Programmable Voltage Controlled Oscillator (VCXO)

OUTPUT: LV-PECL

VG7050ECN

NEW

- 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

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 (V_{CC} = 3.3 V)
		±0 to ±180 x10^{-6}	Vc = 1.25 V ± 1.00 V (V_{CC} = 2.5 V)
Control voltage tuning range	Vc	0 to V_{CC}	
Frequency change polarity	-	Positive slope	0 to V_{CC}
Symmetry	SYM	45 % to 55 %	At outputs crossing point
Output voltage	V_{OH}	V_{CC}-1.025 V Min.	DC characteristics
	V_{OL}	V_{CC}-1.62 V Max.	
Output load condition	L_ECL	50 Ω	Termination to V_{CC} - 2.0 V
Input voltage	V_{IH}	70% V_{CC} Min.	OE, FSEL0, FSEL1, SDA and SCL
	V_{IL}	30% V_{CC} 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

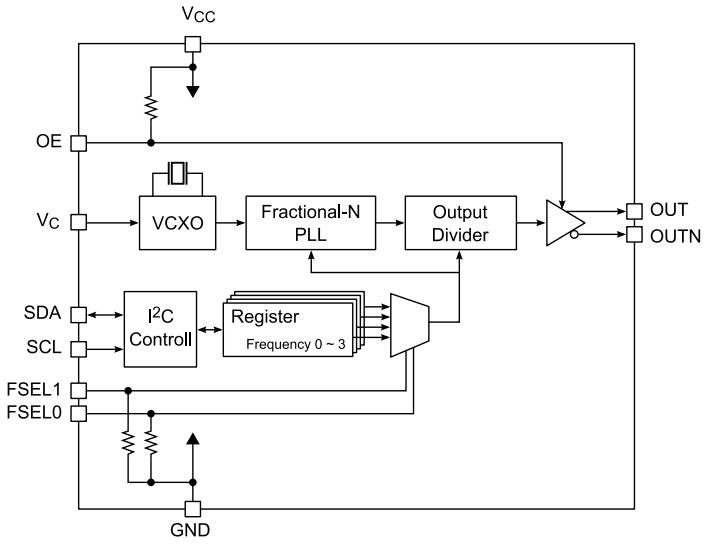
①Model
②Output (E: LV-PECL)
③Parameter Designator (VG7050ECN: SM20xxxx)
④Supply voltage (C: 3.3 V Typ., D: 2.5 V Typ.)
⑤Frequency tolerance (J: ±50 × 10^{-6})
⑥Operating temperature (G: -40 ~ +85°C)
⑦OE Function (H: Active High, L: Active Low)
⑧Absolute Pull Range (P: Programmable)
⑨Output Standby Type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

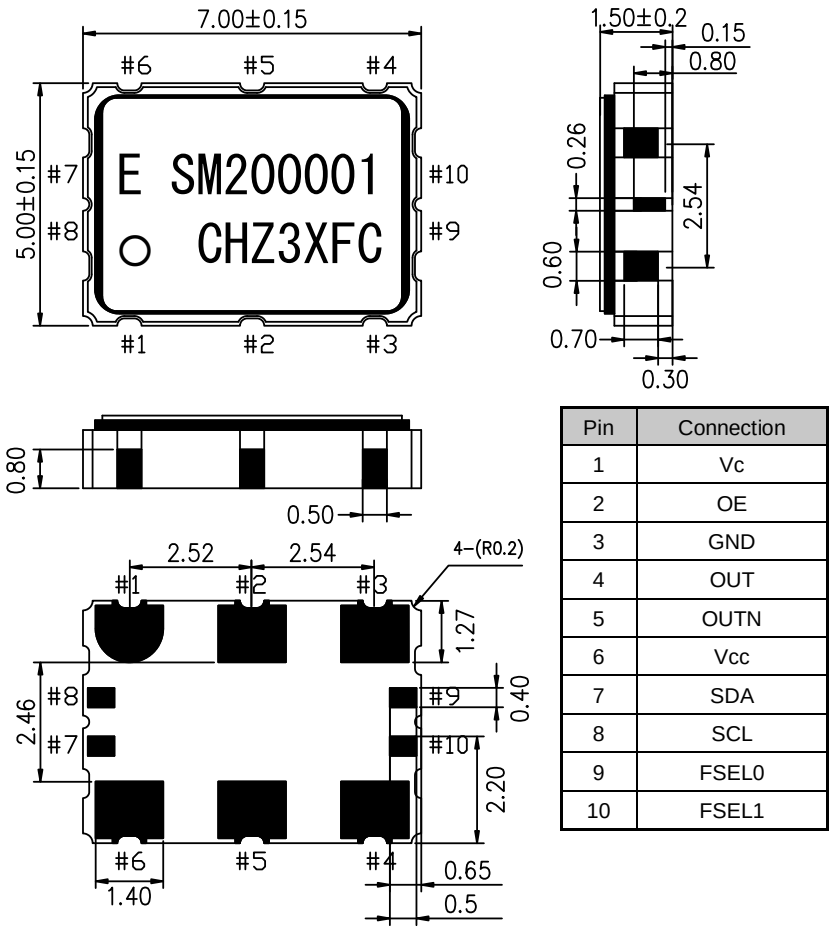
Block diagram



OE Function / OE Standby Type

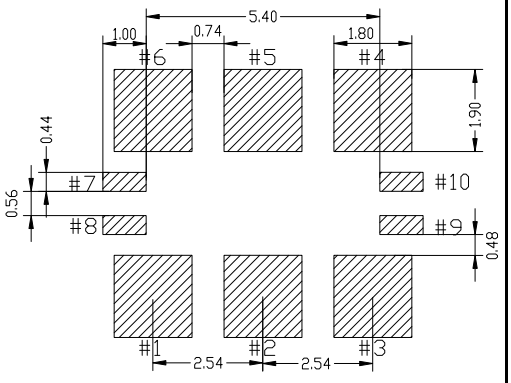
OE Function	OE Standby Type	Frequency output OE pin	Oscillator Stop	
			OE pin	OUT,OUTN state
H: Active High	Z: High-Z	"H" or "OPEN"	"L"	High Impedance
L: Active Low		"L" or "OPEN"	"H"	
H: Active High	F: Fix	"H" or "OPEN"	"L"	OUT="L", OUTN="H"
L: Active Low		"L" or "OPEN"	"H"	

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.

Mouser Electronics

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Epson:

VG7050ECN SM20T001-CJGHPZ3 VG7050ECN SM20T002-DJGHPZ3 VG7050ECN SM20T003-CJGLPZ3 VG7050ECN SM20T004-DJGLPZ3 VG7050ECN SM20T005-CJGHPF3 VG7050ECN SM20T006-DJGHPF3 VG7050ECN SM20T007-CJGLPF3 VG7050ECN SM20T008-DJGLPF3 VG7050ECN SM20T001-CJGHPZ0 VG7050ECN SM20T002-DJGHPZ0 VG7050ECN SM20T003-CJGLPZ0 VG7050ECN SM20T004-DJGLPZ0 VG7050ECN SM20T005-CJGHPF0 VG7050ECN SM20T006-DJGHPF0 VG7050ECN SM20T007-CJGLPF0 VG7050ECN SM20T008-DJGLPF0