



Product Number
SG-3031CM : X1B000391000116

Distributed by:



CRYSTAL OSCILLATOR (SPXO)

32.768 kHz

SG-3031CM

- Built-in 32.768 kHz crystal unit allows adjustment-free efficient operation.
- Operation temperature -40 °C to +105 °C
- Use of CMOS IC enables reduction of current consumption.
- V_{IO} controls swing amplitude.

Applications

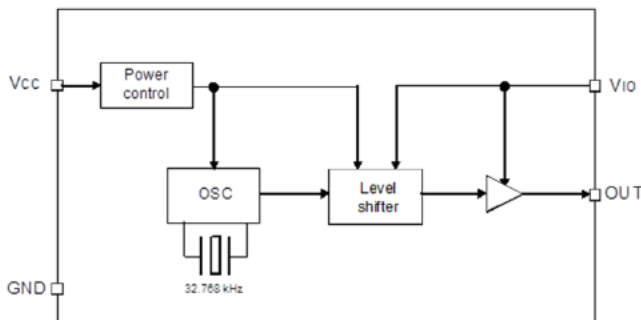
Industrial, Security, Smart Meter,
Clock for Time counting and Sleep function

仕様 (特性)

Item	Symbol	Specifications	Remarks
Output frequency range	f _o	32.768 kHz	
Supply voltage	V _{CC}	1.2 V to 5.5 V	V _{CC} < 1.5 V, V _{IO} = V _{CC}
Interface power supply voltage	V _{IO}	1.2 V to 5.5 V	
Temperature range	T _{stg}	-55 °C to +125 °C	Store as bare product after unpacking
Operating temperature	T _{use}	-40 °C to +105 °C	
Frequency tolerance	f _{tol}	+5 ± 23 × 10 ⁻⁶	+25 °C, V _{CC} =3.3 V
Frequency temperature coefficient	f _o -T _C	-120 × 10 ⁻⁶ to +10 × 10 ⁻⁶ -0.035 × (T _{use} - 25) ² × 10 ⁻⁶ Typ.	-20 °C to +70 °C (+25 °C is reference) Typ. Value Calculation from -40 °C to +105 °C
Frequency voltage coefficient	f _o -V _{CC}	±1 × 10 ⁻⁶ / V Max ±5 × 10 ⁻⁶ / V Max	V _{CC} =1.5 V to 5.5 V V _{CC} =1.2 V to 1.5 V
Current consumption (V _{CC} Pin)	I _{CC}	0.30 µA Typ. / 0.65 µA Max.	V _{CC} =1.2 V ~ 5.5 V
Current consumption (V _{CC} +V _{IO} Pin)	I _{CC} +I _{IO}	0.38 µA Typ. 0.65 µA Typ. / 1.3 µA Max. (+105 °C)	V _{CC} =V _{IO} =1.2 V, No load condition V _{CC} =V _{IO} =3.3 V, No load condition
Symmetry	SYM	45 % to 55 % 40 % to 60 %	1/2V _{CC} (V _{IO}) level, 1.5 V to 5.5 V 1/2V _{CC} (V _{IO}) level, V _{CC} < 1.5 V
Output voltage	V _{OH} / V _{OL}	V _{IO} -0.4V Min. / 0.4V Max. V _{IO} -0.2V Min. / 0.2V Max.	I _{OH} =0.4mA / I _{OL} =0.4mA, V _{IO} =1.5 V to 5.5 V I _{OH} =0.1mA / I _{OL} =0.1mA, V _{IO} =1.2 V to 1.5 V
Output load condition (CMOS)	L _{CMOS}	15 pF Max.	CMOS load
Rise time / Fall time	t _r / t _f	200 ns Max. 100 ns Max.	20 % V _{IO} to 80 % V _{IO} level, V _{IO} =1.2 V to 5.5 V 20 % V _{IO} to 80 % V _{IO} level, V _{IO} =1.8 V to 5.5 V
Start-up time	t _{str}	0.15 s Typ. / 0.45 s Max. 1.0 s Max	V _{CC} =1.5 V to 5.5 V V _{CC} =1.2 V to 1.5 V
Frequency aging	f _{aging}	±5 × 10 ⁻⁶ / year Max.	+25 °C, V _{CC} =3.3 V, First year

Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.

Block diagram



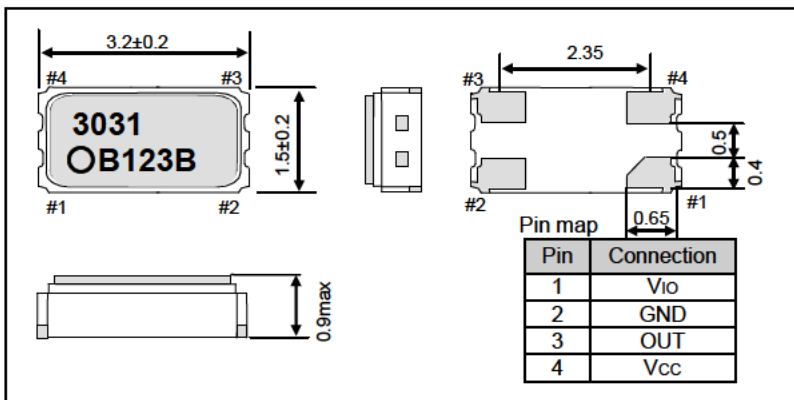
V_{IO} is a power supply pin for OUT output and can also be used as an OE pin. Set V_{IO} to 0 V when setting Disable.

V_{CC} is a power supply pin for operating the 32.768 kHz oscillation.

Power consumption can be minimized by minimizing the applied voltage of both power supplies. However, when V_{CC} < 1.5 V, V_{IO} = V_{CC}.

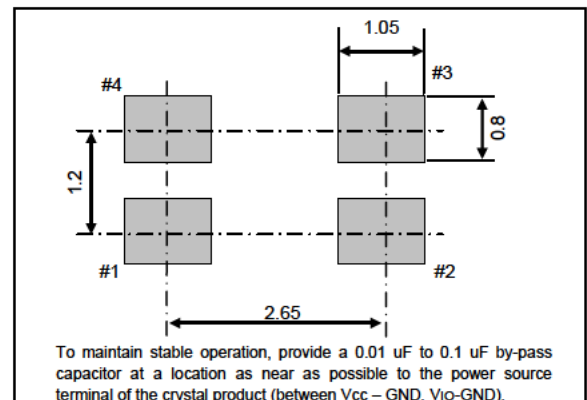
External dimension

(Unit:mm)



Footprint(ference)

(Unit:mm)



The Netherlands



Elektrostraat 17
NL-7483 PG Haaksbergen

T: +31 (0)53 573 33 33
F: +31 (0)53 573 33 30
E: nl@texim-europe.com

Belgium



Zuiderlaan 14 bus 10
B-1731 Zellik

T: +32 (0)2 462 01 00
F: +32 (0)2 462 01 25
E: belgium@texim-europe.com

UK & Ireland



St. Mary's House, Church Lane
Carlton Le Moorland
Lincoln LN5 9HS

T: +44 (0)1522 789 555
F: +44 (0)845 299 22 26
E: uk@texim-europe.com

Germany North



Bahnhofstrasse 92
D-25451 Quickborn

T: +49 (0)4106 627 07-0
F: +49 (0)4106 627 07-20
E: germany@texim-europe.com

Germany South



Martin-Kollar-Strasse 9
D-81829 München

T: +49 (0)89 436 086-0
F: +49 (0)89 436 086-19
E: germany@texim-europe.com

Austria



Warwitzstrasse 9
A-5020 Salzburg

T: +43 (0)662 216 026
F: +43 (0)662 216 026-66
E: austria@texim-europe.com

Nordic region



Sdr. Jagtvej 12
DK-2970 Hørsholm

T: +45 88 20 26 30
F: +45 88 20 26 39
E: nordic@texim-europe.com

Italy



Via Matteotti 43
IT-20864 Agrate Brianza (MB)

T: +39 (0)39 971 3293
F: +39 (0)39 971 3293
E: italy@texim-europe.com

General information



info@texim-europe.com
www.texim-europe.com