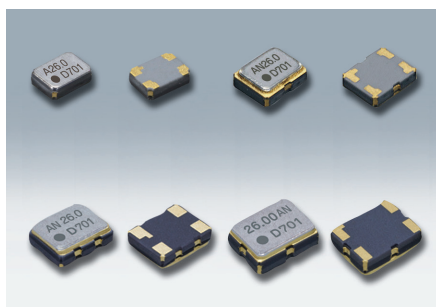


# High-precision SMD VC-TCXO/TCXO (For Automotive)

DSA1612SDN/DSA211SDN/DSA221SDN/DSA321SDN, DSB1612SDN/DSB211SDN/DSB221SDN/DSB321SDN



Actual size DSA1612SDN DSA211SDN   
DSA221SDN DSA321SDN

## ■ Features

- Low voltage operation
- Low phase noise
- Single packaged structure
- AEC-Q200 Compliant (Option: Equivalent to AEC-Q100)

## ■ Applications

- Telematics, Satellite radio



[Type]

VC-TCXO	TCXO	Size
DSA1612SDN	DSB1612SDN	1612 size
DSA211SDN	DSB211SDN	2016 size
DSA221SDN	DSB221SDN	2520 size
DSA321SDN	DSB321SDN	3225 size

## ■ Standard Specification

Item	Type	VC-TCXO				TCXO				
		DSA1612SDN	DSA211SDN	DSA221SDN	DSA321SDN	DSB1612SDN	DSB211SDN	DSB221SDN	DSB321SDN	
Frequency Range		16 to 60MHz	12.288 to 52MHz	9.6 to 52MHz		16 to 60MHz	12.288 to 52MHz	9.6 to 52MHz		
Standard Frequency		19.2MHz/26MHz/38.4MHz/40MHz/52MHz				16.3676MHz/16.367667MHz/16.368MHz/16.369MHz/16.8MHz/26MHz/33.6MHz				
Supply Voltage Range		+1.68 to +3.5V								
Supply Voltage (Vcc)		+1.8V/+2.6V/+2.8V/+3.0V/+3.3V								
Current Consumption		+1.5mA max. (f≤26MHz)/+2.0mA max. (26MHz<f≤52MHz)/+2.5mA max. (f≤60MHz)								
Output Level		0.8Vp-p min. (f≤52MHz) (Clipped Sinewave/DC-coupled)								
Output Load		10kΩ//10pF								
Frequency Stability Tolerance		±1.5×10 <sup>-6</sup> max. (After 2 reflows)								
vs. Temperature		±1.0×10 <sup>-6</sup> , ±2.5×10 <sup>-6</sup> max./-40 to +85°C				±0.5×10 <sup>-6</sup> , ±2.5×10 <sup>-6</sup> max./-40 to +85°C				
vs. Supply Voltage		±0.2×10 <sup>-6</sup> max. (Vcc ±5%)								
vs. Load Variation		±0.2×10 <sup>-6</sup> max. (10kΩ//10pF±10%)								
vs. Aging		±1.0×10 <sup>-6</sup> max./year								
Frequency Control Control Sensitivity		±3.0×10 <sup>-6</sup> to ±5.0×10 <sup>-6</sup> /Vcont=+1.4V±1V @Vcc≥+2.6V ±3.0×10 <sup>-6</sup> to ±5.0×10 <sup>-6</sup> /Vcont=+0.9V±0.6V @Vcc=+1.8V				-				
Response Slope		Positive				-				
Start up Time		2.0ms max.								
Phase Noise		[f≤26MHz]				[26MHz<f≤40MHz]				[40MHz<f≤52MHz]
Offset 100Hz		-115dBc/Hz				-110dBc/Hz				-105dBc/Hz
Offset 1kHz		-130dBc/Hz				-130dBc/Hz				-125dBc/Hz
Offset 10kHz		-150dBc/Hz				-150dBc/Hz				-145dBc/Hz
Offset 100kHz		-155dBc/Hz				-155dBc/Hz				-150dBc/Hz
Reliability		AEC-Q100/AEC-Q200								
Packing Unit (1)		DSA1612SDN/DSA211SDN/DSA221SDN, DSB1612SDN/DSB211SDN/DSB221SDN: 3000pcs./reel(φ180) DSA321SDN, DSB321SDN: 2000pcs./reel(φ180)								

(1) Moisture prevention packing is unnecessary.  
Moisture Sensitivity Level: LEVEL 1 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications.

# High-precision SMD VC-TCXO/TCXO (For Automotive)

## For Automotive Applications

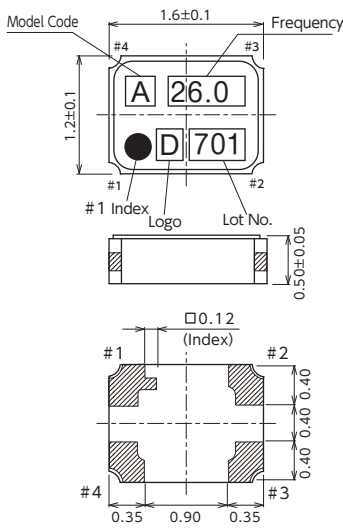
### Dimensions

[mm]

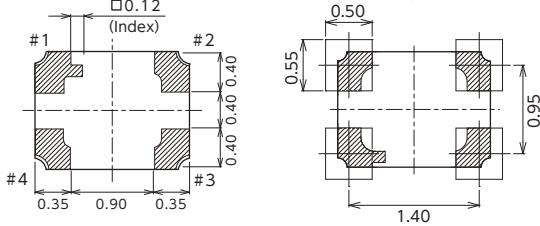
#### ■ DSA1612SDN/DSB1612SDN

Model Code  
A: VC-TCXO (DSA1612SDN)  
B: TCXO (DSB1612SDN)

Pin Connections	
Pin No.	Connection
#1	Vcont(VC-TCXO)/GND(TCXO)
#2	GND
#3	Output
#4	Vcc



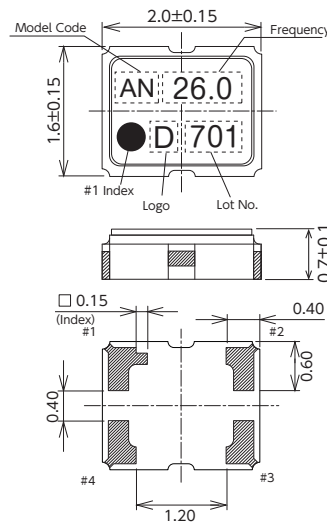
#### ■ Recommended Land Pattern <Top View>



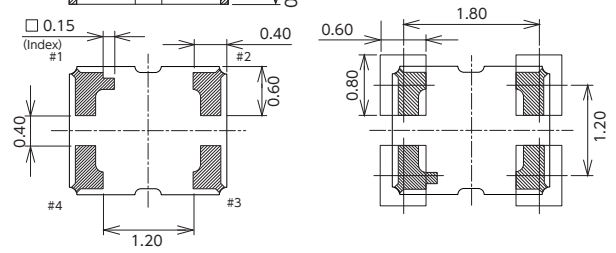
#### ■ DSA211SDN/DSB211SDN

Model Code  
AN: VC-TCXO (DSA211SDN)  
BN: TCXO (DSB211SDN)

Pin Connections	
Pin No.	Connection
#1	Vcont(VC-TCXO)/GND(TCXO)
#2	GND
#3	Output
#4	Vcc



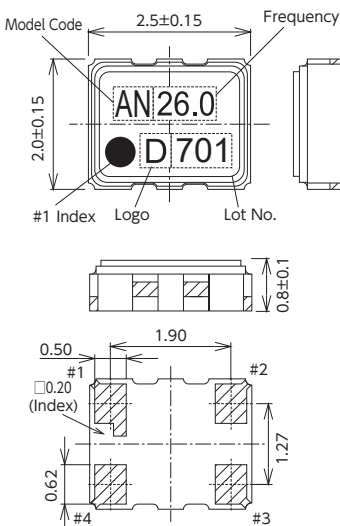
#### ■ Recommended Land Pattern <Top View>



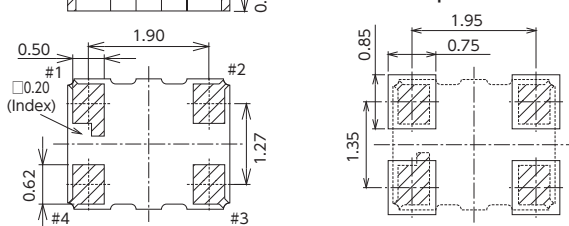
#### ■ DSA221SDN/DSB221SDN

Model Code  
AN: VC-TCXO (DSA221SDN)  
BN: TCXO (DSB221SDN)

Pin Connections	
Pin No.	Connection
#1	Vcont(VC-TCXO)/GND(TCXO)
#2	GND
#3	Output
#4	Vcc



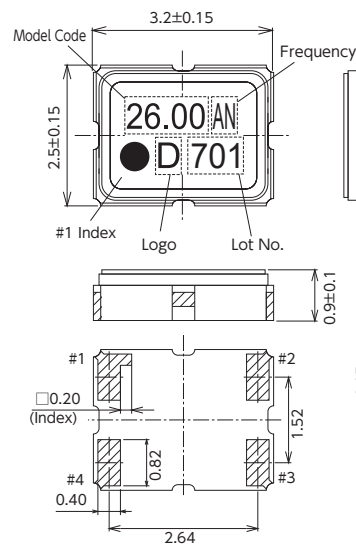
#### ■ Recommended Land Pattern <Top View>



#### ■ DSA321SDN/DSB321SDN

Model Code  
AN: VC-TCXO (DSA321SDN)  
BN: TCXO (DSB321SDN)

Pin Connections	
Pin No.	Connection
#1	Vcont(VC-TCXO)/GND(TCXO)
#2	GND
#3	Output
#4	Vcc



#### ■ Recommended Land Pattern <Top View>

