



Multi output SAW Oscillator (MOSO)
OUTPUT : LVDS



Product Number
X1M000421xxxx00

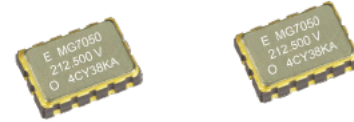
MG7050VAN

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.



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	V _{CC}	D: 2.5 V ± 0.125 V	C: 3.3 V ± 0.33 V	V _{CC} , V _{CC1} and V _{CC2} 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	I _{CC}	35 mA Typ., 50 mA Max.	45 mA Typ., 56 mA Max.	2-outputs	OE=V _{CC} , L_LVDS=100 Ω
		40 mA Typ., 66 mA Max.	50 mA Typ., 72 mA Max.	4-outputs	
Disable current	I _{dis}	7 mA Typ., 18 mA Max.	8 mA Typ., 20 mA Max.	OE=GND	
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 / tf	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	Offset frequency: 12 kHz to 20 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.			
Skew	t _{skew}	20 ps Typ., 50 ps Max.		FSEL=H	
Aging	f _{age}	N: ±10 × 10 ⁻⁶ /year Max.		First year	+25 °C, V _{CC} =2.5 V, 3.3 V
		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 (⑦⑧⑨:JDA, JBA are not available)
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

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

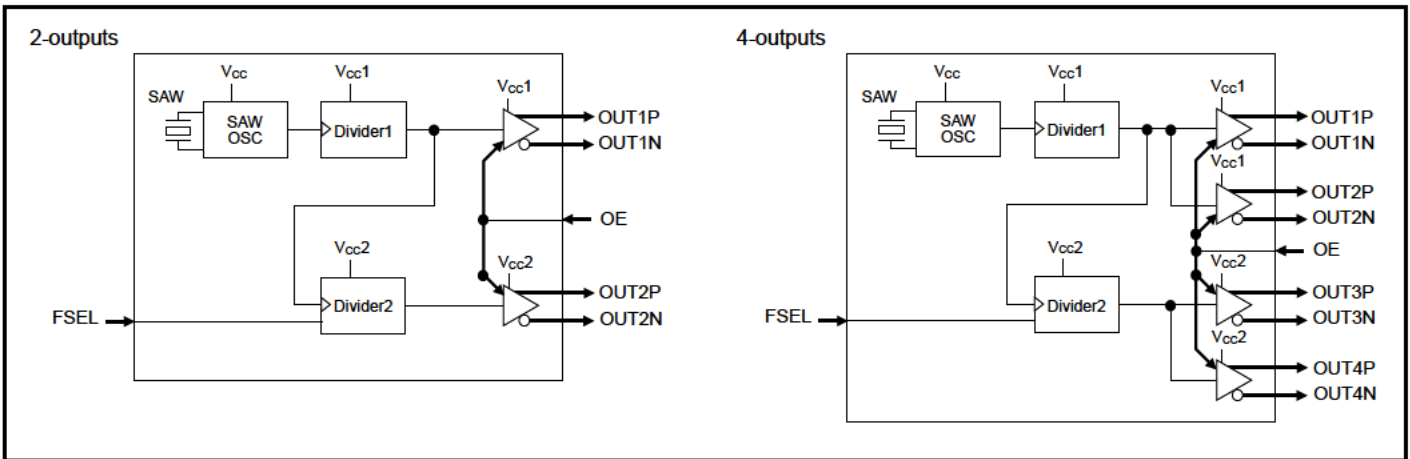
⑥ Supply voltage	
C	3.3 V Typ.
D	2.5 V Typ.

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

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

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.

Footprint (Recommended) (Unit :mm)

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.

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► 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.
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