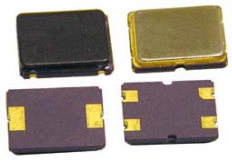
SaRonix™
A PERICOM® COMPANY

NES7/NKS7 Series

Miniature Quartz Crystal
Ceramic SMD



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

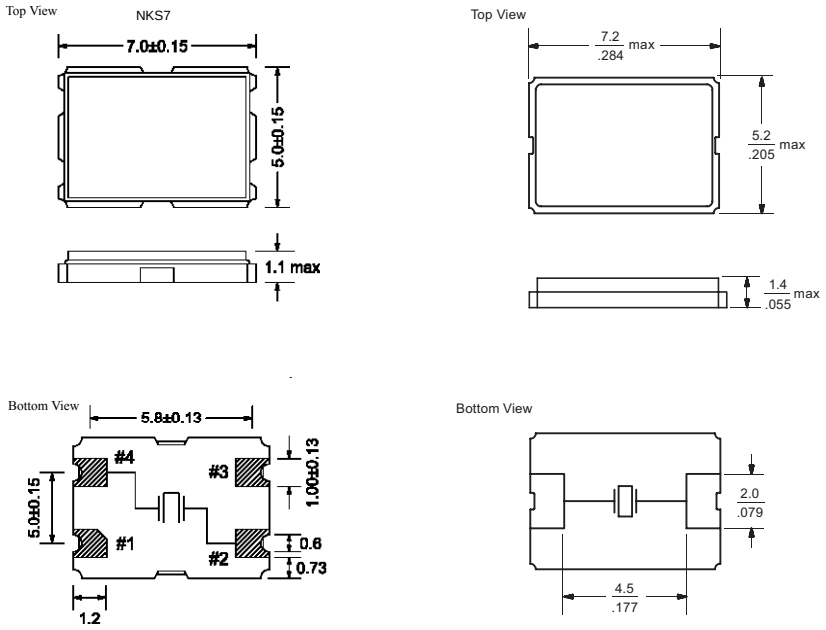
Reflow Temperature:

- 260°C Max, 10 sec max

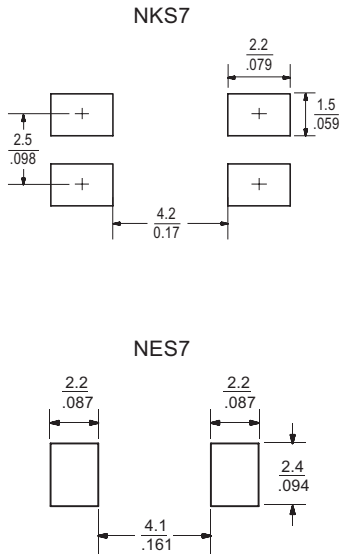
All specifications are subject to change without notice.

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 7 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

NKS 7 XXX 1 - 16.3840 - 10 (T)

SaRonix Series Designator
NES7 = 2 pad glass frit
NKS7 = 4 pad seam seal

Package Type
7 (7 x 5 x 1.3 mm)

Calibration / Stability / Temp. Range
HAA = ±10 ppm / ±10 ppm / -20°C to +70°C (NKS only)
JAB = ±20 ppm / ±20 ppm / -20°C to +70°C (NKS only)
NAD = ±30 ppm / ±30 ppm / -20°C to +70°C
NAK = ±30 ppm / ±50 ppm / -20°C to +70°C
NED = ±30 ppm / ±30 ppm / -40°C to +85°C
NEK = ±30 ppm / ±50 ppm / -40°C to +85°C

1 = Fundamental
Blank = O/T

Frequency Code
Frequencies (in MHz) = 0x.xxxx, xxx.xxxx
(a zero is used in front of frequencies under 10 MHz

Load Capacitance
(Blank = series resonant)

(T) = Tape & Reel
full reel increments only

Part Number Example:

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

THIS PAGE NOT RECOMMENDED FOR NEW DESIGNS, SEE PAGES 1-2

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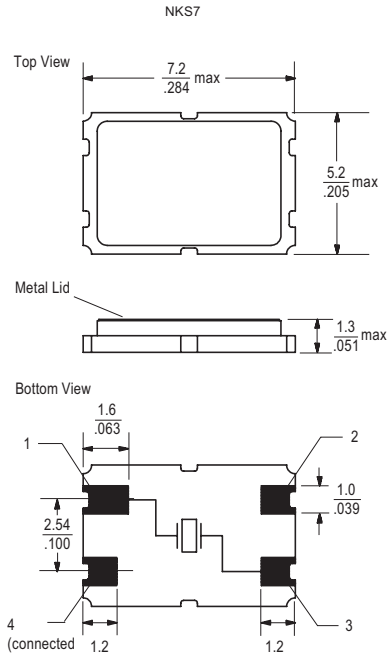
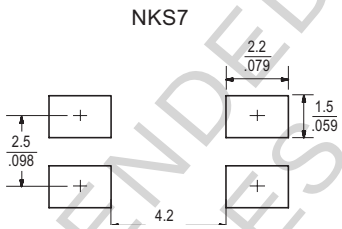
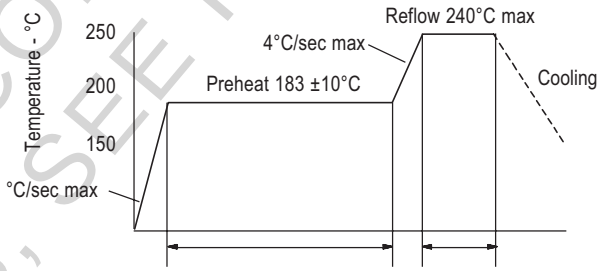


Recommended Land Patterns



Solder Reflow Guide



Ordering Information

NKS 7 - 120 - 20 (T)

(T) = Tape & Reel
full reel increments only

aRonix Series Designator

Load Capacitance
(Blank = series resonant)

Package Type
7 (7 x 5 x 1.3 mm)

Frequency Code

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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

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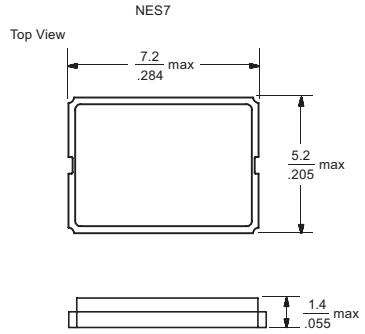

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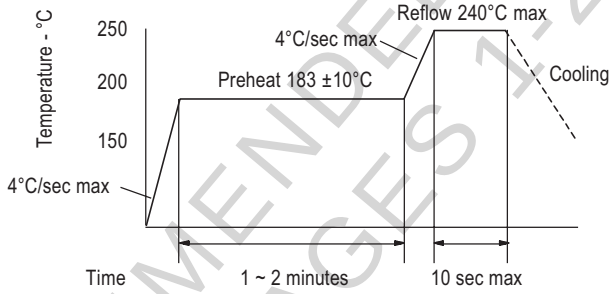

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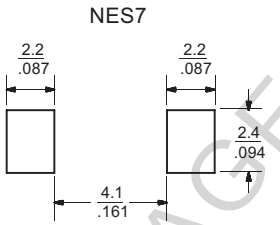

Common Frequencies

Frequency	Code
Fundamental	
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
3rd Overtone	
33.33300	333
40.00000	400

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

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