1. Device Name VC-TCXO
2. Device Summary
 2.1. Structure Single packaged SMD-VCXO with ceramic package
 2.2. Dimensions 3.2mm (L) x 2.5mm (W) x 1.0mm max.(H)
 2.3. Mass 0.025g typ. (0.03g max.)
 2.4. Moisture Sensitivity Level (MSL)
 MSL=1 (No dry pack required) Refer to IPC/JEDEC J-STD-033
 2.5. ESD Level Classification: CLASS 1C
3. Model Name DSA321SCL
4. Nominal Frequency 19.200 MHz
5. Absolute Maximum Ratings

	Item	Symbol	Rating	unit
1	Supply Voltage	V_{CC}	-0.3 ~ +4.6	V
2	Storage Temperature Range	$T_{_STG}$	-40 ~ +85	°C

6. Recommended Operating Conditions

	Item	Symbol	min.	typ.	max.	unit
1	Supply Voltage	V_{CC}	+2.66	+2.8	+2.94	V
2	Load Impedance (resistance part)	$L_{OAD_}R$	-	10	-	kΩ
	(parallel capacitance)	$L_{OAD_}C$	-	10	40	pF
3	Control Voltage Range	V_{CONT}	+0.4	+1.4	+2.4	V
4	Operable Temperature Range	$T_{_OPR}$	-30	-	+85	°C

7. Electrical Characteristics

(T_A=-30 ~ +85°C, L_{OAD}_R//C=10kΩ//10pF, V_{CC}=+2.8V, V_{CONT}=+1.4V unless otherwise noted)

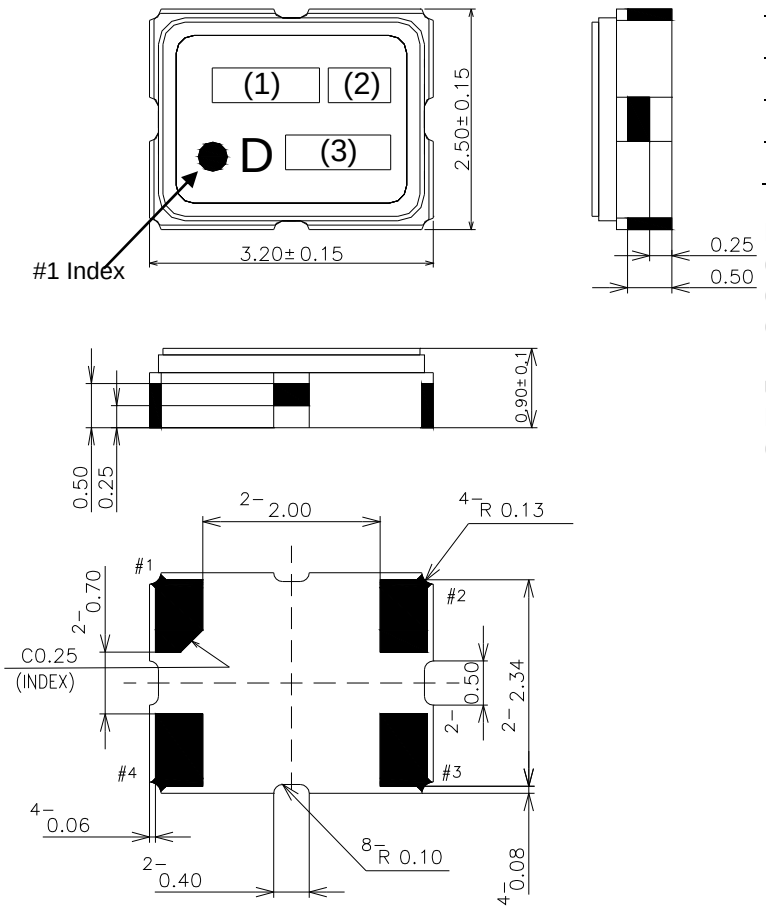
	Item	Conditions	Limits			unit	Notes
			min.	typ	max.		
1	Current Consumption		+0.7	-	+1.3	mA	
2	Output Level		+0.8	-	+1.4	V_{P-P}	1
3	Symmetry	GND level(DC cut)	40	-	60	%	
4	Harmonics	2nd Harmonics	-	-	-15	dBc	
		Other Harmonics	-	-	-12	dBc	
5	Frequency Stability 1.Tolerance	At Shipping Ref. to Nominal Frequency	-1.0	-	+1.0	ppm	
		After 2 times reflow Ref. to Nominal Frequency	-2.0	-	+2.0	ppm	2
	2.vs Temperature	T_A=-30 ~ +85°C Ref. to Frequency(T_A=+25°C)	-2.0	-	+2.0	ppm	CTQ 3
	3.Frequency Stability Slope	T_A=-10 ~ +60°C	-0.15	-	+0.15	ppm/°C	
		T_A=-30 ~ -10°C T_A=+60 ~ +85°C	-0.3	-	+0.3		
	4.vs Supply Voltage	V_{CC}=+2.8V±0.14V	-0.2	-	+0.2	ppm	
	5.vs Load Variation	L_{OAD}_R//C=10kΩ//(10pF+300%)	-5	-	+5	Hz	
	6.vs Aging	T_A=Room ambient	-1.0	-	+1.0	ppm/year	
6	Start Up Time	@90% of final Vout level	-	-	3.0	ms	
		Within ±0.5ppm of final frequency	-	-	3.0	ms	
7	Frequency Control 1.Control Range	V_{CONT}=+0.4V(Ref:+1.4V)	-12	-	-7.8	ppm	4
		V_{CONT}=+2.4V(Ref:+1.4V)	+7.8	-	+12	ppm	4
	2.Input Resistance		500	-	-	kΩ	
8	SSB Phase Noise	Relative to F0 level offset 10Hz	-	-	-86	dBc/Hz	
		Relative to F0 level offset 100Hz	-	-	-110	dBc/Hz	
		Relative to F0 level offset 1kHz	-	-	-130	dBc/Hz	
		Relative to F0 level offset 10kHz	-	-	-144	dBc/Hz	
		Relative to F0 level offset 100kHz	-	-	-144	dBc/Hz	
9	Root Allan Variance	Tau=1s	-	-	0.5	ppb	

Notes

1. Clipped sine wave (DC-coupled)
2. Please leave after reflow in 2-hour or more at room ambient.
3. CTQ: This item is an important item which can detect an abnormal performance of the quartz crystal.
4. Positive slope (Frequency becomes high in proportion to frequency control voltage.)

8. Outline, Pin Connections

Outline



Pin Connections

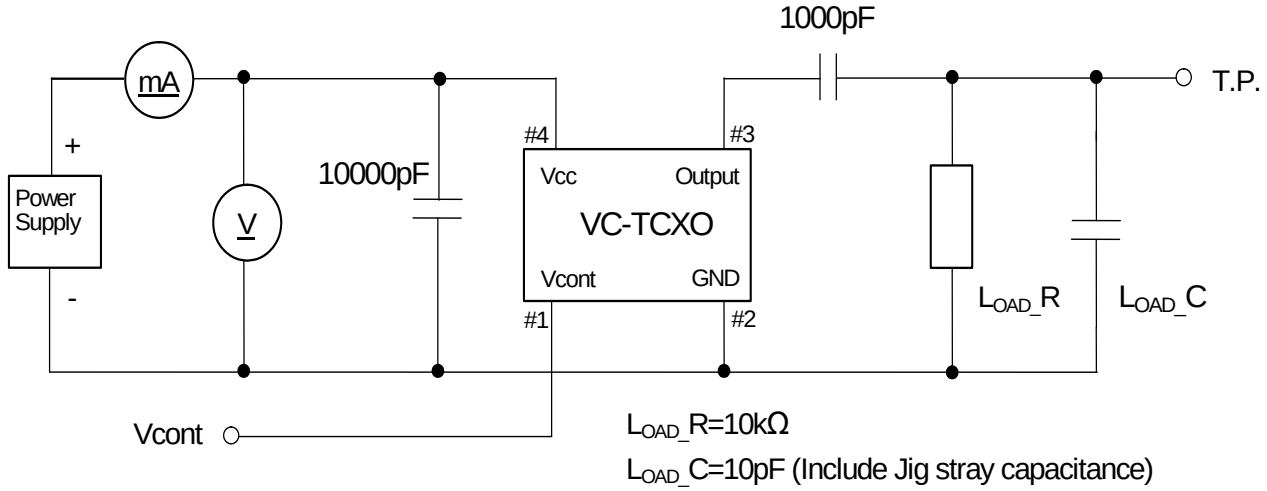
Pin No.	Connection
#1	V_{CONT}
#2	GND
#3	Output
#4	V_{CC}

Marking

(1) Frequency	19.20 (MHz, 4digits)
(2) Model code	Y
(3) Date code	Year (1digit) + Week (2digits) e.g. 2017/1/1 → 701

unit: mm
Dimensional Tolerance: ±0.15
(Unless otherwise noted)

9. Measurement Circuit



L_{OAD}_R=10kΩ

L_{OAD}_C=10pF (Include Jig stray capacitance)

TITLE	Remark		
VC-TCXO SPECIFICATION	T17-0033		
Date	Spec. No.	Rev.	Page
2017/01/20	1XTV19200FGA	-	3/3