

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Specification of Quartz Crystal Controlled Oscillators



1 NDK Part Number NT2016SA-16.368000 MHz-NTG1

2 Chipset Maker TEXAS INSTRUMENTS
3 Application GPS on mobile phone

4 Chipset Name NL5350
5 NDK Specification Number NSA0345B
6 Type NT2016SA

7 Rating

7.1 Nominal Frequency (f_{nom}) 16.368 MHz (3 digits marking without the decimal point: 163)

7.2 Supply Voltage +2.5 V +/-0.1 V DC (-Earth)

7.3 Current Consumption Max. 1.5 mA

7.4 Output Voltage Min. $0.8 V_{p-p}$ Clipped sine wave (DC-Coupling)

7.5 Operable Temperature Range -30 to +85 °C 7.6 Storage Temperature Range -40 to +85 °C 7.7 Load impedance 10 k Ω // 10 pF

7.8 DC-cut Capacitor DC-cut capacitor of output is not put in TCXO.

Please add DC-cut capacitor (1000 pF) in output line.

8 Electrical specification

8.1 Frequency Stability

8.1.1 Frequency / Temperature characteristics Max. +/-0.5 ppm / -10 to +70 $^{\circ}$ C

Max. +/-1.5 ppm / -30 to -10°C, +70 to +85°C

(Based on frequency at +25 +/-2 °C)

8.1.2 Frequency temperature slope Max. +/-0.05 ppm/°C / -10 to +70°C

Max. +/-0.1 ppm/°C / -30 to -10°C, +70 to +85°C (Minimum of one measurement every 2 °C)

8.1.3 Frequency / Voltage coefficient Max. +/-0.1 ppm / +2.5 V +/-0.1 V

8.1.4 Frequency / Load coefficient Max. +/-0.2 ppm / $(10 k\Omega // 10 pF)$ +/-10%

8.1.5 Frequency tolerance Max. +/-2.0 ppm

(at +25 +/-2 °C, after 2times reflow soldering, based on nominal frequency)

8.1.6 Long-term Frequency Stability
8.2 Short-term frequency stability
Max. +/-1.0 ppm / year
Max. 1.0 ppb (Tau=0.1s)

8.3 Start-up time Max. 2.0 ms (to 90% of output amplitude)
8.4 Stabilization Time Max. 2.0 ms (Within +/-0.5ppm of final frequency)

8.5 Harmonic distortion Max. -5.0 dBc 8.6 Symmetry 40 to 60 %

8.7 Phase Noise Max. -86 dBc/Hz (at 10 Hz offset)

Max. -112 dBc/Hz (at 100 Hz offset) Max. -134 dBc/Hz (at 1k Hz offset) Max. -148 dBc/Hz (at 10k Hz offset) Max. -150 dBc/Hz (at 100k Hz offset)

9 Dimension of external (Unit: mm)



