

Crystal Oscillators

Surface Mount Type

NSP21

[2.0×1.6×0.70 mm]

NSP22

[2.5×2.0×0.80 mm]

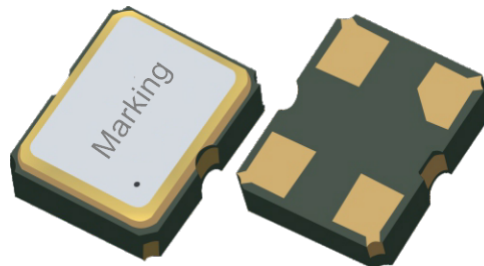
NSP32

[3.2×2.5×1.00 mm]

Output
CMOS
Supply Voltage
1.8V~3.3V
Frequency Range
32 kHz~220 MHz

Features

- Ultra smallest size SMD crystal oscillator with 2.0×1.6 (2016), 2.5×2.0 (2520), 3.2×2.5 (3225).
- Simple Package Crystal Oscillator (SPXO)
- CMOS output, frequency range from 32.768 kHz to 220 MHz
- Low voltage operation and low current consumption
- RoHS Compliant
- Automatic mount and re-flow soldering
- Tri-state available
- Applications: Ethernet, Fibre channel, Telecommunications, Graphics, HDTV, Radio communications, and more



Standard Specifications

Item / Type	NSP21 (SMD 2016 SPXO)	NSP22 (SMD 2520 SPXO)	NSP32 (SMD 3225 SPXO)
Dimensions	2.0×1.6×0.70 mm	2.5×2.0×0.80 mm	3.2×2.5×1.00 mm
Output	CMOS		
Output load	15pF, or specify		
Output frequency range	1 MHz~220 MHz	32.768 kHz~220 MHz	32.768 kHz~220 MHz
Supply voltage	1.8 V~3.3 V		
Frequency tolerance (All condition)	±25 ppm, ±50 ppm, ±100 ppm		
Operating temperature	-20~+70°C, -40~+85°C		
Supply consumption	7mA max. (@1.8V)	10mA max. (@2.5V)	15mA max. (@3.3V)
Stand-by current	2.1µA max. (@1.8V)	2.5µA max. (@2.5V)	2.7µA max. (@3.3V)
Symmetry	45 % to 55 %		
Output voltage Voh (min.)	90% Vcc min. /Vcc-0.4V min.		
Output voltage Vol (max.)	10% Vcc max. /0.4V max.		
Input voltage Vih (min.)	80% Vcc min.		
Input voltage Vil (max.)	20% Vcc max.		
Rise time / Fall time	3ns max.		
Start-up time	3ms max.		
Storage temperature	-55~+125°C		
Aging	±3ppm /year max.		

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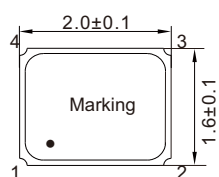
NSP32

[3.2×2.5×1.00 mm]

Output
CMOS
Supply Voltage
1.8V~3.3V
Frequency Range
32 kHz~220 MHz

Outline Dimensions (Unit: mm)

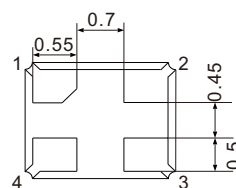
NSP21 (SMD 2016 SPXO)



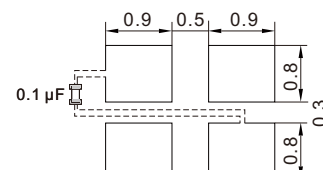
Top View



Side View

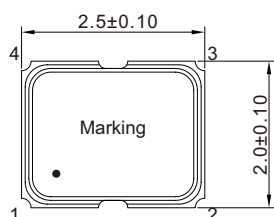


Bottom View



Footprint (Recommender)

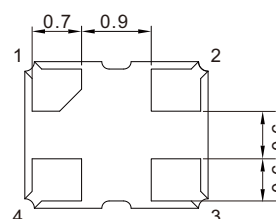
NSP22 (SMD 2520 SPXO)



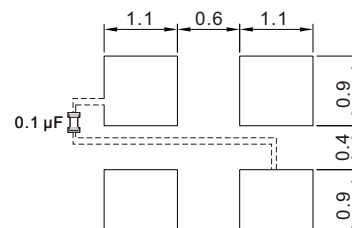
Top View



Side View

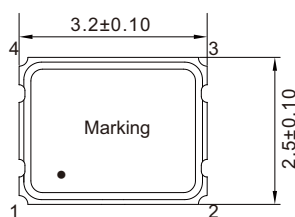


Bottom View



Footprint (Recommender)

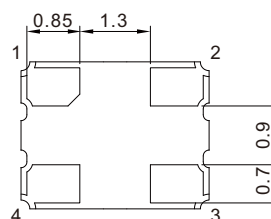
NSP32 (SMD 3225 SPXO)



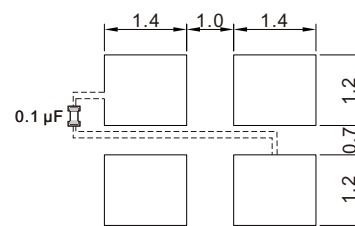
Top View



Side View



Bottom View



Footprint (Recommender)

Pin Map

Pin	Connection	Function		
		$\overline{ST}$ function	Oscillator circuit	Output
1	$\overline{ST}$	High or "open"	Oscillation	Specified frequency: Enable
		LOW	Oscillator stop	High impedance: Disable
2	GND	Ground		
3	OUT	Clock output		
4	Vcc	Power supply		