

I²C-Bus Programmable Crystal Oscillator (SPXO)

Output: LV-PECL SG-8506CA

- Frequency range : 50 MHz to 800 MHz
- Supply voltage : 2.5 V to 3.3 V
- External dimensions : 7.0 × 5.0 × 1.5 mm (8 pins)

Features

- User-specified one startup frequency, 7-bit I²C
- User Programming: I²C Interface
- High frequency fundamental tone crystal, Low jitter PLL technology
- Available field oscillator programmer "SG-Writer II"

Application

- OTN, BTS, Test Instrument

*The I²C-Bus is a trademark of NXP Semiconductors



Product Number (please contact us)
X1G005031xxxx00



Actual size



Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Output frequency range	f _o	50 MHz to 800 MHz	It can be changed by I ² C
Supply voltage	V _{CC}	2.5 V - 0.125 V to 3.3 V + 0.33 V	-
Storage temperature	T _{stg}	-55 °C to +125 °C	Store as bare product after packing
Operating temperature	T _{use}	-40 °C to +85 °C	-
Frequency tolerance *1	f _{tol}	±50 × 10 ⁻⁶	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
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, SDA and SCL
	V _{IL}	30% V _{CC} Max.	
Rise time / Fall time	t _r /t _f	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
Setting time for frequency change	t _{SET1}	1.5 ms Max.	From setting NEW_FREQ bit to output new frequency

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

Product Name SG-8506 CA 156.2M 0x37 A P R L Z
(Standard form) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Model, ② Package type,

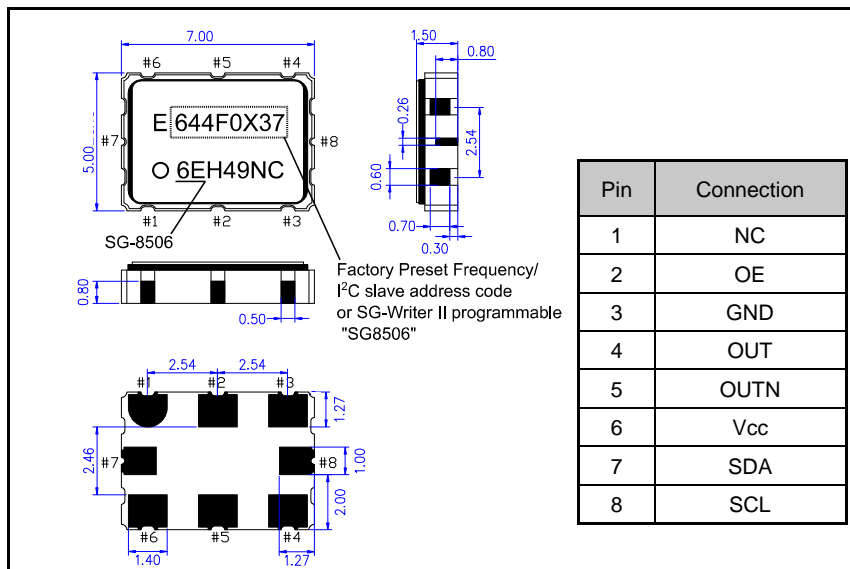
③ Power-on default output frequency (50 ~ 800 MHz), ④ I²C slave address, ⑤ Internal crystal frequency,

⑥ Output enable pin Polarity, ⑦ Supply voltage/Output format, ⑧ Frequency tolerance/Operating temperature, ⑨ Output standby type

⑤ Internal crystal frequency	⑥ Output enable pin Polarity	⑦ Supply voltage/Output format	⑧ Frequency tolerance/Operating temperature	⑨ Output standby type
A 114.1444 MHz	P Active High Q Active Low	R 2.5 V ~ 3.3 V/LVPECL	L ±50 × 10 ⁻⁶ /-40 to +85 °C	F Fix (OUT="L", OUTN="H") Z High-Z

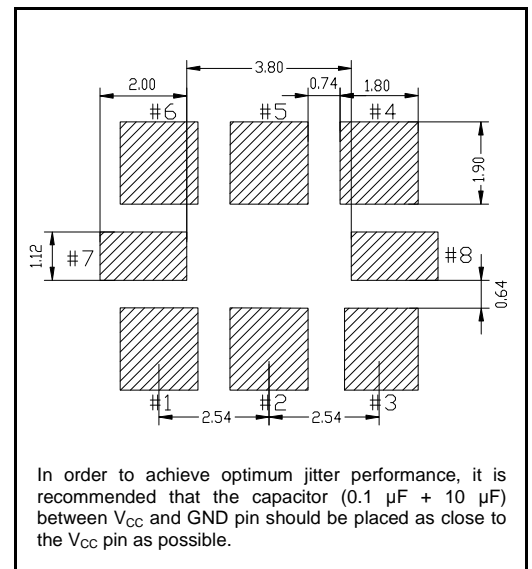
External dimensions

(Unit: mm)

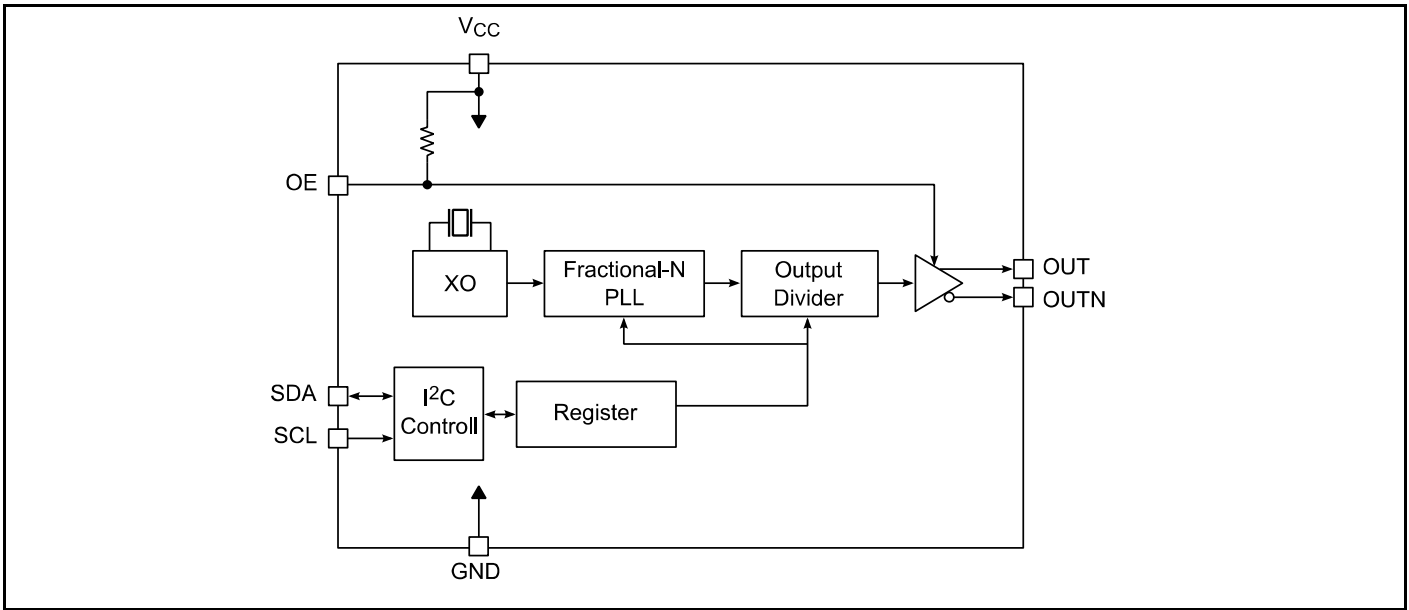


Footprint (Recommended)

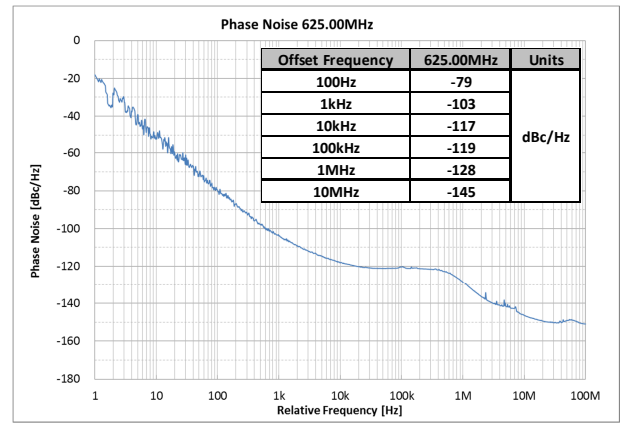
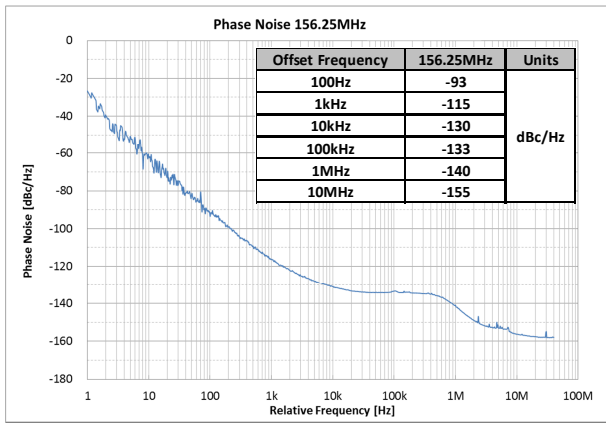
(Unit: mm)



Block diagram



Phase Noise



Phase Jitter

	Offset Frequency	100.00 MHz	125.00 MHz	156.25 MHz	250.00 MHz	312.50 MHz	500.00 MHz	625.00 MHz
Phase jitter *2 Typ.	12 kHz to 20 MHz	0.31 ps	0.30 ps	0.26 ps	0.26 ps	0.29 ps	0.28 ps	0.29 ps

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



Simulation Model

- IBIS Model is available. Please contact us.

ESD Rating

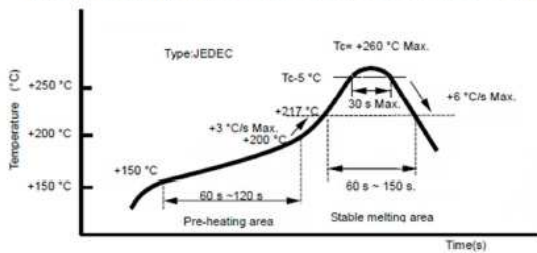
Human Body Model (HBM)	2000V
Machine Model (MM)	200V

Device Material & Environmental Information

Model	Package Dimensions	# of Pins	Reference Weight (Typ.)	Terminal Material	Terminal Plating	Complies With EU RoHS	Pb Free	MSL Rating	Peak Temp. (Max)
SG-8506CA	7.0 x 5.0 x 1.5 mm	6	167 mg	W	Au	Yes	Yes	1	260°C
		8	168 mg						

SMD products Reflow profile (example)

The availability of the heat resistance for reflow conditions of JEDEC-STD-020D.01 is judged individually. Please inquire

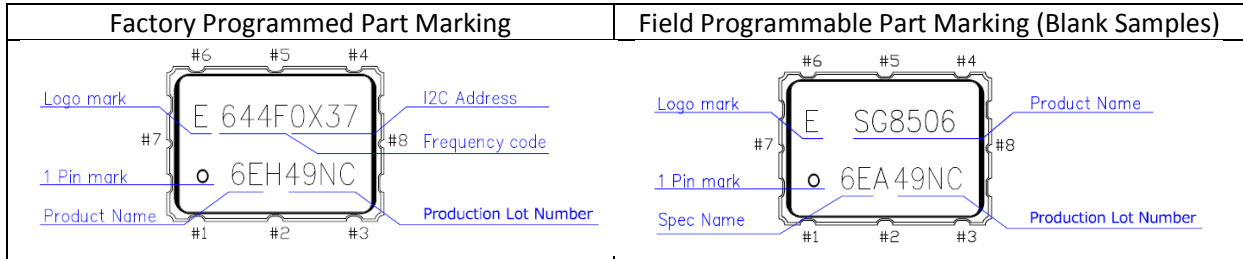


	<ul style="list-style-type: none"> • Pb free.
	<ul style="list-style-type: none"> • Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)



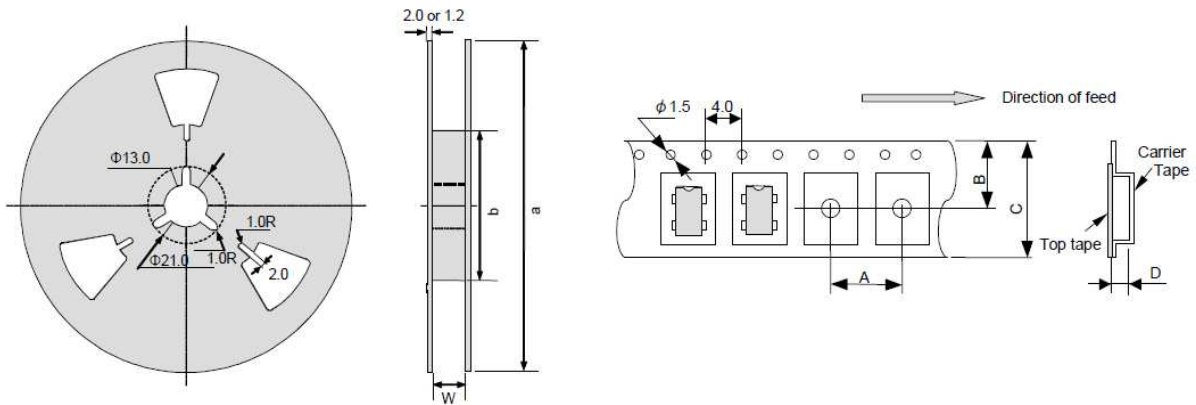


Device Marking



Standard Packing Specification

SMD products are packed in the shipping carton as below table in accordance with taping standards EIA-481 and IEC-60286



Standard Packing Quantity and Dimension (Unit: mm)

Model	Quantity (pcs/Reel)	Reel dimension			Career Tape dimension				Direction of feed (L=left direction)
		a	b	W	A	B	C	D	
SG-8506CA	1000	Φ180	Φ60	17	8	9.25	16	2.1	L

Application Documents

- Application Manual (880KB)
http://www5.epsondevice.com/en/products/spxo_quick_delivery/sg8506ca.html#
- Evaluation Board Manual (1.1MB)
http://www5.epsondevice.com/en/information/support/pdf/sg8506ca_eva-board_e.pdf

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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ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

► 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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