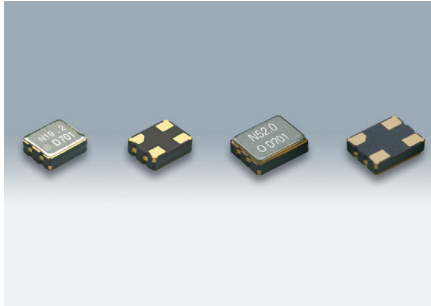


SMD Crystal Oscillators

DSO221SN/DSO321SN



Actual size DSO221SN DSO321SN

■ Features

- Supply Voltage: 0.9V/1.2V/1.3V/1.5V
- Available frequency range : 12.5 to 100MHz
- Low profile: 0.815mm (DSO221SN), 1.1mm (DSO321SN)

■ Applications

- PC, Memory module, USB
- DSC, DVC
- WiMAX, Bluetooth, Wireless-LAN
- Mobile phones, Silicon audio player



[Function Code]

DSO****N E A

E : 1.5V
F : 1.3V
H : 1.2V
G : 0.9V

A : $\pm 100 \times 10^{-6}$
B : $\pm 50 \times 10^{-6}$
C : $\pm 30 \times 10^{-6}$
D : $\pm 25 \times 10^{-6}$
E : $\pm 20 \times 10^{-6}$

[Type]	DSO221SN	2520 size
	DSO321SN	3225 size

■ Standard Specification

When requesting the product, please select the model and function code of your request.

Item	Function Code		Output Frequency Range (MHz)	Legend	Spec.				Condition					
	Supply Voltage	Frequency tolerance			min.	typ.	max.	Unit						
Supply Voltage	E F H G	*	12.5≤f ₀ ≤100	V _{CC}	+1.4 +1.2 +1.1 +0.8	+1.5 +1.3 +1.2 +0.9	+1.6 +1.4 +1.3 +1.0	V						
Frequency Tolerance (Includes frequency tolerance at room temperature.)	*				A	-100	-				+100	×10 ⁻⁶	-40 to +85°C	- 10 to +70°C (Standard Operating Temperature Range)
					B	-50	-				+50			
					C	-30	-				+30			
		D	-25	-	+25									
Current Consumption	E, F, H G	*	12.5≤f ₀ ≤50 50<f ₀ ≤100 12.5≤f ₀ ≤50 50<f ₀ ≤100	I _{CC}	-	-	2.0 6.8	mA	No Load					
					-	-	1.2 3.2				mA			
					-	-								
					Stand-by Current (#1 pin "L" Level)	*	*				*	I _{std}	-	-
Load Condition	*	*	*	L _{CMOS}	-	-	15	pF						
Symmetry	*	*	*	SYM	45	50	55	%	50% V _{CC} Level					
0 Level Output Voltage	*	*	*	V _{OL}	-	-	V _{CC} ×0.1	V						
1 Level Output Voltage	*	*	*	V _{OH}	V _{CC} ×0.9	-	-	V						
Rise and Fall Time	E, F H, G	*	*	tr, tf	-	-	4 8	ns	10 to 90% V _{CC} Level					
	-				-									
OE Pin 0 Level Input Voltage	*	*	*	V _{IL}	-	-	V _{CC} ×0.2	V						
OE Pin 1 Level Input Voltage	*	*	*	V _{IH}	V _{CC} ×0.8	-	-	V						
Output Disable Time	*	*	*	tPLZ	-	-	10	μs						
Output Enable Time	*	*	*	tPZL	-	-	2	ms						
Period Jitter (1)	E, F H, G E, F H, G	*	* * * *	tRMS	- - - -	5 7 40 60	- - - -	ps ps	σ Peak to peak					
	E, F H, G		*	* *	tTL	- -	70 98	- -	ps	tDJ + n×tRJ n=14.1(BER=1×10 ⁻¹²) (2)				
	E, F H, G			*	* *	tpj	- -	- -	2 4	ps	f ₀ offset : 12kHz to 5MHz f ₀ offset : 12kHz to 20MHz f ₀ offset : 12kHz to 5MHz f ₀ offset : 12kHz to 20MHz			
	Packing Unit (3)		2000pcs./reel (ø180)											

- (1) Measured WAVECREST DTS-2075
(2) tDJ : Deterministic jitter tRJ : Random jitter
(3) Moisture prevention packaging is unnecessary.
Moisture Sensitivity Level : Level 1 (IPC/JEDEC J-STD-033)

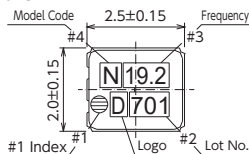
Consult our sales representative for other specifications.

■ DSO221SN

[mm] ■ DSO321SN

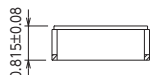
[mm]

■ Dimensions

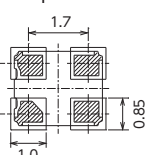


Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	V _{CC}

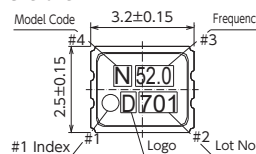
Function	#3 Output condition
H	Oscillation out
Open	Oscillation out
L	High Z



■ Recommended Land Pattern

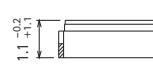


■ Dimensions



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Function	#3 Output condition
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■ Recommended Land Pattern

