

## Model Name NV7050SA

Voltage-Controlled Crystal Oscillator (VCXO)

### Main Application

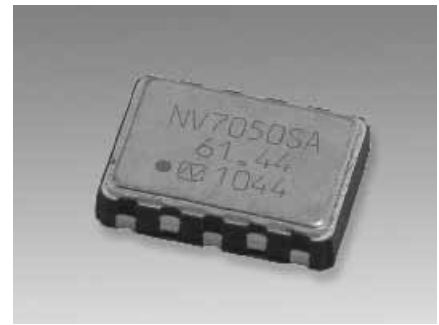
For communication equipment, ISDN, SDH, WiMAX, LTE etc.

### Features

- A ceramics-package(Dimensions : 7.0×5.0mm).
- Output level: CMOS
- Low power supply voltage(+3.3 V)

Pb Free

RoHS Compliant  
Directive 2011/65/EU



### Specifications

Item	Model	NV7050SA	
Nominal frequency range [f] (MHz)		$2.048 \leq F \leq 40$	$40 < F \leq 80$
Supply voltage [V <sub>cc</sub> ] (V)		$+3.3 \pm 10 \%$	
Current consumption (mA)		Max. 10	Max. 35
Output level		CMOS	
Symmetry (%)		45 to 55 (1/2 V <sub>cc</sub> )	
Output load condition		15 pF	
Operating temperature range (°C)		-40 to +85	
Storage temperature range (°C)		-55 to +125	
Overall frequency tolerance		Max. $\pm 50 \times 10^{-6}$	
Frequency control range / Control voltage [V <sub>cont</sub> ]		Min. $\pm 100 \times 10^{-6}$ / $+1.65 \pm 1.5$ V	
Frequency change polarity		Positive	
Stand-by or Enable / Disable function	Stand-by function	Enable / Disable function ( Enable High Level type )	
Number for specifying an order	NSA3541A	NSA3406A	

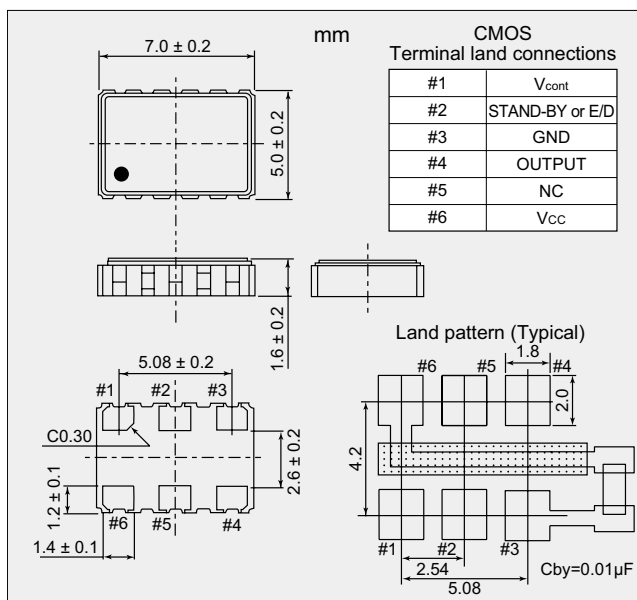
### How to Specify an Order

When ordering our products, specify them with an "Ordering Code" that consists of the following:

Model name – Frequency (up to 9 digits) M – Number for specifying an order Example: NV7050SA–52M–NSA3406A

If you have any queries concerning our standard frequencies and numbers for specifying orders, please contact our sales representatives or visit our homepage (<http://www.ndk.com/>)

### Dimensions



### List of Stand-by function

Input (#2)	Output (#4)
High Level ( 0.7 V <sub>cc</sub> min ) or OPEN	Output
Low Level ( 0.3 V <sub>cc</sub> max )	Hi-Impedance

### List of Enable / Disable function

Enable High Level type	
Input (#2)	Output (#4)
High Level ( 0.7 V <sub>cc</sub> min ) or OPEN	Enable
Low Level ( 0.3 V <sub>cc</sub> max )	Disable (Hi-Impedance)

## NV7050SA

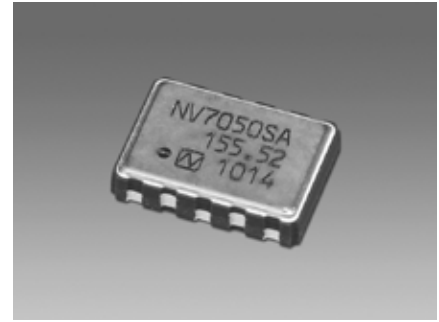
Voltage Controlled Crystal Oscillator (VCXO)

### Main Application

For communication equipment for ISDN, SDH/SONET, WiMAX, etc. and Base-stations

### Features

- A ceramics-package(Dimensions : 7.0×5.0mm).
- Output Specification : CMOS
- Frequency range : 62MHz to 170MHz
- Low current consumption : Max. 35mA



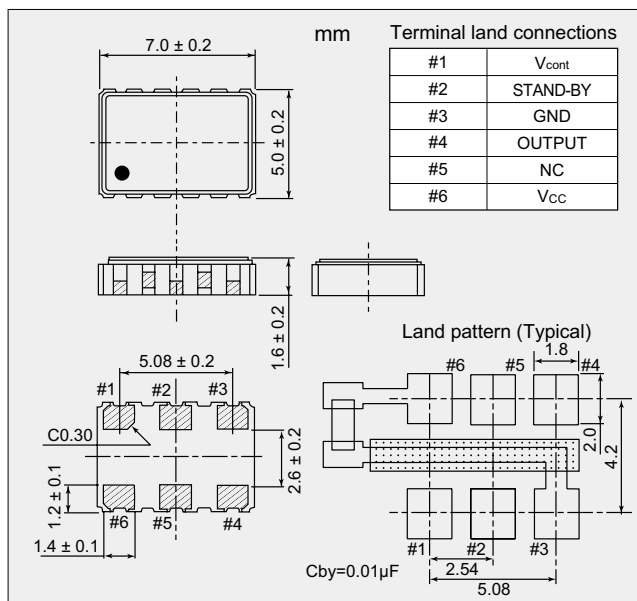
Pb Free

RoHS Compliant  
Directive 2011/65/EU  
Directive (EU) 2015/863

### Specifications

Item	Model	NV7050SA
Nominal Frequency Range [f] (MHz)		$62 \leq f \leq 170$
Standard Frequency (MHz)		100, 122.88, 125, 153.6
Supply Voltage [V <sub>CC</sub> ] (V)		$+3.3 \pm 10\%$
Current Consumption (mA)		Max. 35
Output Specification		CMOS
Symmetry (%)		45 to 55 (1/2 V <sub>CC</sub> )
Output Load Condition (pF)		15
Operating Temperature Range (°C)		-40 to +85
Storage Temperature Range (°C)		-55 to +125
Overall Frequency Tolerance		Max. $\pm 50 \times 10^{-6}$
Frequency Control Range / Control Voltage [V <sub>cont</sub> ]		Min. $\pm 100 \times 10^{-6}$ / $+1.65 \pm 1.65$ V
Frequency Change Polarity		Positive
Specification Number		NSA3615A

### Dimensions



### List of Stand-by function

Input (#2)	Output (#4)
High Level (Min. 0.7 V <sub>CC</sub> ) or OPEN	Output
Low Level (Max. 0.3 V <sub>CC</sub> )	Hi-Impedance

Please specify the model name, frequency, and specification number when you order products.  
For further questions regarding specifications, please feel free to contact us.

## Model Name NV7050SA

Voltage-Controlled Crystal Oscillator (VCXO)

### Main Application

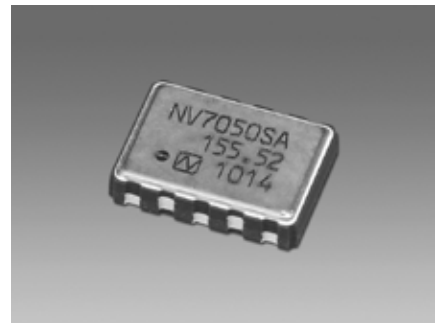
For communication equipment, ISDN, SDH, WiMAX, LTE etc.

### Features

- A ceramics-package(Dimensions : 7.0×5.0mm).
- Output level: LVPECL
- Low power supply voltage(+3.3 V)

Pb Free

RoHS Compliant  
Directive 2011/65/EU



### Specifications

Item	Model	NV7050SA
Nominal frequency range [f] (MHz)		80 < F ≤ 170
Supply voltage [V <sub>cc</sub> ] (V)		+3.3 ± 10 %
Current consumption (mA)		Max. 85
Output level		LVPECL
Symmetry (%)		45 to 55 (V <sub>cc</sub> -1.3V)
Output load condition		50Ω (V <sub>cc</sub> -2.0V)
Operating temperature range (°C)		-40 to +85
Storage temperature range (°C)		-55 to +125
Overall frequency tolerance		Max. ±50 × 10 <sup>-6</sup>
Frequency control range / Control voltage [V <sub>cont</sub> ]		Min. ±100 × 10 <sup>-6</sup> / +1.65 ± 1.5 V
Frequency change polarity		Positive
Enable / Disable function	Enable Low Level Type	Enable High Level Type
Number for specifying an order	NSA3407A	NSA3511A

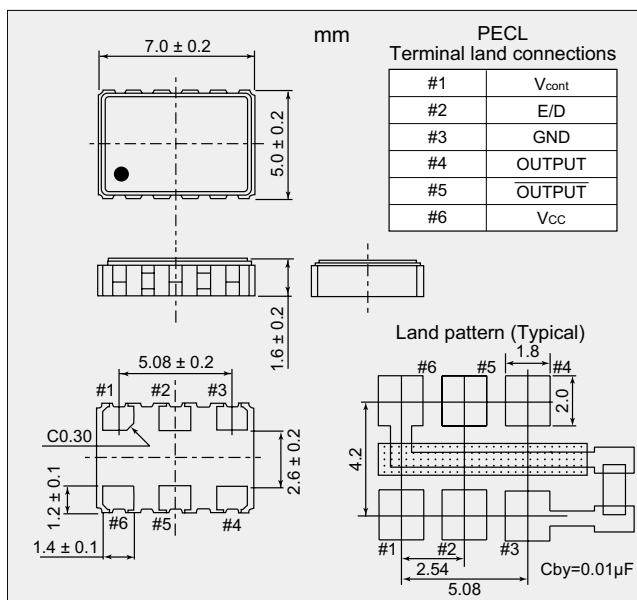
### How to Specify an Order

When ordering our products, specify them with an "Ordering Code" that consists of the following:

Model name – Frequency (up to 9 digits) M – Number for specifying an order      Example: NV7050SA-122.88M-NSA3407A

If you have any queries concerning our standard frequencies and numbers for specifying orders, please contact our sales representatives or visit our homepage (<http://www.ndk.com/>)

### Dimensions



### List of Enable / Disable function

#### Enable Low Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (0.7 V <sub>cc</sub> min)	Disable (High Level)	Disable (Low Level)
Low Level (0.3 V <sub>cc</sub> max) or OPEN	Enable	Enable

#### Enable High Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (0.7 V <sub>cc</sub> min) or OPEN	Enable	Enable
Low Level (0.3 V <sub>cc</sub> max)	Disable (High Level)	Disable (Low Level)

## NV7050SA

Voltage Controlled Crystal Oscillator (VCXO)

### Main Application

For communication equipment for ISDN, SDH/SONET, WiMAX, etc. and Base-stations

### Features

- A ceramics-package(Dimensions : 7.0×5.0mm).
- Output Specification : LVPECL
- Frequency range : 80MHz to 170MHz



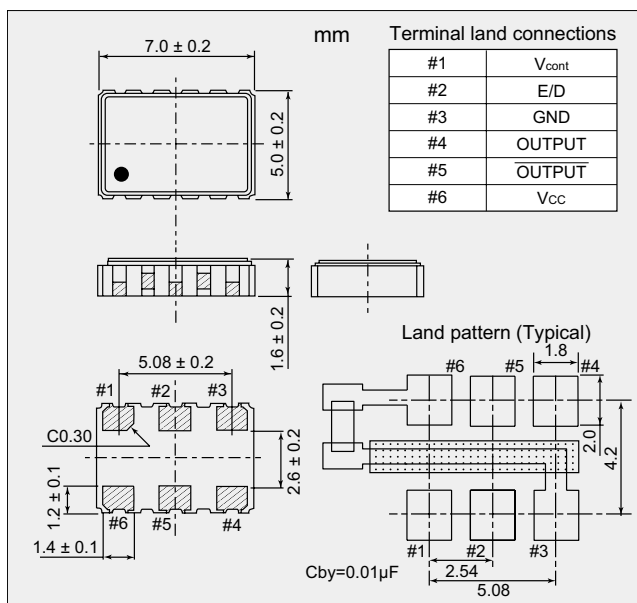
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RoHS Compliant  
Directive 2011/65/EU  
Directive (EU) 2015/863

### Specifications

Item	Model	NV7050SA
Nominal Frequency Range [f] (MHz)		80 < F ≤ 170
Standard Frequency (MHz)		122.88, 153.6
Supply Voltage [V <sub>CC</sub> ] (V)		+3.3 ± 10 %
Current Consumption (mA)		Max. 85
Output Specification		LVPECL
Symmetry (%)		45 to 55 (V <sub>CC</sub> -1.3V)
Output Load Condition (Ω)		50 (V <sub>CC</sub> -2.0V)
Operating Temperature Range (°C)		-40 to +85
Storage Temperature Range (°C)		-55 to +125
Overall Frequency Tolerance		Max. ±50 × 10 <sup>-6</sup>
Frequency Control Range / Control Voltage [V <sub>cont</sub> ]		Min. ±100 × 10 <sup>-6</sup> / +1.65 ± 1.65 V
Frequency Change Polarity		Positive
Enable / Disable function	Enable Low Level Type	Enable High Level Type
Specification Number	NSA3616A	NSA3617A

### Dimensions



### List of Enable / Disable function

#### Enable Low Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (Min. 0.7 V <sub>CC</sub> )	Disable	Disable
Low Level (Max. 0.3 V <sub>CC</sub> ) or OPEN	Enable	Enable

#### Enable High Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (Min. 0.7 V <sub>CC</sub> ) or OPEN	Enable	Enable
Low Level (Max. 0.3 V <sub>CC</sub> )	Disable	Disable

Please specify the model name, frequency, and specification number when you order products.  
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## NV7050SA

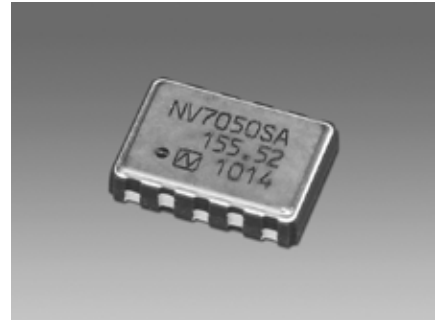
Low Phase Noise Type  
Voltage Controlled Crystal Oscillator (VCXO)

### Main Application

For communication equipment for ISDN, SDH/SONET, WiMAX, etc. and Base-stations

### Features

- Dimensions: 7.0x5.0mm
- Package: Ceramics
- Low phase noise: Typ. -127dBc/Hz (@1kHz), Typ. -156dBc/Hz (@100kHz)  
in case of 122.88MHz
- Low phase jitter: Typ. 0.13ps (12kHz to 20MHz) in case of 122.88MHz
- Low current consumption: Typ. 46mA in case of 122.88MHz
- Frequency range : 100MHz to 200MHz
- Output Specification : LVPECL



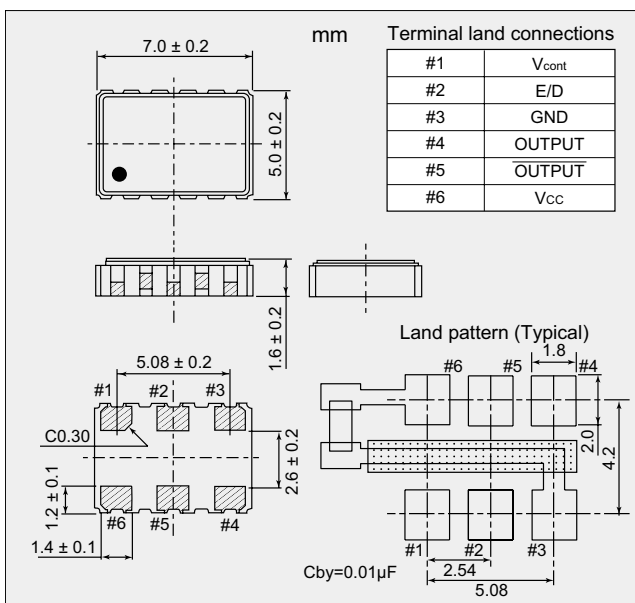
Pb Free

RoHS Compliant  
Directive 2011/65/EU  
Directive (EU) 2015/863

### Specifications

Item	Model	NV7050SA			
Nominal Frequency Range [f] (MHz)		100 ≤ F ≤ 170		170 < F ≤ 200	
Standard Frequency (MHz)		122.88, 153.6		200	
Supply Voltage [V <sub>CC</sub> ] (V)		+3.3 ± 10 %		+3.3 ± 10 %	
Current Consumption (mA)		Max. 65		Max. 65	
Output Specification		LVPECL		LVPECL	
Symmetry (%)		45 to 55 (V <sub>CC</sub> -1.3V)		45 to 55 (V <sub>CC</sub> -1.3V)	
Output Load Condition (Ω)		50 (V <sub>CC</sub> -2.0V)		50 (V <sub>CC</sub> -2.0V)	
Operating Temperature Range (°C)		-40 to +85		-40 to +85	
Storage Temperature Range (°C)		-55 to +125		-55 to +125	
Overall Frequency Tolerance		Max. ±50 × 10 <sup>-6</sup>		Max. ±50 × 10 <sup>-6</sup>	
Frequency Control Range / Control Voltage [V <sub>cont</sub> ]		Min. ±100 × 10 <sup>-6</sup> / +1.65 ± 1.65 V		Min. ±80 × 10 <sup>-6</sup> / +1.65 ± 1.65 V	
Frequency Change Polarity		Positive		Positive	
Enable / Disable function		Enable Low Level Type	Enable High Level Type	Enable Low Level Type	Enable High Level Type
Specification Number		NSA3618A	NSA3619A	NSA3644A	NSA3645A

### Dimensions



### List of Enable / Disable function

#### Enable Low Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (Min. 0.7 V <sub>CC</sub> )	Disable	Disable
Low Level (Max. 0.3 V <sub>CC</sub> ) or OPEN	Enable	Enable

#### Enable High Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (Min. 0.7 V <sub>CC</sub> ) or OPEN	Enable	Enable
Low Level (Max. 0.3 V <sub>CC</sub> )	Disable	Disable

### Reference Value

Phase noise (at 122.88MHz)	Offset Frequency	dBc / Hz
	10Hz	Typ. -70
	100Hz	Typ. -100
	1kHz	Typ. -127
	10kHz	Typ. -148
	100kHz	Typ. -156
1MHz	Typ. -156	

Please specify the model name, frequency, and specification number when you order products.  
For further questions regarding specifications, please feel free to contact us.

## NV7050SA

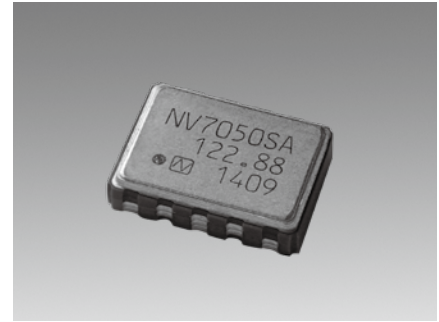
Wide Temperature Range Low Phase Noise Type  
Voltage Controlled Crystal Oscillator(VCXO)

### Main Application

For communication equipment for ISDN, SDH/SONET, WiMAX, etc. and Base-stations

### Features

- Supports a wide temperature range from  $-40$  to  $+105^{\circ}\text{C}$ .
- Dimensions: 7.0x5.0mm
- Package: Ceramics
- Low phase noise: Typ.  $-127\text{dBc/Hz}$  (@1kHz), Typ.  $-156\text{dBc/Hz}$  (@100kHz)  
in case of 122.88MHz
- Low phase jitter: Typ. 0.13ps (12kHz to 20MHz) in case of 122.88MHz
- Low current consumption: Typ. 46mA in case of 122.88MHz
- Frequency range : 122.88MHz
- Output Specification : LVPECL



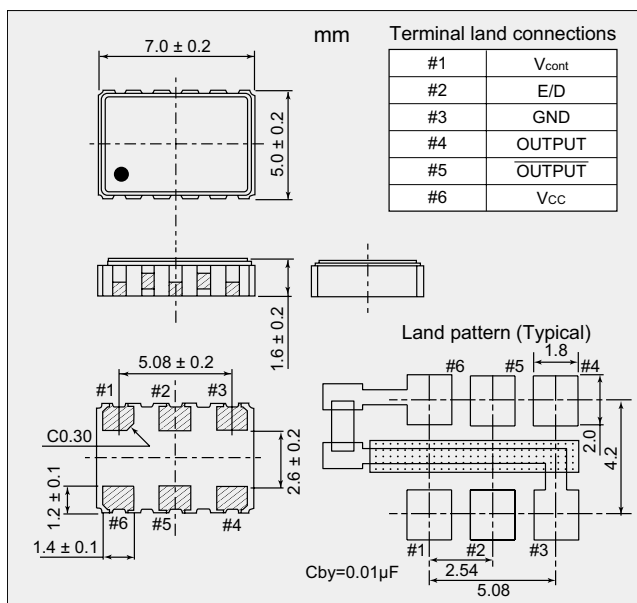
Pb Free

RoHS Compliant  
Directive 2011/65/EU  
Directive (EU) 2015/863

### Specifications

Item	Model	NV7050SA
Standard Frequency (MHz)		122.88
Supply Voltage [V <sub>CC</sub> ] (V)		$+3.3 \pm 10\%$
Current Consumption (mA)		Max. 65
Output Specification		LVPECL
Symmetry (%)		45 to 55 (V <sub>CC</sub> -1.3V)
Output Load Condition ( $\Omega$ )		50 (V <sub>CC</sub> -2.0V)
Operating Temperature Range ( $^{\circ}\text{C}$ )		$-40$ to $+105$
Storage Temperature Range ( $^{\circ}\text{C}$ )		$-55$ to $+125$
Overall Frequency Tolerance		Max. $\pm 50 \times 10^{-6}$
Frequency Control Range / Control Voltage [V <sub>cont</sub> ]		Min. $\pm 100 \times 10^{-6}$ / $+1.65 \pm 1.65$ V
Frequency Change Polarity		Positive
Enable / Disable function	Enable Low Level Type	Enable High Level Type
Specification Number	NSC5077A	NSC5078A

### Dimensions



### List of Enable / Disable function

#### Enable Low Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (Min. 0.7 V <sub>CC</sub> )	Disable	Disable
Low Level (Max. 0.3 V <sub>CC</sub> ) or OPEN	Enable	Enable

#### Enable High Level Type

Input (#2)	Output (#4)	Output (#5)
High Level (Min. 0.7 V <sub>CC</sub> ) or OPEN	Enable	Enable
Low Level (Max. 0.3 V <sub>CC</sub> )	Disable	Disable

### Reference Value

Phase noise (at 122.88MHz)	Offset Frequency	dBc / Hz
	10Hz	Typ. -70
	100Hz	Typ. -100
	1kHz	Typ. -127
	10kHz	Typ. -148
	100kHz	Typ. -156
1MHz	Typ. -156	

Please specify the model name, frequency, and specification number when you order products.  
For further questions regarding specifications, please feel free to contact us.