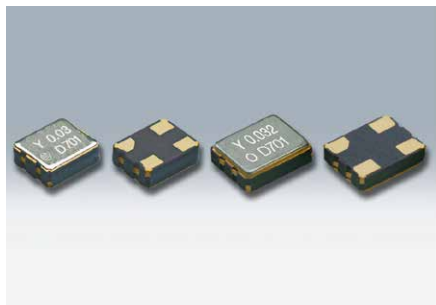


# SMD Crystal Oscillators

## DSO221SY/DSO321SY



Actual size DSO221SY □ DSO321SY □

### Features

- Available frequency range : 32.768kHz, 1.049 to 8.5MHz
- Supply Voltage: 1.8V/2.5V/2.8V/3.3V
- 3-state function
- Low current consumption: 10μA typ.(32.768kHz)
- CMOS Level Output
- Stable frequency variation realized by adopting an At cut resonator
- AEC-Q200 Compliant (Option: Equivalent to AEC-Q100)

### Applications

- Timer module, Industrial measuring equipment, Consumer Product



[Type]

DSO221SY	2520 size
DSO321SY	3225 size

[Function Code]

DSO\*\*\*SY AA

A : 3.3V	A : ±100×10 <sup>-6</sup>
B : 2.8V	B : ±50×10 <sup>-6</sup>
C : 2.5V	N : ±35×10 <sup>-6</sup>
D : 1.8V	C : ±30×10 <sup>-6</sup>
	D : ±25×10 <sup>-6</sup>

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

### Standard Specification

Item	Function Code		Output Frequency Range	Legend	Spec.				Condition	
	Supply Voltage	Frequency tolerance			min.	typ.	max.	Unit		
Supply Voltage	A	*	32.768kHz 1.049 ≤ f <sub>0</sub> ≤ 8.5MHz	V <sub>cc</sub>	+3.0	+3.3	+3.6	V		
	B				+2.6	+2.8	+3.0			
	C				+2.25	+2.5	+2.75			
	D				+1.6	+1.8	+2.0			
Frequency Tolerance (includes frequency tolerance at room temperature)	*		32.768kHz 1.049 ≤ f <sub>0</sub> ≤ 8.5MHz	f <sub>tol</sub>	-100	-	+100	× 10 <sup>-6</sup>	-40 to +85°C -10 to +70°C (Standard Operating Temperature Range)	
					B	-50	-			+50
					N	-35	-			+35
					C	-30	-			+30
Current Consumption	*	*	32.768kHz 1.049 ≤ f <sub>0</sub> ≤ 8.5MHz	I <sub>cc</sub>	-	-	18	μA	No Load	
					-	-	700			
Stand-by Current (#1 pin "L" Level)	*	*	*	I <sub>std</sub>	-	-	3	μA	-40 to +85°C	
Load Condition	*	*	*	L <sub>CMOS</sub>	-	-	15	pF		
Symmetry	*	*	32.768kHz 1.049 ≤ f <sub>0</sub> ≤ 8.5MHz	SYM	45 40	50 50	55 60	%	at 50% V <sub>cc</sub>	
0 Level Output Voltage	*	*	*	V <sub>OL</sub>	-	-	V <sub>cc</sub> ×0.1	V		
1 Level Output Voltage	*	*	*	V <sub>OH</sub>	V <sub>cc</sub> ×0.9	-	-	V		
Rise and Fall Time	*	*	*	tr, tf	-	-	15	ns	10 to 90% V <sub>cc</sub> Level	
OE Pin 0 Level Input Voltage	*	*	*	V <sub>IL</sub>	-	-	V <sub>cc</sub> ×0.2	V		
OE Pin 1 Level Input Voltage	*	*	*	V <sub>IH</sub>	V <sub>cc</sub> ×0.8	-	-	V		
Output Disable Time	*	*	*	tPLZ	-	-	100	ns		
Output Enable Time	*	*	*	tPZL	-	-	20	ms		
Packing Unit (1)	2000pcs./reel (φ 180)									

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

Consult our sales representative for other specifications.

### DSO221SY

### [mm] DSO321SY

[mm]

#### Dimensions

Model Code: Y 0.03 D:701

Pin Connections:

Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	V <sub>cc</sub>

Function:

#1 Input	#3 Output condition
H	Oscillation out
Open	Oscillation out
L	High Z

Recommended Land Pattern (Top View)

#### Dimensions

Model Code: Y 0.032 D:701

Pin Connections:

Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	V <sub>cc</sub>

Function:

#1 Input	#3 Output condition
H	Oscillation out
Open	Oscillation out
L	High Z

Recommended Land Pattern (Top View)