

Multi output SAW Oscillator (MOSO)

OUTPUT : LVDS

MG7050VAN

NEW



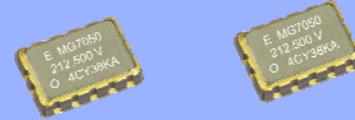
Product Number (please contact us)
X1M000421xxxx00

Feature

- Ultra Low jitter : 0.3 ps Max.
- 2 or 4 outputs and it is able to reduce fan-out buffers
- Frequency range : 100 MHz to 700 MHz
- Supply voltage : 2.5 V / 3.3 V
- External dimensions : 7.0 × 5.0 × 1.6 mm
- Output : LVDS (2 or 4 outputs)

Application

Server, Storage, Network Instrument.



Actual size



Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks	
Output frequency range	fo	100 MHz to 700 MHz	Please contact us about available frequencies.	
		100MHz, 106.25MHz, 125MHz, 150MHz, 156.25MHz, 200MHz, 212.5MHz, 250MHz, 300MHz, 312.5MHz	Standard frequency	
Supply voltage	Vcc	D: 2.5 V ± 0.125 V C: 3.3 V ± 0.33 V	Vcc, Vcc1 and Vcc2 need same voltage	
Storage temperature	T_stg	-55 °C to +125 °C	Store as bare product after packing	
Operating temperature	T_use	A: 0 °C to +70 °C, B: -20 °C to +70 °C D: -5 °C to +85 °C		
Frequency tolerance *1	f_tol	J: ±50 × 10 ⁻⁶ , L: ±100 × 10 ⁻⁶		
Current consumption	Icc	35 mA Typ., 50 mA Max.	45 mA Typ., 56 mA Max.	
		40 mA Typ., 66 mA Max.	50 mA Typ., 72 mA Max.	
Disable current	I_dis	7 mA Typ., 18 mA Max.	8 mA Typ., 20 mA Max.	
Symmetry	SYM	45 % to 55 %	At outputs crossing point	
Output voltage	V _{OD}	247 mV to 454 mV	DC characteristics	
	V _{OS}	1.125 V to 1.375 V		
Output load condition	L_LVDS	100 Ω	Connected between OUTnP and OUTnN	
Input voltage	V _{IH}	70% V _{CC} Min.	OE and FSEL terminals	
	V _{IL}	30% V _{CC} Max.		
Rise time / Fall time	tr/tr	200 ps Typ., 400 ps Max.	Between 20% and 80% of differential output peak to peak voltage	
Start-up time	t_str	5 ms Typ., 10 ms Max.	Time at minimum supply voltage to be 0 s	
Phase Jitter	t _{PJ}	0.19 ps Typ.	0.16 ps Typ.	fo=100 MHz
		0.18 ps Typ.	0.15 ps Typ.	fo=125 MHz
		0.17 ps Typ.	0.14 ps Typ.	fo=156.25 MHz
		0.15 ps Typ.	0.13 ps Typ.	fo=212.5 MHz
		0.12 ps Typ.	0.11 ps Typ.	fo=312.5 MHz
		0.06 ps Typ.	0.05 ps Typ.	fo=700 MHz
		0.3 ps Max.		Offset frequency: 12 kHz to 20 MHz
Skew	t_skew	20 ps Typ., 50 ps Max.	FSEL=H	
Aging	f_age	N: ±10 × 10 ⁻⁶ /year Max.		First year
		A: Included in Frequency tolerance *2		10 years

*1 Frequency tolerance includes initial frequency tolerance, temperature variation, supply voltage change and reflow drift.

*2 "A" is not acceptable when Frequency tolerance is "J" and Operating temperature is "B" or "D".

Product Name
(Standard form)

MG7050 V AN 156.250000MHz 4 A C J A N
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

(⑦⑧⑨:JDA, JBA are not available)

- ① Model
- ② Output (L: LVDS)
- ③ Frequency
- ④ Number of outputs (2: 2outputs, 4: 4outputs)
- ⑤ "A": Fixed
- ⑥ Supply voltage
- ⑦ Frequency tolerance
- ⑧ Operating temperature
- ⑨ Frequency aging

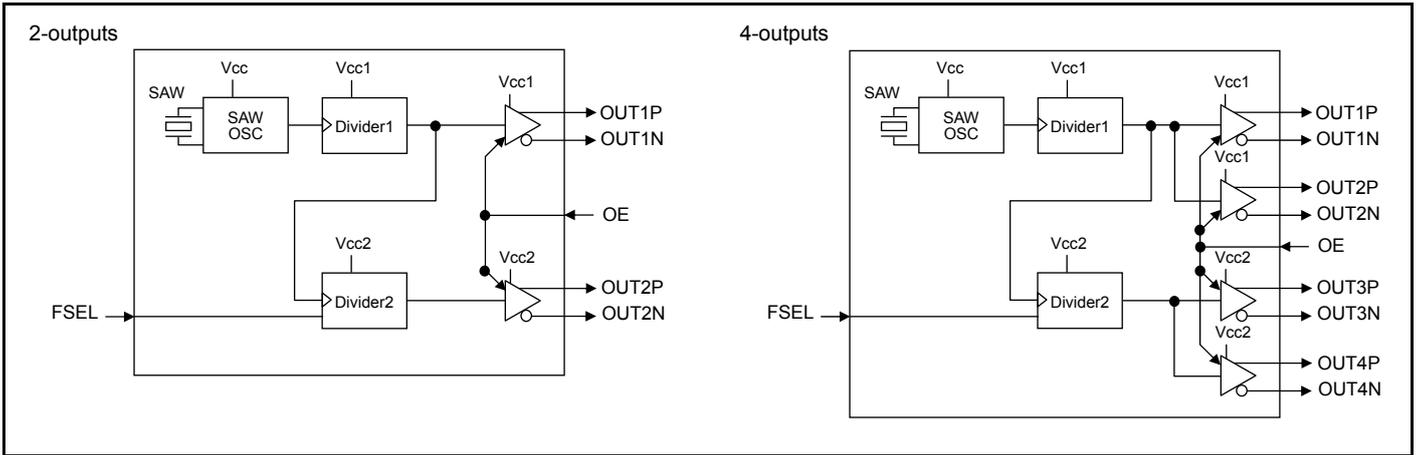
⑥ Supply voltage	
C	3.3 V Typ.
D	2.5 V Typ.

⑦ Frequency tolerance	
J	±50 × 10 ⁻⁶
L	±100 × 10 ⁻⁶

⑧ Operating temp.	
A	0 to +70°C
B	-20 to +70°C
D	-5 to +85°C

⑨ Frequency aging	
A	Frequency tolerance include aging
N	Frequency tolerance exclude aging

Block diagram



FSEL function

2-outputs		OUT1	OUT2
4-outputs		OUT1 / OUT2	OUT3 / OUT4
FSEL	H	fo	fo
	L	fo	fo/2

External dimensions

(Unit :mm)

Footprint (Recommended) (Unit :mm)

Pin	Connection	
	2-outputs	4-outputs
1	V _{CC1}	
2	GND	OUT1P
3	OUT1P	OUT1N
4	OUT1N	OUT2P
5	GND	OUT2N
6	FSEL	
7	OE	
8	GND	OUT3N
9	OUT2N	OUT3P
10	OUT2P	OUT4N
11	GND	OUT4P
12	V _{CC2}	
13	V _{CC}	
14	GND	

OE pin = "H" : Specified frequency output.
 OE pin = "L" : Output is high impedance
 #14 is connected to the cover.

To maintain stable operation, provide a 0.01 μF to 0.1 μF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between V_{CC}, V_{CC1}, V_{CC2} - GND).

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,

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 ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

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.)

Notice

- This material is subject to change without notice.
- Any part of this material may not be reproduced or duplicated in any form or any means without the written permission of Seiko Epson.
- The information about applied circuitry, software, usage, etc. written in this material is intended for reference only. Seiko Epson does not assume any liability for the occurrence of infringing on any patent or copyright of a third party. This material does not authorize the licensing for any patent or intellectual copyrights.
- When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations.
- You are requested not to use the products (and any technical information furnished, if any) for the development and/or manufacture of weapon of mass destruction or for other military purposes. You are also requested that you would not make the products available to any third party who may use the products for such prohibited purposes.
- These products are intended for general use in electronic equipment. When using them in specific applications that require extremely high reliability, such as the applications stated below, you must obtain permission from Seiko Epson in advance.
/ Space equipment (artificial satellites, rockets, etc.) / Transportation vehicles and related (automobiles, aircraft, trains, vessels, etc.) / Medical instruments to sustain life / Submarine transmitters / Power stations and related / Fire work equipment and security equipment / traffic control equipment / and others requiring equivalent reliability.
- All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective.