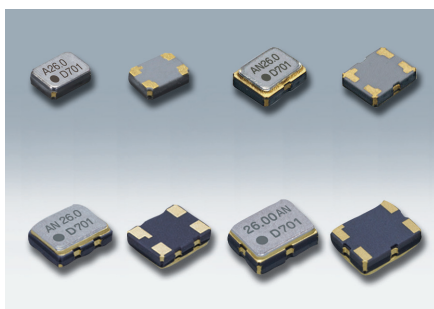


# High-precision SMD VC-TCXO/TCXO

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



Actual size DSA1612SDN □ DSA211SDN □  
DSA221SDN □ DSA321SDN □

## Features

- Low voltage operation
- Low phase noise
- Single package structure

## Applications

- Mobile phones
- GPS/GNSS and Industrial radio communications



[Type]

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

## Standard Specification

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. (26<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./-30 to +85°C ±1.0×10 <sup>-6</sup> , ±2.5×10 <sup>-6</sup> max./-40 to +85°C (Option)				±0.5×10 <sup>-6</sup> , ±2.5×10 <sup>-6</sup> max./-30 to +85°C ±0.5×10 <sup>-6</sup> , ±2.5×10 <sup>-6</sup> max./-40 to +85°C (Option)			
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			
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 Mobile communications/Industrial system/GPS/GNSS

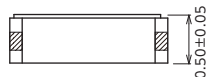
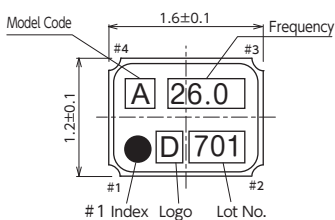
## ■ Dimensions

[mm]

### ■ DSA1612SDN/DSB1612SDN

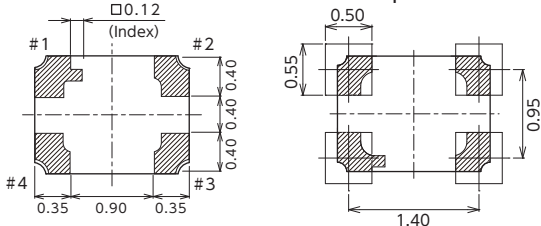
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A: VC-TCXO (DSA1612SDN)  
B: TCXO (DSB1612SDN)

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



#### ■ Recommended Land Pattern

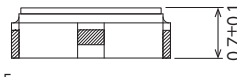
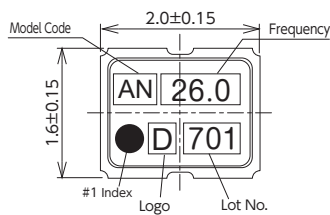
<Top View>



### ■ DSA211SDN/DSB211SDN

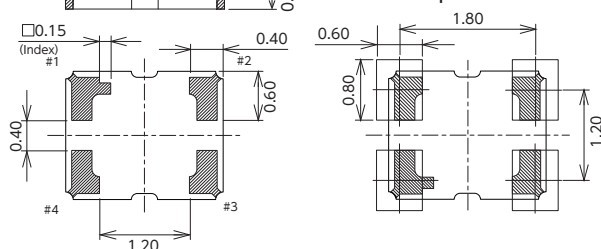
Model Code  
AN : VC-TCXO (DSA211SDN)  
BN : TCXO (DSB211SDN)

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



#### ■ Recommended Land Pattern

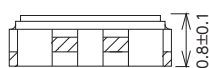
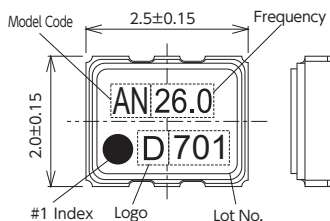
<Top View>



### ■ DSA221SDN/DSB221SDN

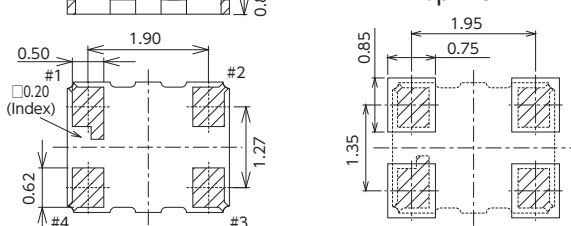
Model Code  
AN : VC-TCXO (DSA221SDN)  
BN : TCXO (DSB221SDN)

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



#### ■ Recommended Land Pattern

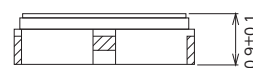
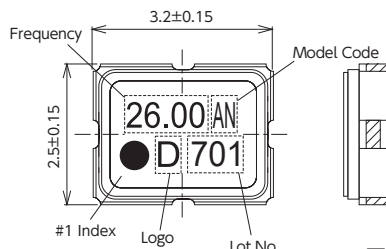
<Top View>



### ■ 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>

