

1. Device Name VC-TCXO
2. Model Name DSA535SA
3. Nominal Frequency 13.000 MHz
4. Mass 0.08g max.
5. Absolute Maximum Ratings

	Item	Symbol	Rating	unit
1	Supply Voltage	V <sub>CC</sub>	-0.3 ~ +6.0	V
2	Storage Temperature Range	T <sub>STG</sub>	-40 ~ +85	°C

6. Recommended Operating Conditions

	Item	Symbol	min.	typ.	max.	unit
1	Supply Voltage	V <sub>CC</sub>	+2.6	+2.75	+2.9	V
2	Load Impedance (resistance part) (parallel capacitance)	Load_R	9	10	11	kΩ
		Load_C	9	10	11	pF
3	Control Voltage Range	V <sub>CONT</sub>	+0.5	+1.5	+2.5	V
4	Operable Temperature Range	T <sub>OPR</sub>	-30	-	+85	°C

7. Electrical Characteristics

(T<sub>A</sub>=-30 ~ +85 °C, Load=10kΩ//10pF, V<sub>CC</sub>=+2.75V, V<sub>CONT</sub>=+1.5V unless otherwise noted)

	Item	Conditions	Limits			unit	Notes
			min.	typ.	max.		
1	Current consumption		-	-	1.3	mA	
2	Output Level		0.8	-	-	V <sub>P-P</sub>	1
3	Symmetry	GND level(DC cut)	40/60	-	60/40	%	
4	Harmonics		-	-	-8	dBc	
5	Frequency Stability						
	1.Tolerance	After 2 times reflow	-	-	±1.5	ppm	2,3
	2.vs Temperature	T <sub>A</sub> =-30 ~ +85 °C Ref. to Frequency(T <sub>A</sub> =+25°C)	-	-	±2.5	ppm	
	3.vs Supply Voltage	V <sub>CC</sub> =+2.75V±015V	-	-	±0.2	ppm	
	4.vs Load Variation	Load=(10kΩ//10pF)±10%	-	-	±0.2	ppm	
	5.vs Aging	T <sub>A</sub> =Room ambient	-	-	±1.0	ppm/year	
6	Start up	@90% of final Vout level	-	-	2.0	ms	
7	Frequency Control						
	1.Control Range	V <sub>CONT</sub> =+0.5V ~ +2.5V(Ref:+1.5V)	±9	-	±15	ppm	4
	2.Input Resistance		500	-	-	kΩ	
8	SSB Phase Noise	Relative to F0 level offset 1kHz			-130	dBc/Hz	

Notes

1. Clipped sine wave (DC-coupled)
2. Ref. to Nominal Frequency
3. Please leave after reflow in 2-hour or more at room ambient.
4. Positive slope (Frequency becomes high in proportion to frequency control voltage.)

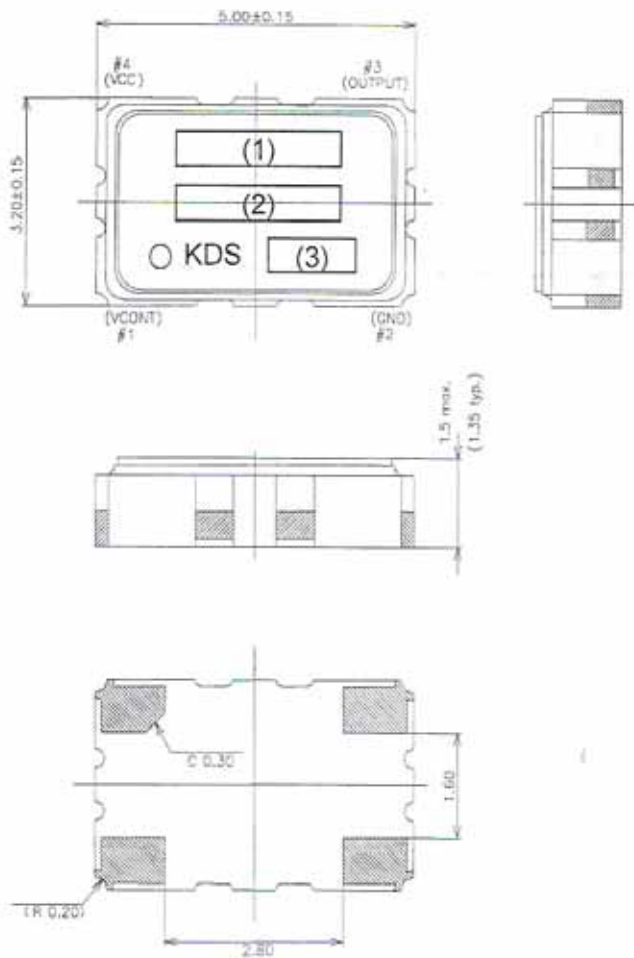
Others

RoHS Compliance

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## 8. Outline, Pin Connections

### Outline



### Pin Connections

Pin No.	Connection
#1	Vcont
#2	GND
#3	OUTPUT
#4	Vcc

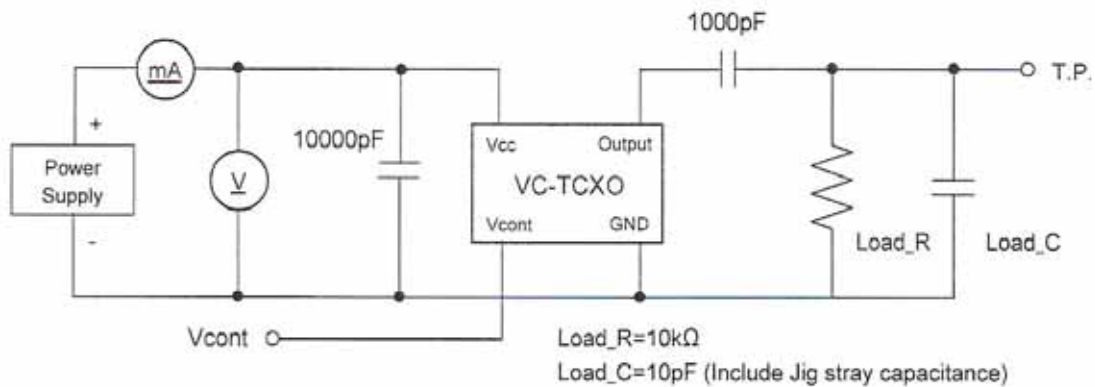
### Marking

- (1) Frequency 13000(kHz, 5digits)  
 (2) Model code A535SA  
 (3)EIA Date code Year(1digit)+Week(2digits)  
 e.g. 2009/1/1 → 901

unit: mm

Dimensional Tolerance:±0.15  
 (Unless otherwise noted)

## 9. Measurement Circuit



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VC-TCXO SPECIFICATION

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