Specification of Quartz Crystal Controlled Oscillators

NDK
Crystal Bridge to the Future

1	**NDK Part Number**	NT3225SA-19.2M-DJA3003A
2	**NDK Specification Number**	DJA3003A
3	**Type**	NT3225SA

4   Rating

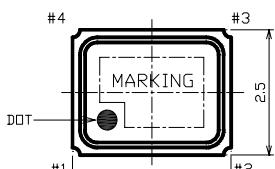| 4.1	Nominal Frequency (f_{nom})	19.2 MHz (3 digits marking without the decimal point: 192)
4.2	Supply Voltage	+2.8 V +/-5% DC (-Earth)
4.3	Current Consumption	Max. 1.5 mA
4.4	Output Voltage	Min. 0.8 V_{p-p} Clipped sine wave (DC-Coupling)
4.5	Operable Temperature Range	-30 to +85 °C
4.6	Storage Temperature Range	-40 to +85 °C
4.7	Load impedance	10 kΩ // 10 pF
4.8	DC-cut Capacitor	DC-cut capacitor of output is not put in TCXO. Please add DC-cut capacitor (1000 pF) in output line.

5   Electrical specification

5.1   Frequency Stability

5.1.1	Frequency / Temperature Characteristics	Max. +/-2.0 ppm / -30 to +85 °C (Based on frequency at +25 +/-2 °C)
5.1.2	Frequency / Voltage Coefficient	Max. +/-0.3 ppm / +2.8 V +/-5%
5.1.3	Frequency / Load Coefficient	Max. +/-0.2 ppm / (10 kΩ // 10 pF) +/-10%
5.1.4	Frequency Tolerance at Control Voltage (V_{cont} = +1.4 V DC)	Max. +/-1.5 ppm (at +25 +/-2 °C, before reflow soldering, based on nominal frequency) Max. +/-2.5 ppm (at +25 +/-2 °C, after reflow soldering, based on nominal frequency)
5.1.5	Long-term Frequency Stability	Max. +/-0.5 ppm / year

5.2   External Adjustment

5.2.1	Control Voltage (V_{cont})	+1.4 V +/-1.0 V DC
5.2.2	Frequency control range based on frequency at V_{cont} = +1.4 V DC	+/-4.5 to +/-7.5 ppm
5.2.3	Frequency Change Polarity	Positive
5.2.4	Input Impedance	Min. 500 kΩ
5.3	Start-up Time	Max. 3.0 ms (More than 90 % of final output voltage)
5.4	Stabilization Time	Max. 3.0 ms (Less than +/-1.0 ppm of steady state frequency)
5.5	Symmetry	40 to 60 %
5.6	Harmonic Distortion	Max. -5 dBc
5.7	Phase Noise	Typ. -117 dBc/Hz (@ 100 Hz offset) Typ. -139 dBc/Hz (@ 1 kHz offset)
5.8	Dynamic Behavior	0.3 ppm/°C

6   Dimension

(Unit: mm)

PAD No.	Connection
#1	V_{CONT}
#2	GND
#3	OUTPUT
#4	V_{CC}