

Page No.

CERAMIC RESONATORS

Boxed, 2 Pin	229
Dipped, 2 Pin	230
Surface Mount, 2 Terminal	231-232
Dipped, 3 Pin	233
Surface Mount, 3 Terminal	234

QUARTZ CRYSTALS

Surface Mount	
General purpose	235-235B
High precision	235C
Wireless LAN	235D
Bluetooth	235E
Watch type	235F
Through Hole	
Watch type	235F
Low profile	236
Standard case	237

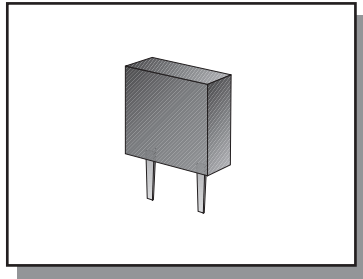
QUARTZ CRYSTAL OSCILLATORS

Surface Mount	
5V, CMOS/TTL compatible	238
3.3V, CMOS compatible	238A
Application specific	238B
VCXO, 3.3V, CMOS compatible	240
VCXO, 3.3V, optical networks	240A
TCXO, 3V, telecom	240B
Through Hole	
5V, CMOS/TTL compatible	239

MURATA type CSBLA

CERALOCK®

A popular range of lower frequency piezo-electric resonators housed in a boxed package. The devices are ideally suited to microprocessor, microcontroller and remote control applications due to their high mechanical Q and consistent high quality. Choice of washable or non-washable packages. Other frequencies are available to special order.



- ◆ High stability
- ◆ Optimised for MOS
- ◆ Excellent shock resistance
- ◆ Popular frequencies
- ◆ Washable or non-washable

SURFACE MOUNT VERSIONS
Available to special order

Specification

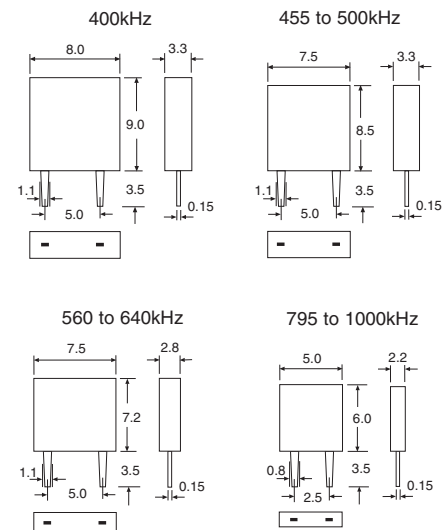
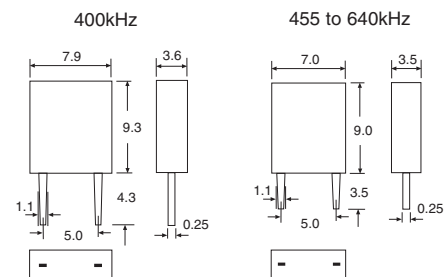
Frequency tolerance
 washable $\pm 0.5\%$
 non-washable $\pm 2\text{kHz}$
 Temperature stability $\pm 0.3\%$ over -20 to $+80^\circ\text{C}$

Washable

Frequency kHz	Manf. Part No. & Anglia Order Code
400	CSBLA400KJ5E-B0
455	CSBLA455KJ58-B0
480	CSBLA480KJ58-B0
500	CSBLA500KJ58-B0
560	CSBLA560KJ58-B0
600	CSBLA600KJ58-B0
614	CSBLA614KJ58-B0
640	CSBLA640KJ58-B0
795	CSBLA795KJ58-B0
800	CSBLA800KJ58-B0
1000	CSBLA1M00J58-B0

Non-washable

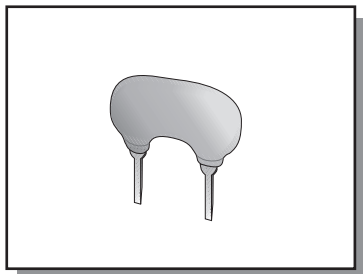
Frequency kHz	Manf. Part No. & Anglia Order Code
400	CSBLA400KECE-B0
455	CSBLA455KEC8-B0
480	CSBLA480KEC8-B0
500	CSBLA500KEC8-B0
560	CSBLA560KEC8-B0
600	CSBLA600KEC8-B0
614	CSBLA614KEC8-B0
640	CSBLA640KEC8-B0

Dimensions (mm)
Washable

Non-washable


MURATA type CSALA

CERALOCK®

A popular range of higher frequency piezo-electric resonators housed in a dipped package. The devices are ideally suited to microprocessor, microcontroller and remote control applications due to their high mechanical Q and consistent high quality. Other CSA types, frequencies and taped product are available to special order.

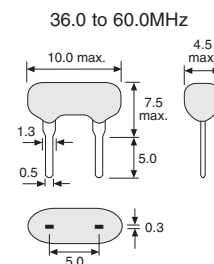
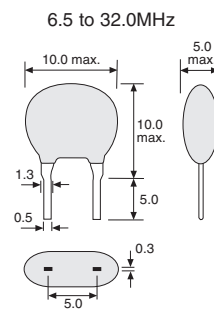
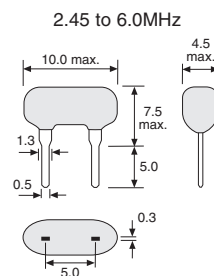
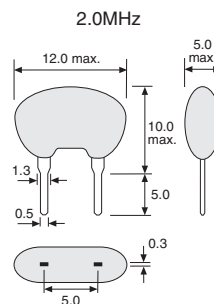


- ◆ High stability
- ◆ Optimised for MOS
- ◆ Excellent shock resistance
- ◆ Popular frequencies
- ◆ Washable

Specification

Frequency tolerance	±0.5%
Temperature stability	
2.0 to 6.0MHz	±0.3% over -20 to +80°C
6.5 to 12.0MHz	±0.5% over -20 to +80°C
14.0 to 60.0MHz	±0.3% over -20 to +80°C

Dimensions (mm)

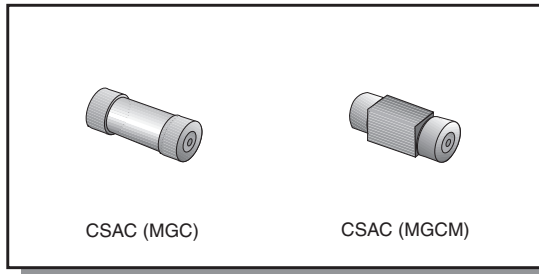


Frequency MHz	Manf. Part No. & Anglia Order Code
2.0	CSALA2M00G55-B0
2.45	CSALA2M45G55-B0
2.5	CSALA2M50G55-B0
3.27	CSALA3M27G55-B0
3.58	CSALA3M58G55-B0
3.69	CSALA3M69G55-B0
4.0	CSALA4M00G55-B0
4.19	CSALA4M19G55-B0
4.43	CSALA4M43G55-B0
4.5	CSALA4M50G55-B0
4.91	CSALA4M91G55-B0
5.0	CSALA5M00G55-B0
5.5	CSALA5M50G55-B0
5.75	CSALA5M75G55-B0
6.0	CSALA6M00G55-B0
6.5	CSALA6M50T55-B0
7.37	CSALA7M37T55-B0
8.0	CSALA8M00T55-B0
8.86	CSALA8M86T55-B0
10.0	CSALA10M0T55-B0
10.16	CSALA10M16T55-B0
10.24	CSALA10M2T55-B0
10.7	CSALA10M7T55-B0
11.0	CSALA11M0T55-B0
11.06	CSALA11M0T55020-B0
12.0	CSALA12M0T55-B0
14.0	CSALA14M0X55-B0
16.0	CSALA16M0X55-B0
17.9	CSALA17M9X55-B0
18.26	CSALA18M4X55001-B0
19.2	CSALA19M2X55-B0
20.0	CSALA20M0X53-B0
24.0	CSALA24M0X53-B0
27.0	CSALA27M0X51-B0
32.0	CSALA32M0X51-B0
36.0	CSALA36M0X51-B0
60.0	CSALA60M0X51-B0

MURATA type CSAC


CERALOCK®

A popular range of lower frequency piezo-electric resonators housed in a choice of surface mount packages, compatible with most auto-placement equipment. Ideally suited for control circuits in small electronic equipment, the resonators are supplied taped and reeled. Other frequencies are available to special order.



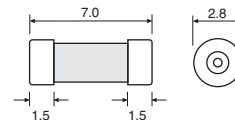
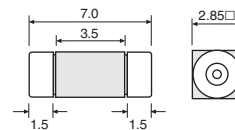
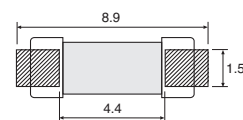
- ◆ Extremely small
- ◆ Choice of package
- ◆ High stability
- ◆ Excellent shock resistance
- ◆ Popular frequencies
- ◆ Washable
- ◆ Supplied taped & reeled


Specification

Frequency tolerance ±0.5%
 Temperature stability ±0.3% over -20 to +80°C

Packaging

TAPE : 12mm wide, 4mm pitch REEL : 178mm dia.

Dimensions (mm)
CSAC (MGC)

CSAC (MGCM)

Pad Pattern


CSAC (MGC)	
Frequency MHz	Manf. Part No. & Anglia Order Code
2.0	CSAC2.00MGC-TC
2.45	CSAC2.45MGC-TC
2.5	CSAC2.50MGC-TC
3.27	CSAC3.27MGC-TC
3.58	CSAC3.58MGC-TC
3.69	CSAC3.69MGC-TC
4.0	CSAC4.00MGC-TC
4.19	CSAC4.19MGC-TC
4.43	CSAC4.43MGC-TC
4.5	CSAC4.50MGC-TC
4.91	CSAC4.91MGC-TC
5.0	CSAC5.00MGC-TC
5.5	CSAC5.50MGC-TC
5.75	CSAC5.75MGC-TC
6.0	CSAC6.00MGC-TC

CSAC (MGCM)	
Frequency MHz	Manf. Part No. & Anglia Order Code
2.0	CSAC2.00MGCM-TC
2.45	CSAC2.45MGCM-TC
2.5	CSAC2.50MGCM-TC
3.27	CSAC3.27MGCM-TC
3.36†	CSAC3.36MGCM551-TC
3.58	CSAC3.58MGCM-TC
3.69	CSAC3.69MGCM-TC
4.0	CSAC4.00MGCM-TC
4.19	CSAC4.19MGCM-TC
4.43	CSAC4.43MGCM-TC
4.5	CSAC4.50MGCM-TC
4.91	CSAC4.91MGCM-TC
5.0	CSAC5.00MGCM-TC
5.5	CSAC5.50MGCM-TC
5.75	CSAC5.75MGCM-TC
6.0	CSAC6.00MGCM-TC

† characterised for Micrel MICRF001 (other frequencies available to special order)

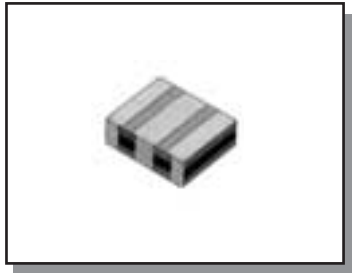
High frequency CSACV surface mount resonators shown overleaf > > > >

MURATA type CSACV



CERALOCK®

A popular range of higher frequency piezo-electric resonators housed in a low profile surface mount package. Ideally suited as clock generators for microprocessors and microcontrollers. Supplied taped and reeled. Other frequencies are available to special order.



NEW

- ◆ Extremely small
- ◆ Low profile ($\leq 1.7\text{mm}$)
- ◆ High stability
- ◆ Popular frequencies
- ◆ Washable
- ◆ Supplied taped & reeled

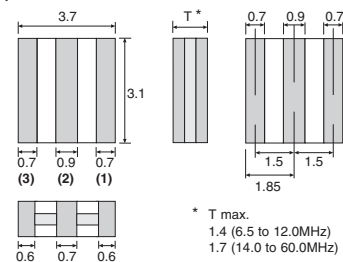
Specification

Frequency tolerance	$\pm 0.5\%$
Temperature stability	
6.5 to 12.0MHz	$\pm 0.5\%$ over -20 to $+80^\circ\text{C}$
14.0 to 60.0MHz	$\pm 0.3\%$ over -20 to $+80^\circ\text{C}$

Packaging

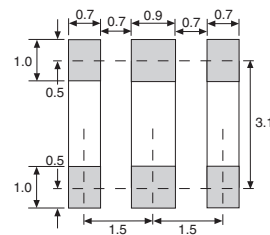
TAPE : 12mm wide, 4mm pitch REEL : 178mm dia.

Dimensions (mm)



Terminals (1) and (3) are interchangeable.
Terminal (2) is electrically isolated.

Pad Pattern

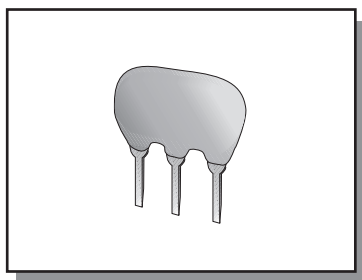


Frequency MHz	Manf. Part No. & Anglia Order Code
6.5	CSACV6M5T55J-R0
7.37	CSACV7M37T55J-R0
8.0	CSACV8M00T55J-R0
8.86	CSACV8M86T55J-R0
10.0	CSACV10M0T55J-R0
10.16	CSACV10M16T55J-R0
10.24	CSACV10M24T55J-R0
10.7	CSACV10M7T55J-R0
11.0	CSACV11M0T55J-R0
11.06	CSACV11M06T55J-R0
12.0	CSACV12M0T55J-R0
14.0	CSACV14M0X55J-R0
16.0	CSACV16M0X55J-R0
17.9	CSACV17M9X55J-R0
18.26	CSACV18M4X55J-R0
19.2	CSACV19M2X55J-R0
20.0	CSACV20M0X53J-R0
24.0	CSACV24M0X53J-R0
27.0	CSACV27M0X51J-R0
32.0	CSACV32M0X51J-R0
36.0	CSACV36M0X51J-R0
60.0	CSACV60M0X51J-R0

MURATA type CSTLA

CERALOCK®

A popular range of higher frequency piezo-electric resonators, with built-in load capacitance, housed in a dipped package. Because of their high mechanical Q and consistent high quality the devices are ideally suited to microprocessor, microcontroller and remote control applications. Other frequencies and taped product are available to special order.



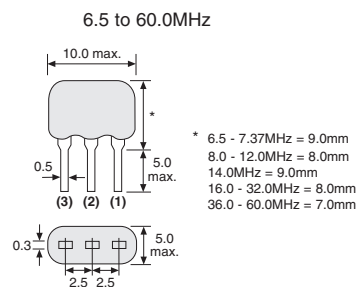
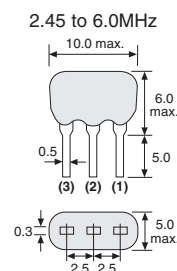
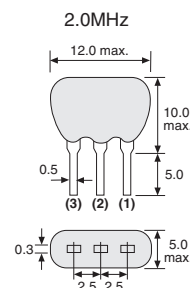
- ◆ Built-in load capacitance
- ◆ High stability
- ◆ Optimised for MOS
- ◆ Excellent shock resistance
- ◆ Popular frequencies
- ◆ Washable

Specification

Frequency tolerance ±0.5%
 Temperature stability
 2.0 to 6.0MHz ±0.3% over -20 to +80°C
 6.5 to 12.0MHz ±0.4% over -20 to +80°C
 14.0 to 60.0MHz ±0.3% over -20 to +80°C

Frequency MHz	Manf. Part No. & Anglia Order Code
2.0	CSTLA2M00G55-B0
2.45	CSTLA2M45G55-B0
2.5	CSTLA2M50G55-B0
3.27	CSTLA3M27G55-B0
3.58	CSTLA3M58G55-B0
3.69	CSTLA3M69G55-B0
4.0	CSTLA4M00G55-B0
4.19	CSTLA4M19G55-B0
4.43	CSTLA4M43G55-B0
4.5	CSTLA4M50G55-B0
4.91	CSTLA4M91G55-B0
5.0	CSTLA5M00G55-B0
5.5	CSTLA5M50G55-B0
5.75	CSTLA5M75G55-B0
6.0	CSTLA6M00G55-B0
6.5	CSTLA6M50T55-B0
7.37	CSTLA7M37T55-B0
8.0	CSTLA8M00T55-B0
8.86	CSTLA8M86T55-B0
10.0	CSTLA10M0T55-B0
10.16	CSTLA10M16T55-B0
10.24	CSTLA10M24T55-B0
10.7	CSTLA10M7T55-B0
11.0	CSTLA11M0T55-B0
11.06	CSTLA11M06T55-B0
12.0	CSTLA12M0T55-B0
14.0	CSTLA14M0X55-B0
16.0	CSTLA16M0X55-B0
17.9	CSTLA17M9X55-B0
18.26	CSTLA18M26X55-B0
19.2	CSTLA19M2X55-B0
20.0	CSTLA20M0X53-B0
24.0	CSTLA24M0X53-B0
27.0	CSTLA27M0X51-B0
32.0	CSTLA32M0X51-B0
36.0	CSTLA36M0X51-B0
60.0	CSTLA60M0X51-B0

Dimensions (mm)



Connections (marked side)

- (1) Input
- (2) Ground
- (3) Output

MURATA type CSTCC, CSTCV



CERALOCK®

A popular range of higher frequency piezo-electric resonators, with built-in load capacitance, housed in low profile surface mount packages. Ideally suited for electronic control circuits in small electronic equipment. Supplied taped and reeled. Other frequencies are available to special order.



- ◆ Extremely small
- ◆ High stability
- ◆ Built-in load capacitance
- ◆ Popular frequencies
- ◆ Washable
- ◆ Supplied taped & reeled

Specification

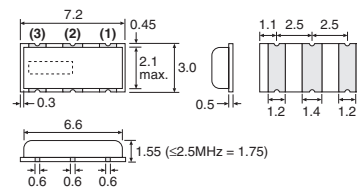
Frequency tolerance ±0.5%
 Temperature stability
 CSTCC series ±0.3% over -20 to +80°C
 CSTCV series (≤12.0MHz) ±0.4% over -20 to +80°C
 CSTCV series (>12.0MHz) ±0.3% over -20 to +80°C

Frequency MHz	Manf. Part No. & Anglia Order Code
2.0	CSTCC2M00G53-R0
2.45	CSTCC2M45G53-R0
2.5	CSTCC2M50G53-R0
3.27	CSTCC3M27G53-R0
3.58	CSTCC3M58G53-R0
3.69	CSTCC3M69G53-R0
4.0	CSTCC4M00G53-R0
4.19	CSTCC4M19G53-R0
4.43	CSTCC4M43G53-R0
4.5	CSTCC4M50G53-R0
4.91	CSTCC4M91G53-R0
5.0	CSTCC5M00G53-R0
5.5	CSTCC5M50G53-R0
5.75	CSTCC5M75G53-R0
6.0	CSTCC6M00G53-R0
6.5	CSTCC6M50G53-R0
6.75†	CSTCC6M75GZ3052-R0
7.37	CSTCC7M37G53-R0
8.0*	CSTCC8M00G53-R0
8.0	CSTCV8M00T54J-R0
8.86*	CSTCC8M86G53-R0
8.86	CSTCV8M86T54J-R0
10.0*	CSTCC10M0G53-R0
10.0	CSTCV10M0T54J-R0
10.16	CSTCV10M16T54J-R0
10.24	CSTCV10M24T54J-R0
10.7	CSTCV10M7T54J-R0
11.0	CSTCV11M0T54J-R0
11.06	CSTCV11M06T54J-R0
12.0	CSTCV12M0T54J-R0
14.0	CSTCV14M0X53J-R0
16.0	CSTCV16M0X53J-R0
17.9	CSTCV17M9X53J-R0
18.26	CSTCV18M26X53J-R0
19.2	CSTCV19M2X53J-R0
20.0	CSTCV20M0X53J-R0
22.11	CSTCV22M1X53J-R0
24.0	CSTCV24M0X53J-R0
27.0	CSTCV27M0X51J-R0
32.0	CSTCV32M0X51J-R0
36.0	CSTCV36M0X51J-R0
60.0	CSTCV60M0X51J-R0

* Preferred version
 † Characterised for Micrel MICRF002/011/012

Dimensions (mm)

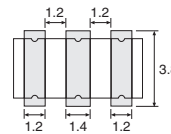
CSTCC



Connections (top view)

- (1) Input
- (2) Ground
- (3) Output

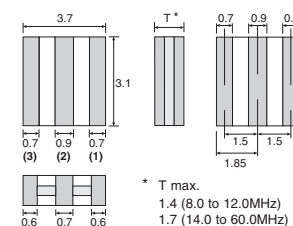
Pad Pattern



Packaging

TAPE : 12mm wide, 4mm pitch
 REEL : 178mm dia.

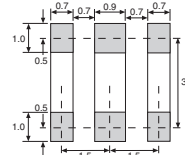
CSTCV



Connections (top view)

- (1) Input
- (2) Ground
- (3) Output

Pad Pattern

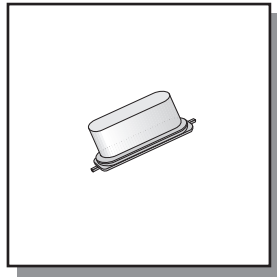


Packaging

TAPE : 12mm wide, 4mm pitch
 REEL : 178mm dia.



Very competitively priced surface mount AT-cut quartz crystals housed in the superior resistance weld HC-49/4SMX metal case which offers a low profile, 4mm height body. Designed for use in general industrial, microprocessor and microcontroller applications where board height and space is critical. Table below lists a selection of the most popular frequencies. Supplied taped and reeled. All types are parallel resonant. Frequencies are fundamental.



- ◆ Surface mount
- ◆ Popular frequencies
- ◆ Low profile metal case, 4mm height
- ◆ Superior HC-49/4SMX
- ◆ Very competitively priced
- ◆ Supplied taped & reeled

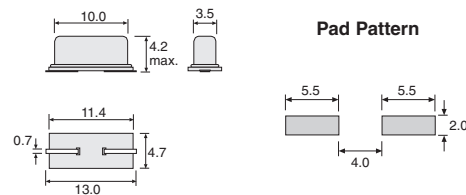
HC-49/4SMX CASE (4mm height)

Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -10 to +60°C	Load Cap	Applications	Anglia Order Code
3.579545	±30	±50	16pF	General MPU	XT407
3.6864	±30	±50	30pF	General MPU	XT408
4.0	±30	±50	30pF	Standard frequency, General MPU	XT409
4.096	±30	±50	30pF	±2 ^{1/2} =1kHz	XT441
4.9152	±30	±50	30pF	General MPU	XT429
6.0	±30	±50	30pF	Standard frequency, General MPU	XT411
7.3728	±30	±50	30pF	General MPU	XT414
8.0	±30	±50	30pF	Standard frequency, General MPU	XT415
10.0	±30	±50	30pF	Standard frequency, General MPU	XT417
11.0	±30	±50	30pF	Standard frequency, General MPU	XT436
11.0592	±30	±50	30pF	General MPU	XT418
12.0	±30	±50	30pF	Standard frequency, General MPU	XT419
16.0	±30	±50	30pF	Standard frequency, General MPU	XT422
20.0	±30	±50	30pF	8080A, 8008, 8224, Z80	XT425

Packaging

TAPE : 24mm wide, 12mm pitch
REEL : 330mm dia.

Dimensions (mm)



Also available to special order :

- Other frequencies
- Very low height 2.75mm version

Please contact our Sales Desk for details.



AT-51 metal cased SMD quartz crystals
with automotive specification

offering high stability, high reliability and heat & shock resistance
Available to special order - please contact our Sales Desk for details.

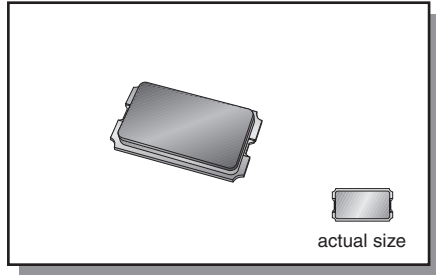


surface mount quartz crystals
shown overleaf > > >



NDK type NX8045GB

A popular range of surface mount AT-cut quartz crystals housed in a small 2 terminal hermetically sealed ceramic package, size 8.0 x 4.5 x 1.8mm. Ideal for general purpose applications. Supplied taped and reeled. All types are parallel resonant. Frequencies are fundamental.



- ◆ Popular range
- ◆ Excellent performance
- ◆ Ideal for general use
- ◆ Wide choice of frequencies available
- ◆ Small 8.0 x 4.5 x 1.8mm size ceramic package
- ◆ Excellent heat resistance and environmental characteristics
- ◆ Lead-free construction
- ◆ Supplied taped & reeled

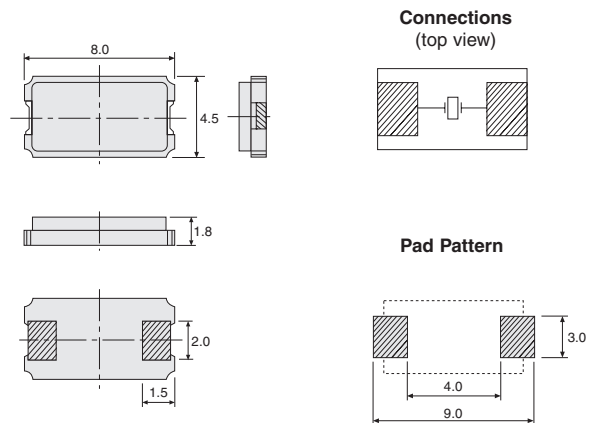
Specification

Equivalent series resistance 10.0MHz : 100Ω max.
 12.0 & 12.288MHz : 80Ω max.
 14.7456MHz & above : 50Ω max.
 Drive level 50μW typ., 500μW max.
 Operable temperature range -40°C to +85°C

Packaging

TAPE : 16mm wide, 8mm pitch
 REEL : 330mm dia.

Dimensions (mm)



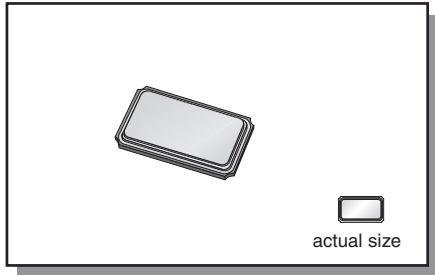
Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -10 to +70°C	Load Cap	Applications	Manf. Part No. & Anglia Order Code
10.0	±50	±50	8pF	Micro & Satcom	NX8045GB100C
12.0	±50	±50	8pF	Microprocessor	NX8045GB120C
12.288	±50	±50	8pF	Ethernet, ISDN & MPEG	NX8045GB122C
14.7456	±50	±50	8pF	Micro, Modem & xDSL	NX8045GB147C
16.0	±50	±50	8pF	Micro	NX8045GB160C
17.734475	±50	±50	8pF	PAL TV	NX8045GB177C
18.432	±50	±50	8pF	Micro, Modem, MPEG, DVD & STB	NX8045GB184C
19.6608	±50	±50	8pF	Modem & Satcom	NX8045GB196C
20.0	±50	±50	8pF	Micro & Ethernet	NX8045GB200C
24.0	±50	±50	8pF	Micro	NX8045GB240C
24.576	±50	±50	8pF	MPEG & xDSL	NX8045GB245C
25.0	±50	±50	8pF	Micro & Ethernet	NX8045GB250C
27.0	±50	±50	8pF	MPEG, STB & DVD	NX8045GB270C
32.768	±50	±50	8pF	Telecom	NX8045GB327C
36.864	±50	±50	8pF	Telecom & DSP	NX8045GB368C
40.0	±50	±50	8pF	Micro & Ethernet	NX8045GB400C

The table above lists a selection of the most popular frequencies available. However, the entire range extends from 8.0MHz to 40.5MHz (all fundamental). For details of other frequencies, please contact our Sales Desk.

NDK surface mount quartz crystals continued overleaf > > > >

NDK type NX6035SA

A range of high precision surface mount AT-cut quartz crystals housed in a compact 4 terminal hermetically sealed ceramic package with metal cover, size 6.0 x 3.5 x 1.0mm. Compatible with industry package types **3SMX**, **FA-368** and **NKS6**. Supplied taped and reeled. All types are parallel resonant. Frequencies are fundamental.



- ◆ Compact & thin
- ◆ **6.0 x 3.5 x 1.0mm size ceramic/metal package**
- ◆ Excellent electrical characteristics
- ◆ **High precision, 10ppm tolerance & stability**
- ◆ Wide choice of frequencies available
- ◆ Excellent environmental performance
- ◆ **Lead-free construction**
- ◆ Supplied taped & reeled

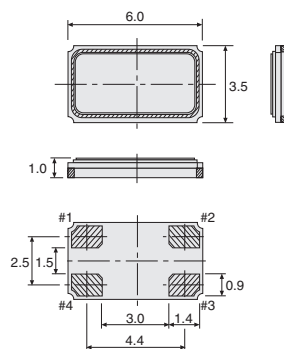
Specification

Equivalent series resistance 60Ω max.
 Drive level 10μW typ., 100μW max.
 Operable temperature range -40°C to +90°C

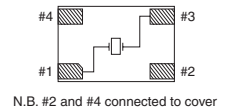
Packaging

TAPE : 16mm wide, 8mm pitch
 REEL : 330mm dia.

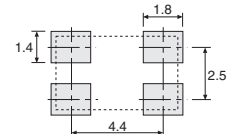
Dimensions (mm)



Connections (top view)



Pad Pattern

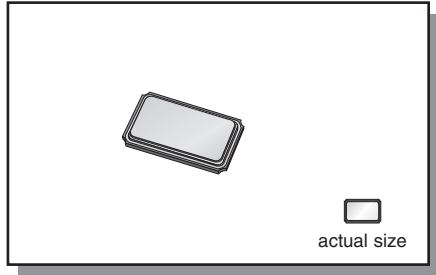


Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -20 to +70°C	Load Cap	Applications	Manf. Part No. & Anglia Order Code
10.0	±10	±10	12pF	Micro & Satcom	NX6035SA100B
12.8	±10	±10	12pF	Telecom	NX6035SA128B
13.0	±10	±10	12pF	GSM	NX6035SA130B
17.7345	±10	±10	12pF	PAL TV	NX6035SA178B
19.44	±10	±10	12pF	SONET & Satcom	NX6035SA194B
20.0	±10	±10	12pF	Micro & Ethernet	NX6035SA200B
26.0	±10	±10	12pF	GSM	NX6035SA260B
32.768	±10	±10	12pF	Telecom	NX6035SA327B
38.88	±10	±10	12pF	SONET & SDH	NX6035SA388B

The table above lists a selection of the most popular frequencies available. However, the entire range extends from 10MHz to 150MHz. For details of other frequencies, please contact our Sales Desk.

NDK type NX5032SA (Wireless LAN applications)

A range of high precision surface mount AT-cut quartz crystals housed in a very compact 4 terminal hermetically sealed ceramic package with metal cover, size 4.9 x 3.1 x 0.75mm. Optimised for Wireless LAN (WLAN) applications. Supplied taped and reeled. All types are parallel resonant. Frequencies are fundamental.



- ◆ Very compact & thin
- ◆ 4.9 x 3.1 x 0.75mm size ceramic/metal package
- ◆ Excellent electrical characteristics
- ◆ Optimised for WLAN applications
- ◆ Wide choice of frequencies available for other applications
- ◆ Excellent environmental performance
- ◆ Lead-free construction
- ◆ Supplied taped & reeled

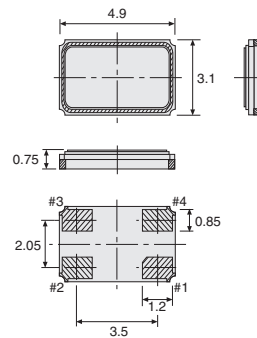
Specification

Equivalent series resistance 40Ω max.
 Drive level 10μW typ., 100μW max.
 Operable temperature range -40°C to +85°C

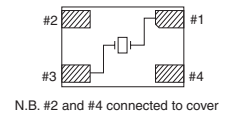
Packaging

TAPE : 12mm wide, 8mm pitch
 REEL : 330mm dia.

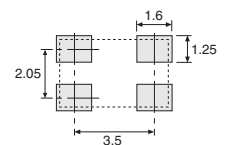
Dimensions (mm)



Connections (top view)



Pad Pattern



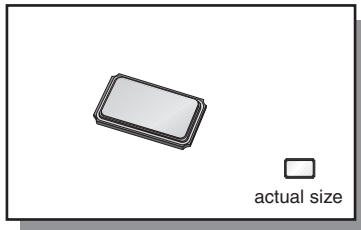
Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -20 to +70°C	Load Cap	Applications	Manf. Part No. & Anglia Order Code
22.0	±10	±10	10pF	Wireless LAN	NX5032SA220WLAN
44.0	±10	±10	10pF	Wireless LAN	NX5032SA440WLAN

The table above lists two standard frequencies for Wireless LAN applications. However, the entire range extends from 12.0MHz to 44.0MHz (all fundamental). For details of other frequencies, please contact our Sales Desk.

NDK surface mount quartz crystals continued overleaf > > > >

NDK type NX4025DA (Bluetooth applications)

A range of high precision surface mount AT-cut quartz crystals housed in a very compact 4 terminal hermetically sealed ceramic package with metal cover, size 4.0 x 2.5 x 0.6mm. Compatible with industry package **FA-248**. Optimised for Bluetooth applications. Supplied taped and reeled. All types are parallel resonant. Frequencies are fundamental.



- ◆ Very compact & thin
- ◆ 4.0 x 2.5 x 0.6mm size ceramic/metal package
- ◆ Optimised for Bluetooth applications
- ◆ Wide choice of frequencies available for other applications
- ◆ Excellent heat & shock resistance
- ◆ Lead-free construction
- ◆ Supplied taped & reeled

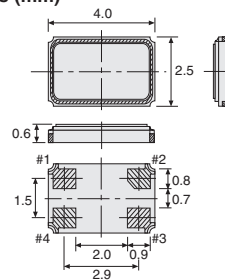
Specification

Equivalent series resistance 60Ω max.
 Drive level 10μW typ., 100μW max.
 Operable temperature range -40°C to +85°C

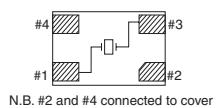
Packaging

TAPE : 12mm wide, 4mm pitch
 REEL : 178mm dia.

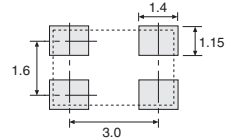
Dimensions (mm)



Connections (top view)



Pad Pattern

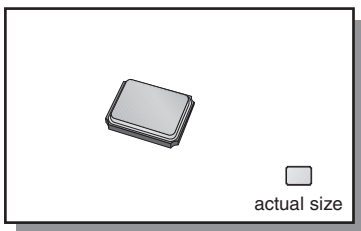


This table lists a selection of the standard frequencies available. For details of other frequencies, please contact our Sales Desk.

Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -20 to +70°C	Load Cap	Applications	Manf. Part No. & Anglia Order Code
13.0	±10	±10	10pF	Bluetooth	NX4025DA130BLT
16.0	±10	±10	10pF	Bluetooth	NX4025DA160BLT
24.0	±10	±10	10pF	Bluetooth	NX4025DA240BLT
26.0	±10	±10	10pF	Bluetooth	NX4025DA260BLT
32.0	±10	±10	10pF	Bluetooth	NX4025DA320BLT

NDK type NX3225DA (Bluetooth applications)

A range of high precision surface mount AT-cut quartz crystals housed in an ultra compact 4 terminal hermetically sealed ceramic package with metal cover, size 3.2 x 2.5 x 0.6mm. Compatible with industry package **FA-238**. Optimised for Bluetooth applications. Supplied taped and boxed. All types are parallel resonant. Frequencies are fundamental.



- ◆ Ultra compact, thin & lightweight (17mg)
- ◆ 3.2 x 2.5 x 0.6mm size ceramic/metal package
- ◆ Optimised for Bluetooth applications
- ◆ Wide choice of frequencies available for other applications
- ◆ Excellent heat resistance & environmental characteristics
- ◆ Lead-free construction
- ◆ Supplied taped & boxed

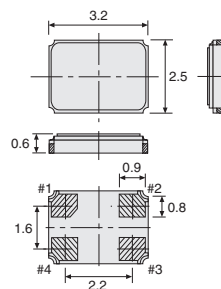
Specification

Equivalent series resistance 80Ω max.
 Drive level 10μW typ., 100μW max.
 Operable temperature range -40°C to +85°C

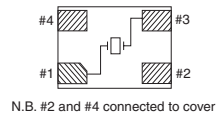
Packaging

TAPE : 8mm wide, 4mm pitch

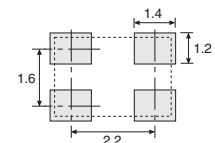
Dimensions (mm)



Connections (top view)



Pad Pattern



Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -30 to +85°C	Load Cap	Applications	Manf. Part No. & Anglia Order Code
16.0	±10	±15	7.2pF	Bluetooth	NX3225DA160BLBT

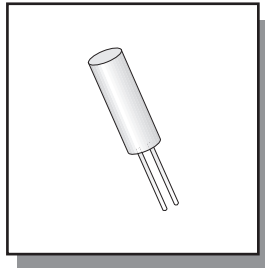
This table lists the standard frequency available. For details of other frequencies, please contact the Sales Desk.

A range of 32.768kHz watch crystals available in through hole DT-26/DT-38 metal cases or encapsulated in a CM200 surface mount package. All types are parallel resonant, frequencies are fundamental.



DT-26/DT-38 CASE

Choice of DT-26 or standard DT-38 cylindrical metal case.

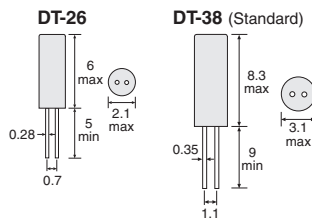


- ◆ Standard **32.768kHz** frequency
- ◆ Cylindrical metal case
- ◆ Choice of **DT-26** or **DT-38**

Frequency kHz	Tolerance ppm @ 25°C	Oper. Temp. Range °C	Load Cap	Applications
32.768	±20	-10 to +60	12.5pF	Clocks

Case	Anglia Order Code
DT-38	607000
DT-26	607001

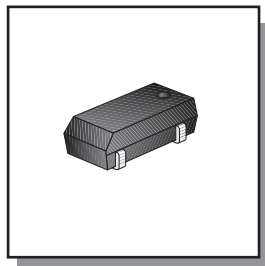
Dimensions (mm)



CM200 CASE



Cylindrical type watch crystals encapsulated in a heat resistant surface mount package. Offers high stability and suitable for reflow soldering. Supplied taped in 1K or 3K reels.

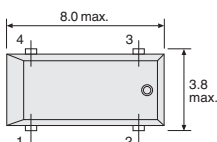


- ◆ Standard **32.768kHz** frequency
- ◆ Encapsulated **surface mount** package
- ◆ Suitable for reflow soldering
- ◆ Supplied taped and reeled
- ◆ Choice of reel quantity

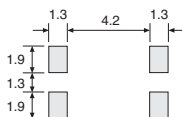
Frequency kHz	Tolerance ppm @ 25°C	Oper. Temp. Range °C	Load Cap	Applications
32.768	±20	-10 to +60	12.5pF	Clocks

Case	Anglia 1K Reel	Order Code 3K Reel
CM200	XT000K	XT000

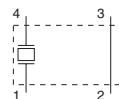
Dimensions (mm)



Pad Pattern

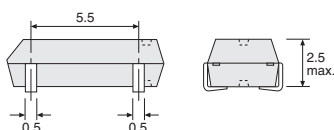


Circuit Diagram

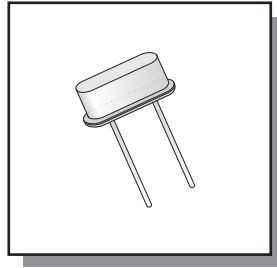


Packaging

TAPE : 16mm wide, 8mm pitch
 REEL : 178mm dia. (1K pcs)
 330mm dia. (3K pcs)



Very competitively priced low profile AT-cut quartz crystals housed in the superior resistance weld HC-49/4H metal case compatible with HC-18/U and HC-49/U footprint but offering a 4mm height body. Designed for use in general industrial, microprocessor and microcontroller applications where board height and space is critical. Table below lists a selection of the most popular frequencies. All types are parallel resonant. Frequencies are fundamental.

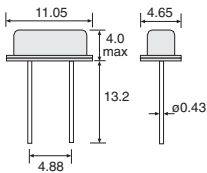


- ◆ Popular frequencies
- ◆ Low profile metal case, 4mm height
- ◆ Superior HC-49/4H
- ◆ Separate insulating pad available
- ◆ Very competitively priced



HC-49/4H CASE (4mm height)

Dimensions (mm)



Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -10 to +60°C	Load Cap	Applications	Anglia Order Code
3.579545	±30	±50	16pF	General MPU	607407
3.6864	±30	±50	30pF	General MPU	607408
4.0	±30	±50	30pF	Standard frequency, General MPU	607409
4.096	±30	±50	30pF	±2 ^{1/2} =1kHz	607441
4.9152	±30	±50	30pF	General MPU	607429
6.0	±30	±50	30pF	Standard frequency, General MPU	607411
7.3728	±30	±50	30pF	General MPU	607414
8.0	±30	±50	30pF	Standard frequency, General MPU	607415
10.0	±30	±50	30pF	Standard frequency, General MPU	607417
11.0	±30	±50	30pF	Standard frequency, General MPU	607436
11.0592	±30	±50	30pF	General MPU	607418
11.2896	±20	±30	30pF		607449
12.0	±30	±50	30pF	Standard frequency, General MPU	607419
16.0	±30	±50	30pF	Standard frequency, General MPU	607422
18.432	±20	±30	30pF	8080A, 8008, 8224	607424
19.6608	±20	±30	30pF		607459
20.0	±30	±50	30pF	8080A, 8008, 8224, Z80	607425

HUDSON

Also available to special order :

- Other frequencies
- Taped product

Please contact our Sales Desk for details.



AT-51 low profile metal cased quartz crystals

with automotive specification

offering high stability, high reliability and heat & shock resistance

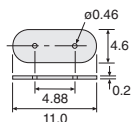
Available to special order - please contact our Sales Desk for details.

CRYSTAL INSULATING PAD

HUDSON

A high quality pad, manufactured from PTFE, designed for insulating HC-49 (or HC-18/43) metal cased crystals. Very competitively priced.

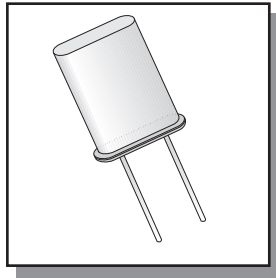
Dimensions (mm)



Anglia
Order Code
607100W



Very competitively priced quartz crystals housed in the superior resistance weld HC-49/U metal case compatible with HC-18/U. Designed for use in general industrial, microprocessor and microcontroller applications. Table below lists a selection of the most popular frequencies. All types are parallel resonant unless stated 'series' under the load cap column. Frequencies are fundamental except where indicated.

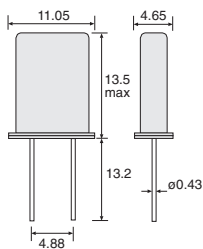


- ◆ Popular frequencies
- ◆ Standard metal case
- ◆ Superior HC-49/U
- ◆ Separate insulating pad available
- ◆ Very competitively priced



HC-49/U CASE (HC-18/U compatible)

Dimensions (mm)

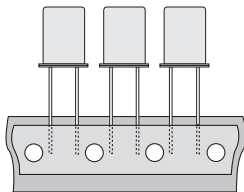


Frequency MHz	Tolerance ppm @ 25°C	Temperature Stability ppm over range -10 to +60°C	Load Cap	Applications	Anglia Order Code
1.8432	±20	±50	30pF		607002
2.0	±30	±50	30pF	Standard frequency, General MPU	607003
2.4576	±20	±50	30pF	Baud Rate generator	607004
3.2768	±20	±30	12.5pF	±2 ¹⁶ =50Hz	607031
3.579545	±20	±50	16pF	General MPU	607007
3.6864	±20	±50	30pF	General MPU	607008
4.0	±20	±50	30pF	Standard frequency, General MPU	607009
4.096	±20	±50	30pF	±2 ¹² =1kHz	607041
4.194304	±20	±30	12.5pF	±2 ²² =1Hz	607028
4.433619	±20	±30	20pF	PAL Colour TV	607032
4.9152	±20	±50	30pF	General MPU	607029
5.0	±20	±50	30pF		607013
5.75	±30	±50	30pF		607034
6.0	±20	±50	30pF	Standard frequency, General MPU	607011
6.144	±20	±50	30pF	8085	607012
6.5	±30	±50	12pF		607035
7.3728	±20	±50	30pF	General MPU	607014
8.0	±20	±50	30pF	Standard frequency, General MPU	607015
8.867238	±30	±50	20pF	PAL Colour TV	607033
9.216	±30	±50	30pF		607016
9.8304	±20	±50	30pF		607046
10.0	±30	±50	30pF	Standard frequency, General MPU	607017
10.16	±30	±50	30pF		607030
10.24	±30	±50	30pF	Receiver I.F.	607042
11.0	±20	±30	30pF	Standard frequency, General MPU	607036
11.0592	±20	±30	30pF	General MPU	607018
12.0	±20	±30	30pF	Standard frequency, General MPU	607019
12.288	±20	±50	30pF		607020
14.0	±20	±50	20pF		607048
14.7456	±20	±30	20pF	8060	607021
16.0	±20	±30	30pF	Standard frequency, General MPU	607022
16.9344	±30	±50	30pF	NICAM DAC	607026
17.734475	±20	±30	30pF	MC1378P, C.C.T.V.	607023
17.9	±30	±50	30pF		607037
18.26	±30	±50	30pF		607038
18.432	±20	±50	series	8080A, 8008, 8224	607024
19.6608	±20	±30	30pF		607059
20.0	±20	±50	30pF	8080A, 8008, 8224, Z80	607025
24.0	±30	±50	30pF	8086 / 8284	607027
32.0	±30	±50	32pF	3rd overtone	607039
36.0	±30	±50	32pF	3rd overtone	607040
60.0	±30	±50	30pF	3rd overtone	607043

HUDSON

Also available to special order :

- Other frequencies
- Sleeved cases
- &
- Taped product



Please contact our Sales Desk for details.



INSULATING PAD - refer to previous page

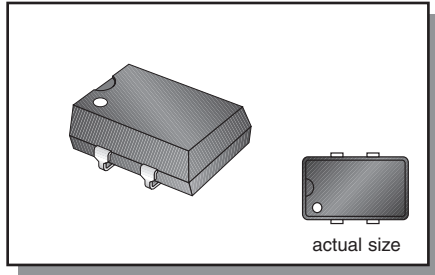


surface mount quartz crystal oscillators shown overleaf > > >



NDK type 1600B series

A series of high reliability surface mount crystal oscillators, hermetically sealed and housed in a 4 terminal moulded package. Compatible with industry package types **IQXO-57**, **SG-615** and **'H' pack**. Operating from a 5Vdc supply they will directly drive CMOS/TTL. A stand-by function provides a tri-state output. Supplied taped and reeled.

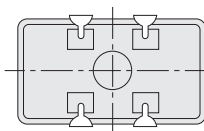
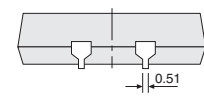
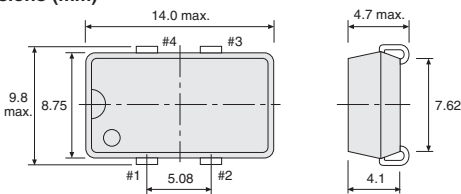


- ◆ High reliability
- ◆ **5V supply**, CMOS/TTL compatible
- ◆ Tri-state output with stand-by
- ◆ Wide choice of frequencies available
- ◆ Hermetically sealed crystal unit
- ◆ Moulded package
- ◆ Supplied taped & reeled

Specification

Series	1629B	1631B	1632B	1633B	1634B	1635B
Supply voltage	5.0Vdc ±10%					
Supply current	20mA	18mA	18mA	20mA	25mA	30mA
Output load (fanout)	10TTL or 15pF		15pF			
Frequency stability	±50ppm					
'0'/'1' levels	0.4Vmax./4.5Vmin.		0.5Vmax./4.5Vmin.			
Rise/fall times (0.1V _{DD} -0.9V _{DD})	5ns max./5ns max.					
Duty cycle (1/2V _{DD})	40 to 60%		45 to 55%			
Oper. temp. range	-20°C to +70°C					

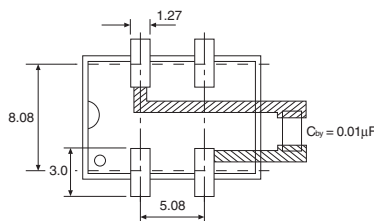
Dimensions (mm)



Connections

- #1 = Stand-by
- #2 = Ground
- #3 = Output
- #4 = V_{DD}

Pad Pattern



Frequency MHz	Applications	Compatibility		Manf. Part No. & Anglia Order Code
		CMOS	TTL	
3.579545	Modem	●	●	1629B035
3.6864	Micro & Modem	●	●	1629B037
4.0	Microprocessor	●	●	1629B040
4.096	Telecom & Modem	●	●	1629B0409
7.3728	Micro & Modem	●	●	1629B073
7.68	ISDN	●	●	1629B076
8.0	Microprocessor	●	●	1629B080
8.192	Telecom	●	●	1629B081
9.8304	Modem	●	●	1629B098
10.0	Micro & Satcom	●	●	1629B100
11.0592	Mobile Comm & Modem	●	●	1629B111
12.0	Microprocessor	●	●	1629B120
12.288	Ethernet, ISDN & MPEG	●	●	1629B122
12.8	Telecom	●	●	1629B128
13.0	GSM	●	●	1629B130
14.31818	Microprocessor	●	●	1629B143
14.7456	Micro, Modem & xDSL	●	●	1629B147
16.0	Microprocessor	●	●	1629B160
16.384	Telecom	●	●	1629B163
17.734475	PAL TV	●	●	1629B177
18.432	Micro, Modem, MPEG, DVD & STB	●	●	1629B184
19.44	SONET & Satcom	●	●	1629B194
20.0	Microprocessor	●	●	1629B200
24.0	Microprocessor	●	●	1629B240
24.576	MPEG & xDSL	●	●	1629B245
25.0	Micro & Gigabit Ethernet	●	●	1629B250
26.0	GSM	●	●	1631B260
27.0	MPEG, STB & DVD	●	●	1631B270
32.768	Telecom	●	●	1632B327
36.864	Telecom	●	●	1633B368
40.0	Micro & Ethernet	●	●	1633B400
50.0	Gigabit Ethernet & ADSL	●	●	1634B500
62.5	Gigabit Ethernet	●	●	1635B625

The table above lists a wide selection of popular frequencies. However, the entire range available extends from 1MHz to 70MHz. For details of other frequencies, please contact our Sales Desk.

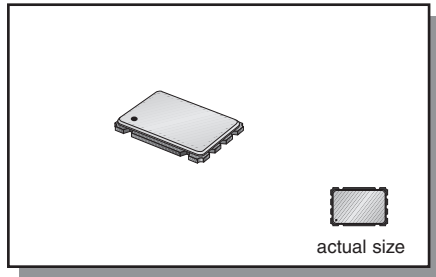


Also available to special order – 1600D series suitable for a 3.3V supply



NDK type 2560TK

A range of high reliability surface mount crystal oscillators, housed in a small 4 terminal ceramic package offering superior heat resistance and environmental characteristics. Compatible with industry package types **IQXO-71** and **SG-710**. Operating from a 3.3Vdc supply they will directly drive CMOS. A stand-by function provides a tri-state output. Supplied taped and reeled.

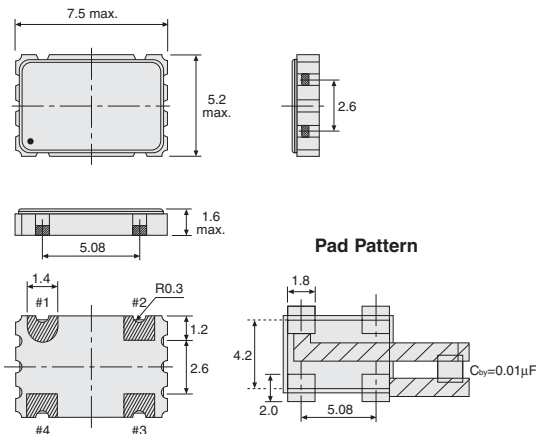


- ◆ High reliability
- ◆ **3.3V supply**, CMOS compatible
- ◆ Tri-state output with stand-by
- ◆ Wide choice of frequencies available
- ◆ **Small size**, ceramic package
- ◆ Superior heat resistance and environmental characteristics
- ◆ Supplied taped & reeled

Specification

Supply voltage	3.3Vdc ±0.3V
Supply current	26MHz & below : 10mA max. 32.768 to 50MHz : 15mA max. 53.125MHz & above : 18mA max.
Output load (fanout)	15pF
Frequency stability	±50ppm
'0'/'1' levels	0.1V _{DD} max./0.9V _{DD} min.
Rise/fall times (0.1V _{DD} ~ 0.9V _{DD})	6ns max./6ns max.
Duty cycle (1/2V _{DD})	45 to 55% (Over 50MHz : 40 to 60%)
Oper. temp. range	-10°C to +70°C

Dimensions (mm)



Connections

- #1 = Stand-by
- #2 = Ground
- #3 = Output
- #4 = V_{DD}

Frequency MHz	Applications	Manf. Part No. & Anglia Order Code
3.579545	Modem	2560TKC035
3.6864	Micro & Modem	2560TKC037
4.0	Microprocessor	2560TKC040
4.096	Telecom & Modem	2560TKC0409
4.9152	Micro & Modem	2560TKC049
7.3728	Micro & Modem	2560TKC073
7.68	ISDN	2560TKC076
8.0	Microprocessor	2560TKC080
8.192	Telecom	2560TKC081
9.8304	Modem	2560TKC098
10.0	Micro & Satcom	2560TKC100
11.0592	Mobile Comm & Modem	2560TKC111
12.0	Microprocessor	2560TKC120
12.288	Ethernet, ISDN & MPEG	2560TKC122
12.8	Telecom	2560TKC128
13.0	GSM	2560TKC130
14.31818	Microprocessor	2560TKC143
14.7456	Micro, Modem & xDSL	2560TKC147
16.0	Microprocessor	2560TKC160
16.384	Telecom	2560TKC163
17.734475	PAL TV	2560TKC177
18.432	Micro, Modem, MPEG, DVD & STB	2560TKC184
19.44	SONET & Satcom	2560TKC194
20.0	Microprocessor	2560TKC200
24.0	Microprocessor	2560TKC240
24.576	MPEG & xDSL	2560TKC245
25.0	Micro & Gigabit Ethernet	2560TKC250
26.0	GSM	2560TKC260
32.768	Telecom	2560TKC327
40.0	Micro & Ethernet	2560TKC400
50.0	Gigabit Ethernet & ADSL	2560TKC500
53.125	Fibre Channel	2560TKC531
62.5	Gigabit Ethernet	2560TKC625

The table above lists a wide selection of popular frequencies. However, the entire range available extends from 1.8MHz to 67MHz. For details of other frequencies, please contact our Sales Desk.



Also available to special order – 2560NK series suitable for a 5V supply



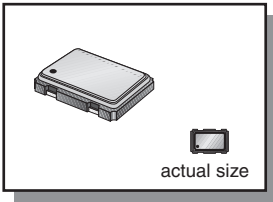
NDK type 2725TW, 2590TA & 7311SX

SMD

NEW

Three ranges of application specific, surface mount crystal oscillators housed in small packages designed to operate from a 3.3V supply. The tables list a selection of standard frequencies available. For details of other values, please contact our Sales Desk.

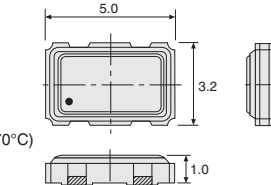
- 2725TW (Optimised for WLAN applications)** ♦ 3.3V supply ♦ CMOS compatible ♦ Tri-state output
 ♦ Low current stand-by (22.0 & 44.0MHz) ♦ High precision type ♦ Very small, low profile package ♦ Supplied taped & reeled



Specification

Supply voltage	3.3Vdc ±0.3V (40.0MHz : ±0.1V)
Supply current	22mA (22.0MHz : 15mA max.)
Output load (fanout)	15pF
Frequency stability	±25ppm (40.0MHz : ±20ppm)
'0'/'1' levels	0.1V _{DD} max./0.9V _{DD} min.
Rise/fall times (0.1V _{DD} ~ 0.9V _{DD})	5ns max./5ns max.
Duty cycle	45 to 55% (at 1/2V _{DD})
Oper. temp. range	-10°C to +70°C (40.0MHz : 0 to +70°C)

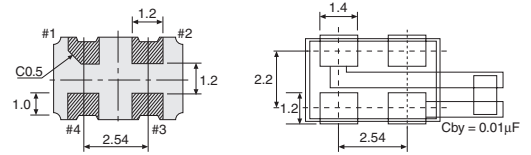
Dimensions (mm)



Connections

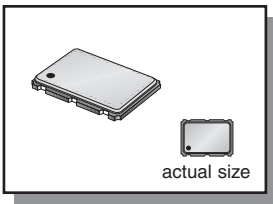
- #1 = Stand-by
- #2 = Ground
- #3 = Output
- #4 = V_{DD}

Pad Pattern



Frequency MHz	Applications	Manf. Part No. & Anglia Order Code
22.0	Wireless LAN	2725TW220
40.0	Wireless LAN	2725TZ400
44.0	Wireless LAN	2725TW440

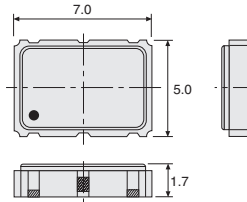
- 2590TA (Optimised for Fibre & Gb Ethernet applications)** ♦ 3.3V supply ♦ CMOS compatible ♦ Tri-state output
 ♦ Low current stand-by ♦ Low jitter, high frequency type ♦ Supplied taped & reeled



Specification

Supply voltage	3.3Vdc ±0.3V
Supply current	45mA max. (10µA max. stand-by)
Output load (fanout)	15pF
Frequency stability	±50ppm
'0'/'1' levels	0.1V _{DD} max./0.9V _{DD} min.
Rise/fall times (0.2V _{DD} ~ 0.8V _{DD})	3ns max./3ns max.
Jitter	3ps
Duty cycle	45 to 55% (at 1/2V _{DD})
Oper. temp. range	0°C to +70°C

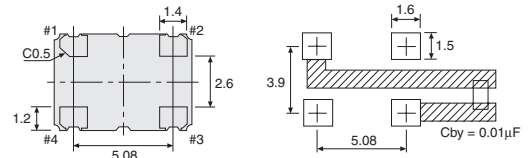
Dimensions (mm)



Connections

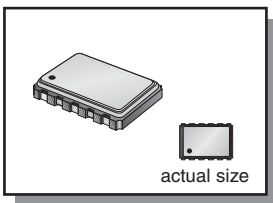
- #1 = Stand-by
- #2 = Ground
- #3 = Output
- #4 = V_{DD}

Pad Pattern



Frequency MHz	Applications	Manf. Part No. & Anglia Order Code
106.25	Fibre Channel	2590TA10625
125.0	Gigabit Ethernet	2590TA1250

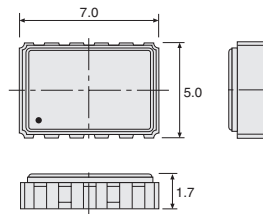
- 7311SX (Optimised for Optical Networks)** ♦ 3.3V supply ♦ PECL output level (tri-state) ♦ Low current stand-by



Specification

Supply voltage	3.3Vdc ±10%
Supply current	60mA max. (30µA max. stand-by)
Output load	50Ω
Output level	PECL (complementary)
Frequency stability	±50ppm
Jitter	3ps
Duty cycle	45 to 55% (at 50% waveform)
Oper. temp. range	0 to +85°C

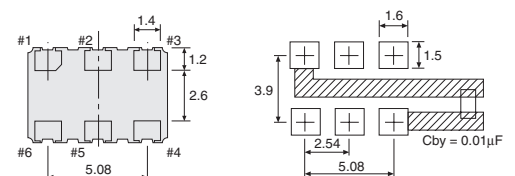
Dimensions (mm)



Connections

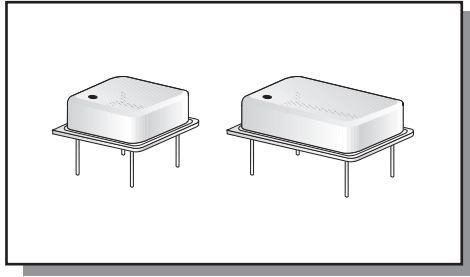
- #1 = Stand-by
- #2 = N.C.
- #3 = Ground
- #4 = Output
- #5 = Output
- #6 = V_{CC}

Pad Pattern



Frequency MHz	Applications	Manf. Part No. & Anglia Order Code
155.52	SONET OC-3 & SDH	7311SX15552
156.25	Ethernet & F.E.C. for SONET OC-3	7311SX15625
161.1328	F.E.C. for SONET OC-3	7311SX1611328

A range of industry standard, CMOS/TTL compatible crystal oscillators housed in low profile, resistance weld metal cases. Termination by 4 corner pins based upon either an 8 pin or 14 pin DIL format. Tables below list a selection of the most popular frequencies.



- ◆ Industry standard
- ◆ **5V supply**
- ◆ CMOS/TTL compatible
- ◆ Low profile metal cases
- ◆ Choice of **8 pin** or **14 pin DIL format**
- ◆ Stand-by option on 14 pin



Specification

Supply voltage	5.0Vdc ±10%
Supply current	20mA (≤20MHz), 40mA (≥24MHz)
Output load (fanout).....	10 TTL or 15pF
Frequency stability.....	±100ppm
'0' level	+0.5V max. (10% V _{DD})
'1' level	+4.5V min. (90% V _{DD})
Rise time	10ns
Fall time	6ns
Duty cycle	45 to 55% (≤40MHz), 40 to 60% (≥50MHz)
Oper. temp. range	0°C to +70°C

HUDSON

Also available to special order :

- Other frequencies
- Please contact our Sales Desk for details.

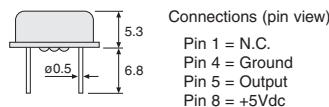
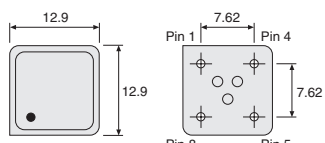
8 PIN DIL FORMAT

Frequency MHz	Anglia Order Code
1.8432	608002
2.4576	608004
3.579545	608007
3.6864	608008
4.0	608009
4.433619	608032
4.9152	608029
5.0	608013
6.0	608011
8.0	608015
8.192	608067
10.0	608017
12.0	608019
12.288	608020
14.31818	608063
16.0	608022
16.384	608077
20.0	608025
24.0	608027
24.576	608131
32.0	608039
40.0	608065
50.0	608066
64.0	608064

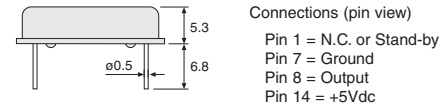
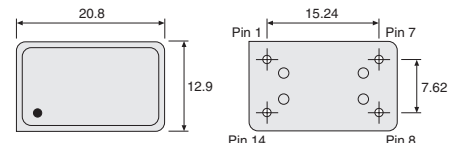
14 PIN DIL FORMAT

Frequency MHz	Anglia Order Code	
	Standard	With Stand-by
1.8432	610002	611002
2.4576	610004	611004
3.579545	610007	611007
3.6864	610008	611008
4.0	610009	611009
4.433619	610032	611032
4.9152	610029	611029
5.0	610013	611013
6.0	610011	611011
8.0	610015	611015
8.192	610067	611067
10.0	610017	611017
12.0	610019	611019
12.288	610020	611020
14.31818	610063	611063
16.0	610022	611022
16.384	610077	611077
20.0	610025	611025
24.0	610027	611027
24.576	610131	611131
32.0	610039	611039
40.0	610065	611065
50.0	610066	611066
64.0	610064	611064

Dimensions (mm)



Dimensions (mm)



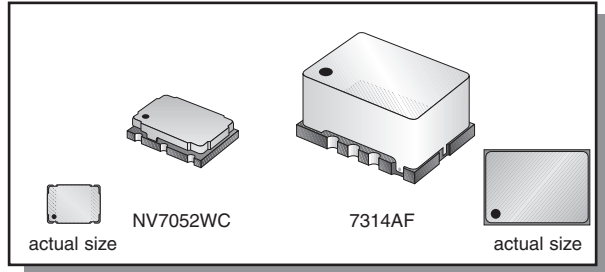
NDK type NV7052WC & 7314AF

VOLTAGE CONTROLLED

Two ranges of voltage controlled crystal oscillators housed in 6 terminal surface mount packages. Operating from a 3.3Vdc supply they will directly drive CMOS.

SMD

NEW



- ◆ VCXO, voltage controlled crystal oscillators
- ◆ 3.3V supply, CMOS compatible
- ◆ Choice of two ranges
- ◆ NV7052WC offers small size & low profile
- ◆ 7314AF offers enhanced stability & AFC
- ◆ Stand-by function provided

NV7052WC

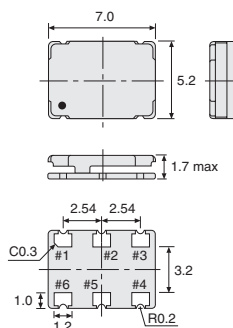
Specification

Supply voltage	3.3Vdc ±5%
Supply current	20mA max.
Output load	15pF
Frequency stability	±50ppm
AFC characteristic	±50ppm/+1.65 ±1.65V
Polarity	Positive
Duty cycle (1/2V _{DD})	45 to 55%
Oper. temp. range	0 to +70°C

Nom. Freq. MHz	Applications	Manf. Part No. & Anglia Order Code
8.192	Telecom	NV7052WC082
16.384	Telecom & xDSL	NV7052WC163
19.44	SONET	NV7052WC194
32.768	Telecom	NV7052WC327
35.328	Telecom, ADSL & xDSL	NV7052WC353
38.88	SONET & SDH	NV7052WC388

The table above lists a selection of standard frequencies available. For details of other frequencies, please contact our Sales Desk.

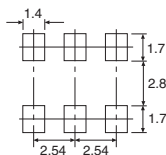
Dimensions (mm)



Connections

- #1 = V.C.
- #2 = Stand-by
- #3 = Ground
- #4 = Output
- #5 = N.C.
- #6 = +DC

Pad Pattern



7314AF

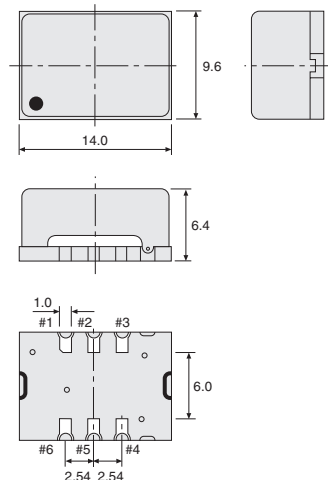
Specification

Supply voltage	3.3Vdc ±5%
Supply current	20mA max.
Output load	15pF
Frequency stability	±40ppm
AFC characteristic	±70ppm/+1.65 ±1.5V
Polarity	Positive
Duty cycle (1/2V _{DD})	45 to 55% (19.44MHz & below) 40 to 60% (32.768MHz & above)
Oper. temp. range	-10°C to +70°C

Nom. Freq. MHz	Applications	Manf. Part No. & Anglia Order Code
16.384	Telecom & xDSL	7314AF163
19.44	SONET	7314AF194
32.768	Telecom	7314AF327
38.88	SONET & SDH	7314AF388

The table above lists a selection of standard frequencies available. For details of other frequencies, please contact our Sales Desk.

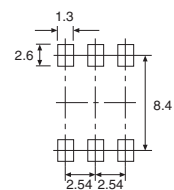
Dimensions (mm)



Connections

- #1 = V.C.
- #2 = Stand-by
- #3 = Ground
- #4 = Output
- #5 = N.C.
- #6 = +DC

Pad Pattern



Also available to special order – 5V supply versions compatible with CMOS & TTL



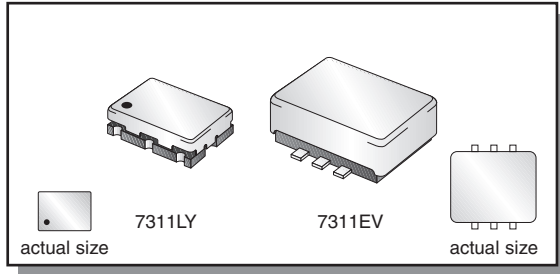
NDK type 7311LY & 7311EV

VOLTAGE CONTROLLED

Two ranges of application specific, voltage controlled crystal oscillators housed in 6 terminal surface mount packages.

SMD

NEW



- ◆ VCXO, voltage controlled crystal oscillators
- ◆ 3.3V supply
- ◆ High frequency
- ◆ Optimised for Optical Networks
- ◆ Maxim chipset compatible

7311LY (Optical Networks)

Specification

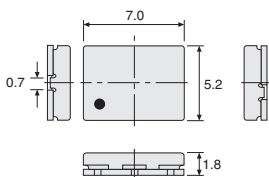
Supply voltage	3.3Vdc ±5%
Supply current	60mA max.
Output load	50Ω
Frequency stability	±50ppm
Output level	PECL (complementary)
AFC characteristic	±100ppm/+1.65 ±1.65V
Polarity	Positive
Duty cycle	40 to 60%
Oper. temp. range	0 to +70°C

Nom. Freq. MHz	Applications	Manf. Part No. & Anglia Order Code
155.52*	SONET OC-3	7311LY15552
156.25	Ethernet & F.E.C. for SONET OC-3	7311LY15625

The table above lists a selection of standard frequencies available. For details of other frequencies, please contact our Sales Desk.

* Compatible frequency with MAX3892/3882/3670

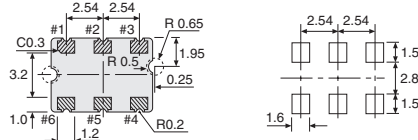
Dimensions (mm)



Connections

- #1 = V.C.
- #2 = N.C.
- #3 = Ground
- #4 = Output
- #5 = Output
- #6 = VCC

Pad Pattern



7311EV (Optical Networks)

Specification

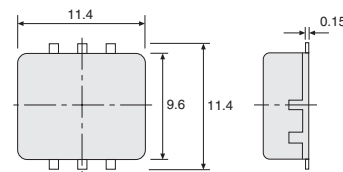
Supply voltage	3.3Vdc ±5%
Supply current	100mA max.
Output load	50Ω
Frequency stability	±50ppm
Output level	PECL (complementary)
AFC characteristic	±100ppm/+1.65 ±1.5V
Polarity	Positive
Duty cycle	40 to 60%
Oper. temp. range	-10°C to +70°C

Nom. Freq. MHz	Applications	Manf. Part No. & Anglia Order Code
622.08*	Ethernet & SONET OC-12	7311EV62208
669.3266	F.E.C. for SONET OC-12	7311EV6693266

The table above lists a selection of standard frequencies available. For details of other frequencies, please contact our Sales Desk.

* Compatible frequency with MAX3892/3882/3670

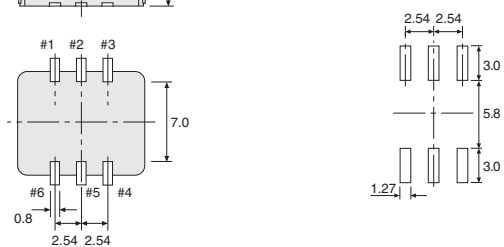
Dimensions (mm)



Connections

- #1 = V.C.
- #2 = N.C.
- #3 = Ground
- #4 = Output
- #5 = Output
- #6 = +DC

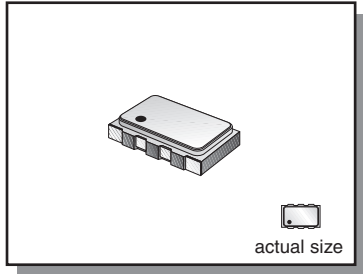
Pad Pattern



NDK type NT5032SC

TEMPERATURE COMPENSATED

Temperature compensated crystal oscillators housed in a 4 terminal surface mount package. Offer a high level of frequency stability (2.5ppm) over the temperature range -30°C to +75°C. Supplied taped and reeled.

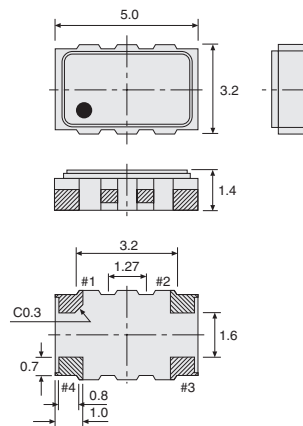


- ◆ TCXO, temperature compensated crystal oscillators
- ◆ 3V supply
- ◆ High frequency stability (2.5ppm)
- ◆ Optimised for telecom applications
- ◆ Supplied taped & reeled

Specification

Supply voltage	3Vdc
Supply current	1.5mA max.
Output load	10kΩ/10pF
Output voltage	0.8Vp-p min.
Frequency stability	±2.5ppm over -30 to +75°C
Supply voltage change	±0.3ppm max./+3V ±5%
Aging	±1ppm max./year
AFC characteristic	±9ppm ~ ±15ppm/+1.5 ±1V

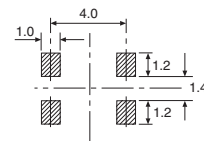
Dimensions (mm)



Connections

- #1 = V.C.
- #2 = Ground
- #3 = Output
- #4 = +DC

Pad Pattern



Frequency MHz	Applications	Manf. Part No. & Anglia Order Code
12.8	Telecom	NT5032SC128
13.0	GSM	NT5032SC130
26.0	GSM	NT5032SC260

The table above lists the standard frequencies available.
For details of other frequencies, please contact the Sales Desk.



FREQUENCY PRODUCTS

This Product Guide shows only a limited selection of the most preferred series of NDK frequency products.
For details of the full NDK range available through Anglia, which includes crystal filters and SAW devices, visit our website :

www.angliac.com/NDK

Alternatively, please contact our Sales Desk with your requirements.