

CRYSTAL OSCILLATOR SPXO

SG - 350 / 550 series

- Frequency range : 1 MHz to 48 MHz
- Supply voltage : 1.8 V Typ. / 2.5 V Typ. / 3.3 V Typ.
- Current consumption : SEF 1.8 V No load condition 48 MHz
1.5 mA Typ.
- Function : Standby($\overline{ST}$)
- Thickness : 1.2 mm Max.
- Lead(Pb)-free : Lead free completely



Actual size

SG-350

SG-550

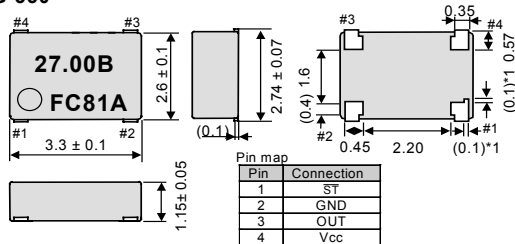
Specifications (characteristics)

Item		Symbol	Specifications				Remarks	
			SEF	SDF	SCF	SCG		
Output frequency range		f ₀	2 MHz to 48 MHz			1 MHz to 48 MHz		
Supply voltage		V _{CC}	1.8 V Typ. 1.6 V to 2.2 V	2.5 V Typ. 2.2 V to 3.0 V	3.3 V Typ. 2.7 V to 3.6 V			
Temperature range	Storage temperature	T _{stg}	-40 °C to +125 °C				Stored as bare product after unpacking	
	Operating temperature	T _{use}	-40 °C to +85 °C					
Frequency tolerance		F _{tol(osc)}	B: ±50 × 10 ⁻⁶ , C: ±100 × 10 ⁻⁶			—	-20 °C to +70 °C	
			M: ±100 × 10 ⁻⁶			—	-40 °C to +85 °C	
			—			S: ±25 × 10 ⁻⁶	-20 °C to +70 °C	
			L: ±50 × 10 ⁻⁶			—	-40 °C to +85 °C	
Current consumption		I _{CC}	1.5 mA Max.	1.5 mA Max.	1.5 mA Max.	—	No load condition, 2 MHz≤f ₀ ≤ 4 MHz	
			1.5 mA Max.	1.5 mA Max.	2.0 mA Max.	—	No load condition, 4 MHz<f ₀ ≤ 8 MHz	
			1.5 mA Max.	2.0 mA Max.	2.5 mA Max.	—	No load condition, 8 MHz<f ₀ ≤16 MHz	
			2.0 mA Max.	2.0 mA Max.	2.5 mA Max.	—	No load condition, 16 MHz<f ₀ ≤25 MHz	
			2.0 mA Max.	2.5 mA Max.	3.5 mA Max.	—	No load condition, 25 MHz<f ₀ ≤33 MHz	
			3.0 mA Max.	3.5 mA Max.	4.5 mA Max.	—	No load condition, 33 MHz<f ₀ ≤48 MHz	
Stand-by current		I _{std}	0.7 μA Max.	1.5 μA Max.	2.0 μA Max.	12 mA Max.	No load condition, Max.frequency output. ST =GND	
Symmetry		SYM	45 % to 55 %	45 % to 55 %		45 % to 55 %	1 MHz≤f ₀ ≤16 MHz	50 % V _{CC} level L _{CMOS} ≤ 15 pF
			40 % to 60 %				16 MHz<f ₀ ≤33 MHz	
			40 % to 60 %	33 MHz<f ₀ ≤40 MHz				
High output voltage		V _{OH}	90 % V _{CC} Min.			V _{CC} -0.4 V Min.	I _{OH} = -3 mA(SEF, SDF, SCF), -8 mA(SCG)	
Low output voltage		V _{OL}	10 % V _{CC} Max.			0.4 V Max.	I _{OL} = 3 mA(SEF, SDF, SCF), 8 mA(SCG)	
Output load condition(CMOS)		L _{CMOS}	15 pF Max.					
Output enable / disable input voltage		V _{IH}	80 % V _{CC} Min.			70 % V _{CC} Min.	ST terminal	
		V _{IL}	20 % V _{CC} Max.					
Output rise and fall time		t _r / t _f	4 ns Max.				20 % V _{CC} to 80 % V _{CC} level, L _{CMOS} =15 pF	
Oscillation start up time		t _{osc}	SG-350:2 ms Max. / SG-550:10 ms Max.			12 ms Max.	t=0 at 90 % V _{CC}	
Frequency aging		F _{aging}	±5 × 10 ⁻⁶ / year Max.			±10 × 10 ⁻⁶ Max. 10 years	+25 °C, First year, V _{CC} =1.8 V, 2.5 V, 3.3 V	

External dimensions

(Unit:mm)

●SG-350

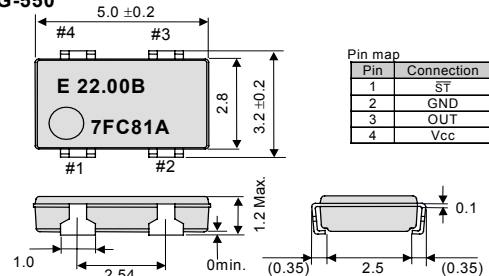


*1 The terminal of #1 pin may look the same as #2 to #4 pin.

Note:

 $\overline{ST}$ pin $\overline{ST}$ pin = HIGH or "open" : Specified frequency output. $\overline{ST}$ pin = LOW : Output is low level (weak pull - down), oscillation stops.(SCG)/ HI-z(SEF,SDF,SCF)

●SG-550



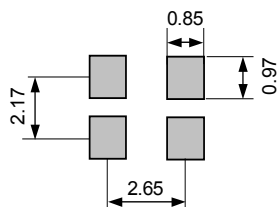
Metal may be exposed on the top or bottom of this product.

This will not affect any quality, reliability or electrical spec.

Footprint (Recommended)

(Unit:mm)

●SG-350



●SG-550

