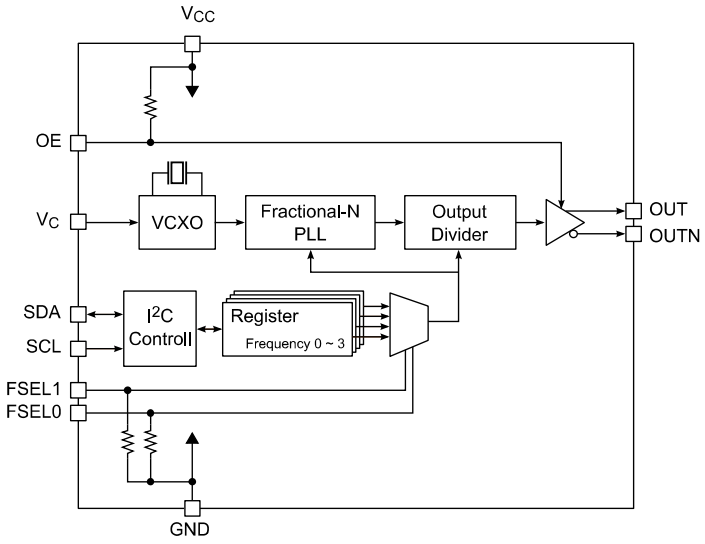
①Model
②Output (E: LV-PECL)
③Parameter Designator (VG7050ECN: SM20xxxx)
④Supply voltage (C: 3.3 V Typ., D: 2.5 V Typ.)
⑤Frequency tolerance (J: ±50 × 10^{-6})
⑥Operating temperature (G: -40 ~ +85℃)
⑦OE Function (H: Active High, L: Active Low)
⑧Absolute Pull Range (P: Programmable)
⑨Output Standby Type (F: Fix (OUT="L", OUTN="H"), Z: High-Z)

Phase Jitter

	Offset Frequency	125.00 MHz	156.25 MHz	250.00 MHz	425.00 MHz	622.08 MHz	669.33 MHz	794.73 MHz
Phase jitter*2 Typ.	12 kHz to 20 MHz	0.30 ps	0.26 ps	0.26 ps	0.25 ps	0.26 ps	0.26 ps	0.26 ps
	20 kHz to 50 MHz	0.30 ps	0.27 ps	0.27 ps	0.26 ps	0.27 ps	0.27 ps	0.27 ps
	50 kHz to 80 MHz	0.29 ps	0.27 ps	0.27 ps	0.26 ps	0.27 ps	0.27 ps	0.27 ps

*2 In order to achieve optimum jitter performance, it is recommended that the capacitor (0.1 µF + 10 µF) between V_{CC} and GND pin should be placed as close to the V_{CC} pin as possible.

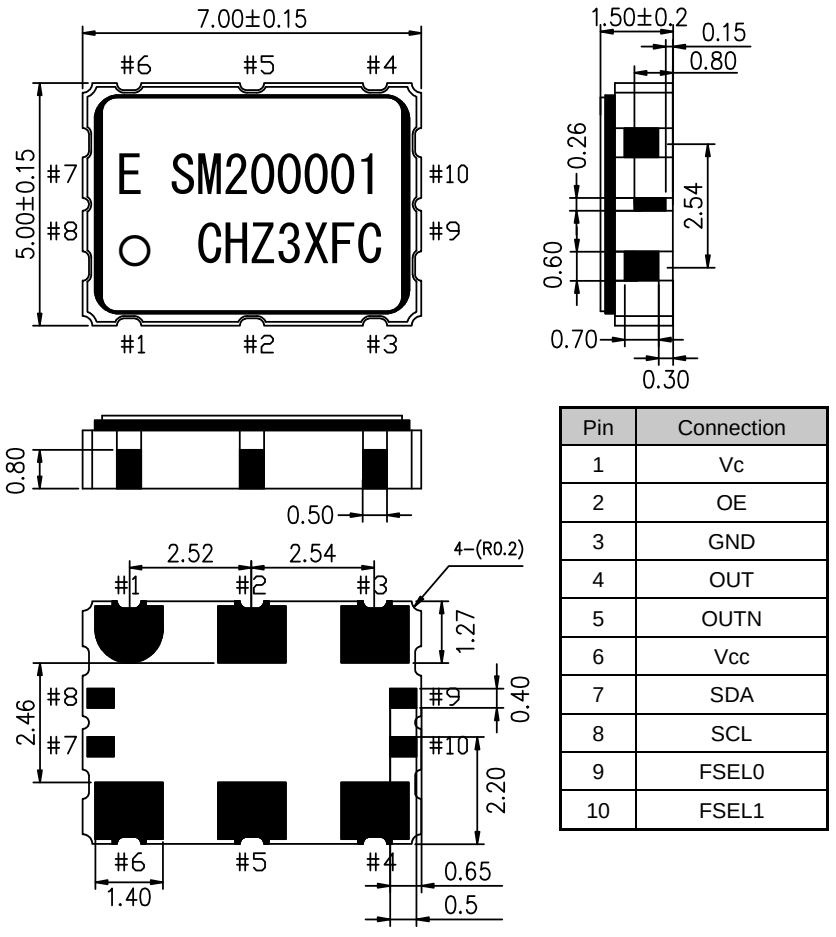
Block diagram



OE Function / OE Standby Type

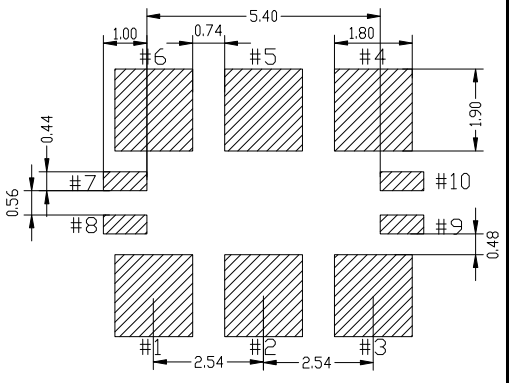
OE Function	OE Standby Type	Frequency output OE pin	Oscillator Stop	
			OE pin	OUT,OUTN state
H: Active High	Z: High-Z	"H" or "OPEN"	"L"	High Impedance
L: Active Low		"L" or "OPEN"	"H"	
H: Active High	F: Fix	"H" or "OPEN"	"L"	OUT="L", OUTN="H"
L: Active Low		"L" or "OPEN"	"H"	

External dimensions (Unit: mm)



Pin	Connection
1	Vc
2	OE
3	GND
4	OUT
5	OUTN
6	Vcc
7	SDA
8	SCL
9	FSEL0
10	FSEL1

Footprint (Recommended) (Unit: mm)



In order to achieve optimum jitter performance, it is recommended that the capacitor (0.1 μF + 10 μF) between VCC and GND pin should be placed as close to the VCC pin as possible.

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.

WORKING FOR HIGH QUALITY

In order provide high quality and reliable products and services than meet customer needs,

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

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Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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