1. Device Name VC-TCXO
2. Model Name DSA221SJ
3. Nominal Frequency 38.400 MHz
4. Mass 0.02g max

5. Absolute Maximum Ratings

	Item	Symbol	Rating	unit
1	Supply Voltage	V_{CC}	-0.6~+6.0	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}	+2.85	+3.0	+3.15	V
2	Output Load	$L_{_CMOS}$	-	15	-	pF
3	Control Voltage Range	V_{CONT}	+0.5	+1.5	+2.5	V
4	Operable Temperature Range	$T_{_OPR}$	-30	-	+85	°C

7. Electrical Characteristics

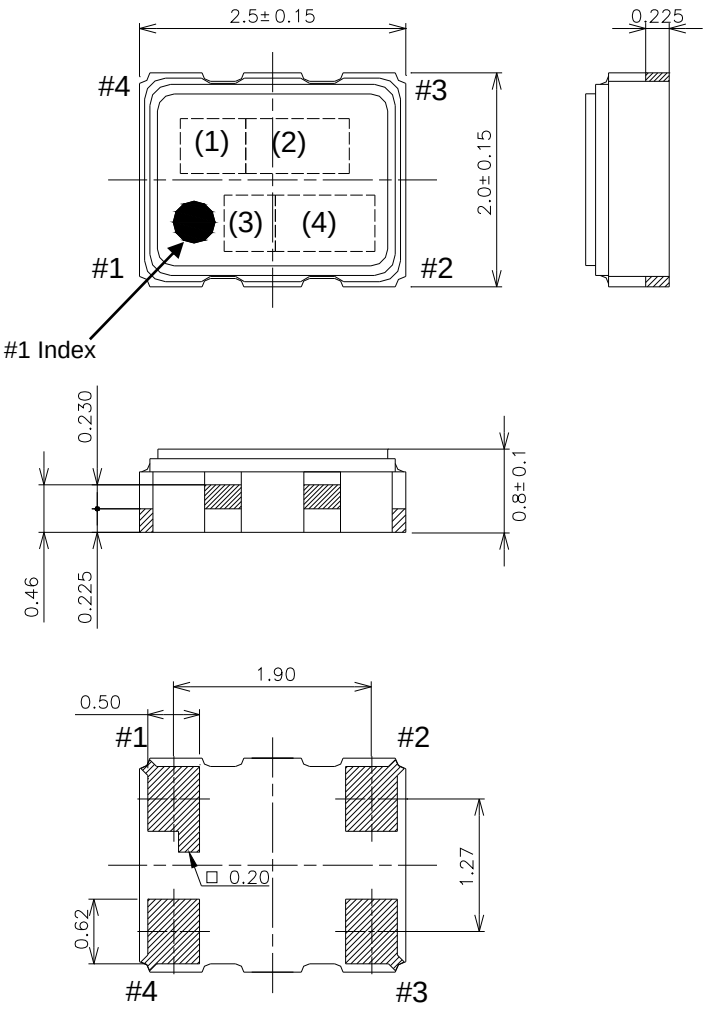
T_A=-30~+85°C, V_{CC}=+3.0V, V_{CONT}=+1.5V, $L_{_CMOS}$=15pF unless otherwise noted

	Item	Condition	Limits			unit	Notes
			min.	typ.	max.		
1	Current Consumption		-	-	6.0	mA	
2	Output Characteristics						
	1. Rise Time	V_{CC}x0.1~V_{CC}x0.9	-	-	10	ns	
	2. Fall Time	V_{CC}x0.1~V_{CC}x0.9	-	-	10	ns	
	3. 0 Level		-	-	V_{CC}x0.1	V	
	4. 1 Level		V_{CC}x0.9	-	-	V	
	5. Symmetry	V_{CC}x0.5 Level	40	50	60	%	
3	Frequency Stability						
	1. Tolerance	After 2 times reflow Ref. to nominal frequency	-	-	±1.5	ppm	1,2
	2. vs Temperature	T_A=-30~+85°C Ref. to Frequency(T_A=+25°C)	-	-	±2.5	ppm	
	3. vs Supply Voltage	V_{CC}=+3.0V±5%	-	-	±0.3	ppm	
	4. vs Load Variation	$L_{_CMOS}$=15pF±10%	-	-	±0.2	ppm	
	5. vs Aging	T_A= Room ambient	-	-	±1.0	ppm/year	
4	Start Up Time	Within ±0.5ppm of final frequency	-	-	2.0	ms	
5	Frequency Control						
	1.Control Range	V_{CONT}=+1.5V±1.0V	±9	-	±15	ppm	3
	2.Input Resistance		500	-	-	kΩ	
6	SSB Phase Noise	Relative to F0 level offset 1kHz	-	-	-125	dBc/Hz	

Notes
1. T_A=+25°C
2. Please leave after reflow in 2h or more at room ambient.
3. 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

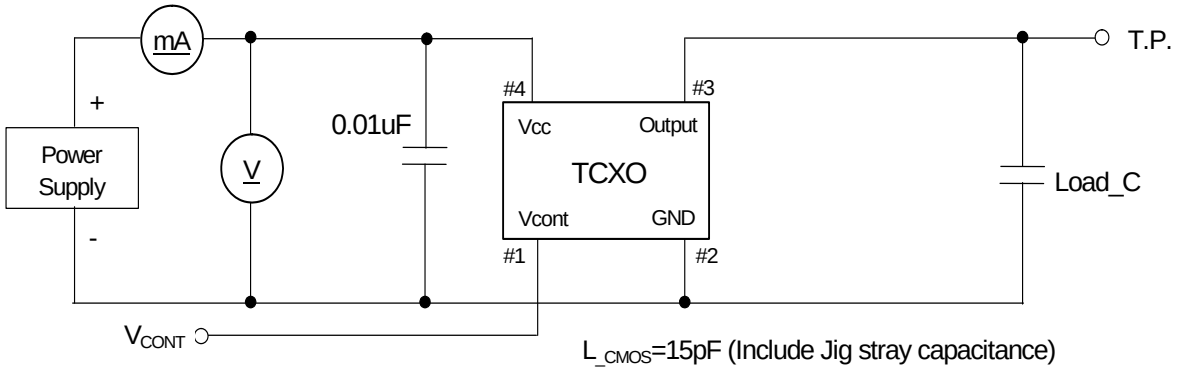
(1) Model code	M
(2) Frequency	38.4(MHz, 3digits)
(3) Logo	D
(4) Date code	Year(1digit)+Week(2digits)
	e.g. 2017/1/1 → 701

unit : mm

Dimensional Tolerance: ±0.15

(Unless otherwise noted)

9. Measurement Circuit



TITLE	Remark		
DSA221SJ TYPE SPECIFICATION			
Date	Spec. No.	Rev.	Page
2017/03/15	ZC11922	-	2/2