CRYSTAL OSCILLATOR

Low Profile / High stability SPXO

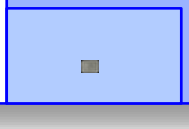
SG - 150 S*E

- Frequency range : 3.000 MHz to 54.000 MHz
- Supply voltage : 1.8 V Typ. / 2.5 V Typ. / 3.3 V Typ.
- Current consumption : 3.3 mA Max. (SEE 1.8 V No load condition 40 MHz)
- Function : Standby($\overline{ST}$)
- External dimensions : 2.1 × 1.7 × 0.75 t (mm) Typ.

Pb Free RoHS Compliant

Product Number (please contact us)
X1G0036x1xxxx00

Actual size

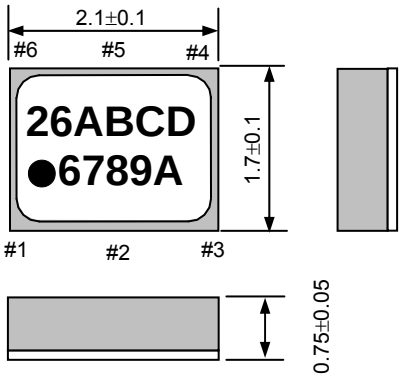


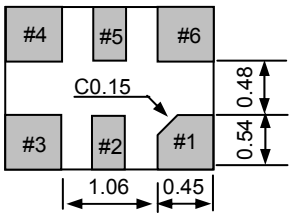
Specifications (characteristics)

Item		Symbol	Specifications SG-150SEE	SG-150SDE	SG-150SCE	Remarks
Output frequency range		f_0	3.000 MHz to 54.000 MHz			Please contact us for inquiries regarding the available frequencies.
Supply voltage		V_{CC}	1.8 V Typ. 1.6 V to 2.2 V	2.5 V Typ. 2.2 V to 2.7 V	3.3 V Typ. 2.7 V to 3.6 V	
Temperature range	Storage temperature	T_stg	-40 °C to +85 °C			Store as bare product after unpacking
	Operating temperature	T_use	-40 °C to +85 °C			
Frequency tolerance *		f_tol	D: ±20 × 10^{-6}, E: ±15 × 10^{-6}			-20 °C to +70 °C, V_{CC} ±10%
			H: ±20 × 10^{-6}, T: ±15 × 10^{-6}			-40 °C to +85 °C, V_{CC} ±10%
Current consumption		I_{CC}	2.3 mA Max.	2.5 mA Max.	3.5 mA Max.	No load condition,3 MHz≤f_0≤32 MHz
			2.8 mA Max.	3.0 mA Max.	4.0 mA Max.	No load condition,32 MHz<f_0≤40 MHz
			3.3 mA Max.	3.5 mA Max.	4.5 mA Max.	No load condition,40 MHz<f_0≤48 MHz
			4.5 mA Max.	5.0 mA Max.	6.0 mA Max.	No load condition,48 MHz<f_0≤54 MHz
Stand-by current		I_std	5.0 µA Max.			$\overline{ST}$ =GND
Symmetry		SYM	45 % to 55 %			50 % V_{CC} level,L_CMOS ≤ 15 pF
High output voltage		V_{OH}	90 % V_{CC} Min.			I_{OH}=-4 mA
Low output voltage		V_{OL}	10 % V_{CC} Max.			I_{OL}= 4 mA
Output load condition (CMOS)		L_CMOS	15 pF Max.			
Output enable / disable input voltage		V_{IH}	80 % V_{CC} Min.			$\overline{ST}$ terminal
		V_{IL}	20 % V_{CC} Max.			
Rise time / Fall time		t_r/ t_f	4.5 ns Max.			20 % V_{CC} to 80 % V_{CC} level, L_CMOS=15 pF
Start-up time		t_str	5 ms Max.			t=0 at 90 % V_{CC}
Frequency aging		f_aging	This is included in frequency tolerance specification.			+25 °C, First year, V_{CC}= 1.8 V, 2.5 V, 3.3 V

* Please contact us for inquiries regarding available frequency tolerance.

External dimensions (Unit:mm)





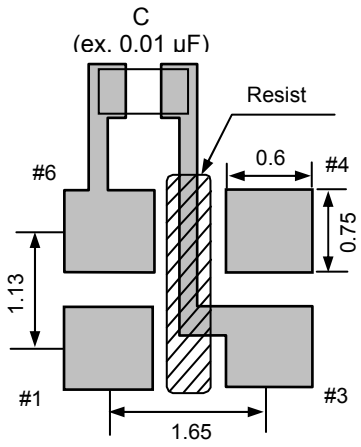
Pin map

Pin	Connection
1	$\overline{ST}$
2	(TEST)
3	GND
4	OUT
5	(TEST)
6	V_{CC}

Note.
$\overline{ST}$ pin = HIGH : Specified frequency output.
$\overline{ST}$ pin = LOW : Output is high impedance, oscillation stops.

TEST pin : Do not connect externally.
(Recommend the design without the footprint.)

Footprint (Recommended) (Unit:mm)



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