



### Product Description

The NES7 2-pad and NKS7 4-pad Series incorporate a sub-miniature AT-cut strip crystal resonator housed in a 5x7 mm ceramic package. These compact crystals are ideal for surface mounting in densely-populated PCB applications.

### Product Features

- Rugged AT-cut crystal construction
- Extremely compact SMD package
- Available on tape & reel; 16mm tape, 1000pcs per reel
- ROHS compliant

### Typical Applications

- Ideally suited for disc drives, PCMCIA, PCs and hand-held products

### Frequency Range:

- 6.0000 MHz to 56.0000 MHz (Fundamental)
- 30.0000+ MHz to 56.0000 MHz (3rd Overtone)

### Temperature Range:

- Operating: -20 to +70°C, -40 to +85°C
- Storage: -40 to +85°C

### Temperature Stability Tolerance:

- ±10, ±20, ±30, ±50ppm, -20 to +70°C
- ±30, ±50ppm, -40 to +85°C
- Others available

### Characteristics at 25°C ±2°C:

- Frequency Calibration Tolerance: ±10, ±20, ±30
- Load Capacitance: 8 to 32pF or Series Resonant
- Effective Series Resistance:
  - Fundamental: 20 to 110Ω depending on frequency
  - 3rd Overtone: 50 to 80Ω depending on frequency
- Drive Level: 10μW correlation, 500μW max
- Shunt Capacitance: 7pF max

### Mechanical:

- Shock: ±5ppm max after 3 drops from 75cm onto a hard wooden board
- Solderability: JESD22-B102-D Method 2 (Preconditioning E)
- Vibration: ±5ppm max sine vibration 10~55Hz, sweep period 1-2 minutes, amplitude 1.5mm, 3 mutually perpendicular planes each 1 hour
- Solvent Resistance: MIL-STD-202, Method 215
- Resistance to Soldering Heat: J-STD-020C Table 5-2 Pb-free devices (3 cycles max)

### Environmental:

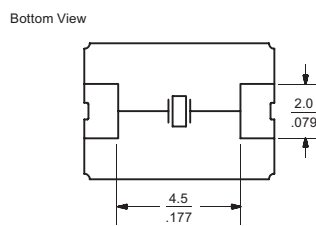
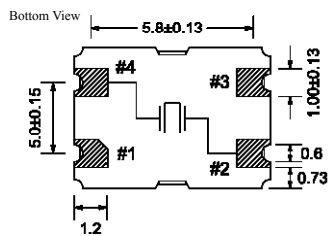
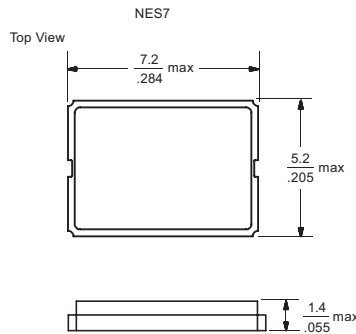
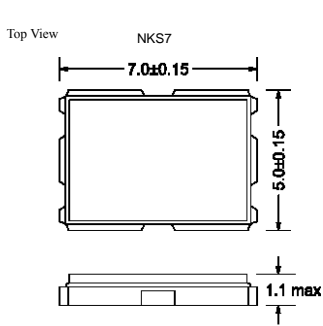
- Gross Test Leak: MIL-STD-883, Method 1014, Condition C
- Fine Test Leak: MIL-STD-883, Method 1014, Condition A2
- Thermal Shock: MIL-STD-883, Method 1011, Condition A
- Moisture Resistance: MIL-STD-883, Method 1004

### Reflow Temperature:

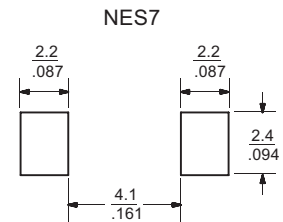
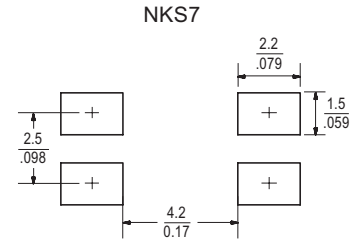
- 260°C Max, 10 sec max

Packaging Information:

Package Details



Recommended Land Patterns



Package Top Marking

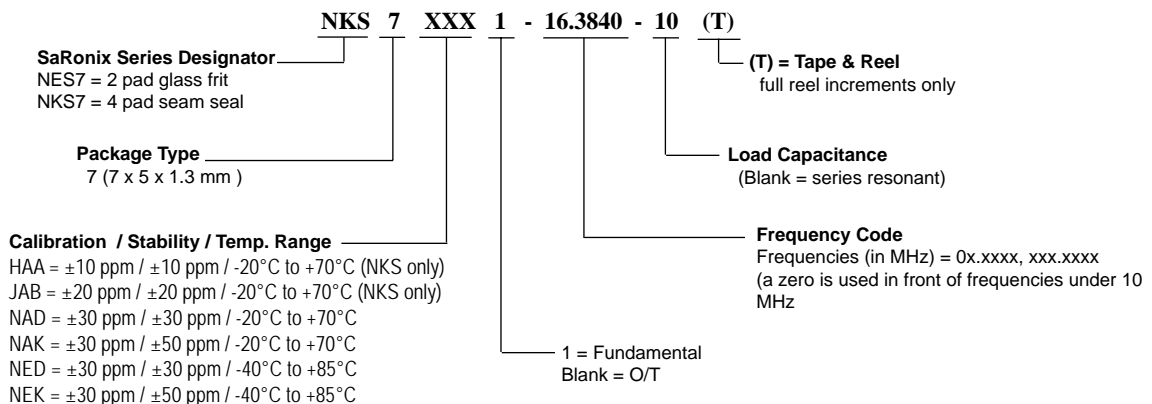
Line 1:  
S7 = SaRonix, NES/NKS7  
YYWWX = Date Code

Line 2:  
xx.xxxx = Frequency (up to 4  
digits, including  
decimal point)

Line 3:  
xxx = Calibration/Stability/Temp Code  
- = Separator (leave blank if series)  
xx = Load Capacitance (leave blank  
if series)

Example:  
S7YYWWx  
16.3840  
NAD-16

Ordering Information



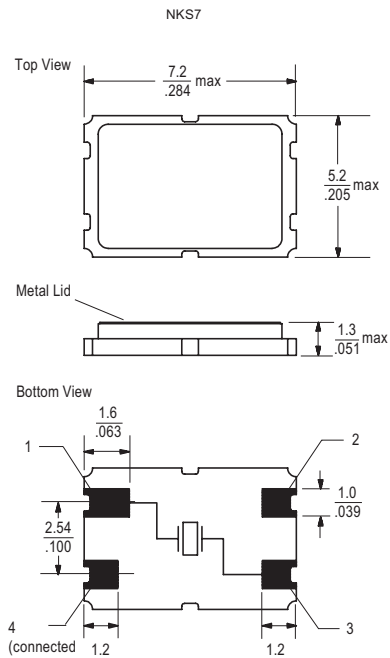
Part Number Example:

Spec: Freq 8.1234MHz, ±30ppm calib, ±30ppm stab, -20 to +70°C, 16pF, T&R = NKS7NAD1-08.1234-16(T)

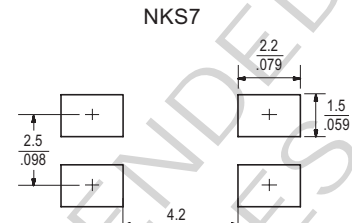
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Packaging Information:

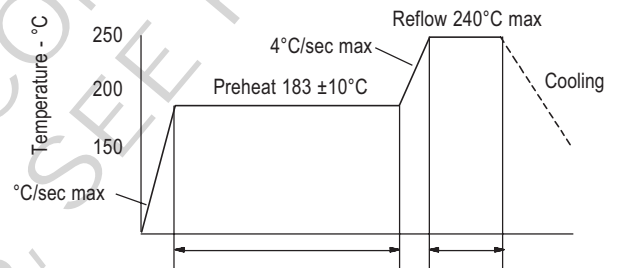
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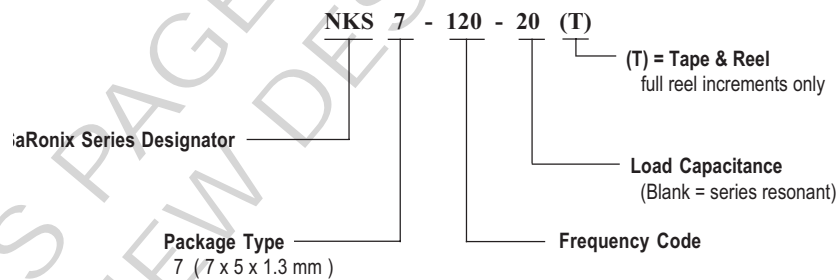
Recommended Land Patterns



Solder Reflow Guide



Ordering Information



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Legacy Part Number Format

Common Frequencies

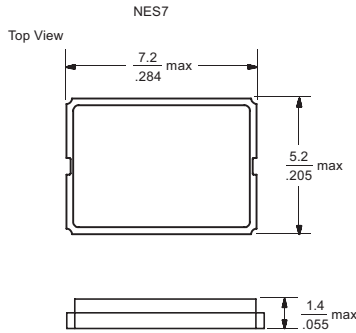
Frequency (MHz)	SaRonix Part Number	Frequency (MHz)	SaRonix Part Number
8.000000	NKS7-080-20	20.000000	NKS7-200-20
8.000156	NKS7-081-20	20.275200	NKS7-202-20
8.192000	NKS7-082-20	20.480000	NKS7-204-20
9.392000	NKS7-093-20	20.833000	NKS7-208-20
9.830400	NKS7-098-20	20.945000	NKS7-209-20
10.000000	NKS7-100-20	22.118400	NKS7-221-20
10.108800	NKS7-101-20	23.040000	NKS7-230-20
10.360000	NKS7-103-20	24.000000	NKS7-240-20
11.000000	NKS7-110-20	24.000140	NKS7-241-20
11.059200	NKS7-111-20	24.192000	NKS7-242-20
11.428000	NKS7-114-20	24.576000	NKS7-245-20
12.000000	NKS7-120-20	25.000000	NKS7-250-20
12.352000	NKS7-123-20	26.800000	NKS7-268-20
12.500000	NKS7-125-20	27.000000	NKS7-270-20
12.800000	NKS7-128-20	28.636360	NKS7-286-20
12.900000	NKS7-129-20	30.000000	NKS7-300-20
13.000000	NKS7-130-20	30.000000	NKS7-301-20
13.062500	NKS7-131-20	31.334400	NKS7-313-20
13.333333	NKS7-133-20	32.000000	NKS7-320-20
13.824000	NKS7-138-20	33.000000	NKS7-330-20
14.318180	NKS7-143-20	33.870000	NKS7-338-20
14.745600	NKS7-147-20	35.000000	NKS7-350-20
15.000000	NKS7-150-20	35.251200	NKS7-352-20
15.360000	NKS7-153-20	35.468000	NKS7-354-20
15.974400	NKS7-159-20	36.288000	NKS7-362-20
16.000000	NKS7-160-20	36.864000	NKS7-368-20
16.000312	NKS7-161-20	38.880000	NKS7-388-20
16.384000	NKS7-163-20	39.168000	NKS7-391-20
16.488000	NKS7-164-20	40.000000	NKS7-400-20
16.588800	NKS7-165-20	40.320000	NKS7-403-20
16.667000	NKS7-166-20	40.550400	NKS7-405-20
16.934400	NKS7-169-20	44.236800	NKS7-442-20
17.000000	NKS7-170-20	44.545000	NKS7-445-20
17.333333	NKS7-173-20	44.695000	NKS7-446-20
17.500000	NKS7-175-20	44.736000	NKS7-447-20
17.708333	NKS7-176-20	48.000000	NKS7-480-20
17.734400	NKS7-177-20	50.000000	NKS7-500-20
18.000000	NKS7-180-20	52.416000	NKS7-524-20
18.432000	NKS7-184-20	56.488000	NKS7-564-20
18.750000	NKS7-187-20	57.000000	NKS7-570-20
18.869600	NKS7-188-20	57.645000	NKS7-576-20
19.136000	NKS7-191-20	60.000000	NKS7-600-20
19.200000	NKS7-192-20	72.208333	NKS7-722-20
19.660800	NKS7-196-20	82.705000	NKS7-827-20

All specifications are subject to change without notice.

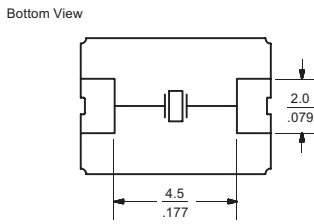
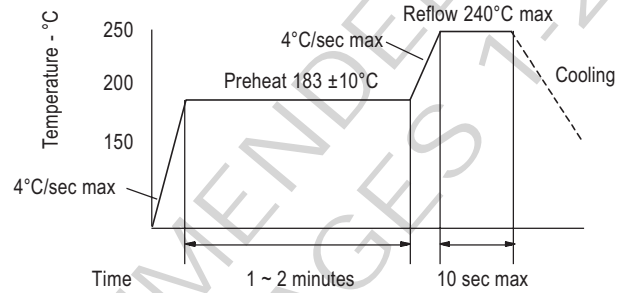
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Package Details



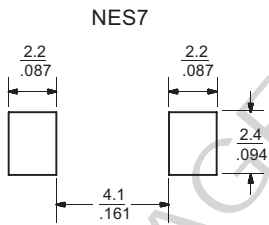
Solder Reflow Guide



Common Frequencies

Frequency	Code
<b>Fundamental</b>	
8.00000	080
9.83040	098
10.00000	100
12.00000	120
14.31818	143
14.74560	147
16.00000	160
20.00000	200
20.48000	204
24.57600	245
25.00000	250
27.00000	270
28.22400	282
<b>3rd Overtone</b>	
33.33300	333
40.00000	400

Recommended Land Patterns



Package Top Marking

Line 1:  
S = SaRonix  
xxx = Calibration/Stability/Temp Code  
1 or 3: 1 = Fundamental; 3 = 3rd Overtone  
YYWW = Date Code

Line 2:  
xx.xxx = Frequency (up to 6 digits, including decimal point)  
- (dash) = separator (leave blank if Series)  
xx = Load Capacitance, 2 digits (leave blank if Series)

Example:  
Sxxx1YYWW  
18.432-16