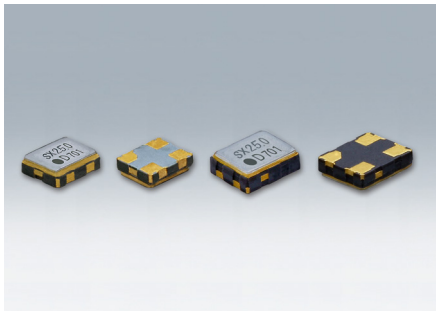
SMD Crystal Oscillators〈For Automotive〉

DSO211SX/DSO221SX



Actual size DSO211SX DSO221SX

■ Features

- Supply Voltage: 1.8V/2.5V/2.8V/3.3V
- Available frequency range: 1 to 125MHz
- Low profile: 0.7mm (DSO211SX), 0.8mm (DSO221SX)
- CMOS Level Output
- Capable of operating over a wide temperature range, from -40 to 125℃ .
- 3-state function
- Conforms to Autonomous Driving Level II
- AEC-Q100/AEC-Q200 Compliant

Pb-Free

RoHS/ELV Compliant

■ Applications

- In-vehicle drivingl safety applications (millimeter-wave radar, sensing cameras, etc.)

[Type]

DSO211SX	2016 size
DSO221SX	2520 size

[Function Code]

DSO***SX A Z

A : 3.3V
B : 2.8V
C : 2.5V
D : 1.8V

A : ±100×10⁻⁶
Z : ±80×10⁻⁶
B : ±50×10⁻⁶
C : ±30×10⁻⁶

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

■ Standard Specification

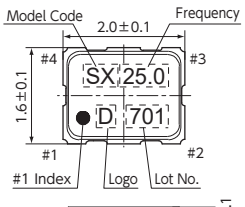
Item	Function Code: Supply Voltage	Function Code: Frequency tolerance	Output Frequency Range (MHz)	Legend	Spec.: min.	typ.	max.	Unit	Condition
Supply Voltage	A	*	1≦f0≦125	VCC	+3.0	+3.3	+3.6	V	
	B				+2.6	+2.8	+3.0		
	C				+2.25	+2.5	+2.75		
	D		1≦f0≦100		+1.6	+1.8	+2.0		
Frequency Tolerance (includes frequency tolerance at room temperature)	*	A	*	f_tol	–	–	±100	×10⁻⁶	−40 to+125℃
		Z			–	–	±80		
		B			–	–	±50		−40 to +85℃
		C			–	–	±30		
Current Consumption	A	*	100≦f0≦125	ICC	–	–	10.0	mA	No Load
			40≦f0<100		–	–	4.2		
			1≦f0<40		–	–	2.4		
	B		100≦f0≦125		–	–	9.0		
			40≦f0<100		–	–	3.7		
			1≦f0<40		–	–	2.2		
	C		100≦f0≦125		–	–	8.0		
			40≦f0<100		–	–	3.4		
			1≦f0<40		–	–	2.0		
	D		40≦f0≦100		–	–	2.7		
			1≦f0<40		–	–	1.7		
Stand-by Current (#1 pin "L"Level)	*	*	*	I_std	–	–	10	μA	
Load Condition	*	*	*	L_CMOS	–	–	15	pF	
Symmetry	*	*	*	SYM	45	50	55	%	50% Vcc Level
0 Level Output Voltage	*	*	*	VOL	–	–	Vcc×0.1	V	
1 Level Output Voltage	*	*	*	VOH	Vcc×0.9	–	–		
Rise and Fall Time	A,B,C	*	*	tr, tf	–	–	3	ns	10 to 90% Vcc Level
	D				–	–	5		
OE Pin 0 Level Input Voltage	*	*	*	VIL	–	–	Vcc×0.3	V	
OE Pin 1 Level Input Voltage	*	*	*	VIH	Vcc×0.7	–	–		
Output Disable Time	*	*	*	tPLZ	–	–	200	ns	
Output Enable Time	*	*	*	tPZL	–	–	2	ms	
Period Jitter (1)	*	*	*	tRMS	–	2.4	–	ps	σ
				tp-p	–	23	–		Peak to peak
Total Jitter (1)	*	*	*	tTL	–	34	–	ps	tDJ+n×tRJ n=14.1(BER=1×10⁻¹²) (2)
Phase Jitter	*	*	40≦f0≦125	tpj	–	–	1	ps	f0 offset:12kHz to 20MHz
			10≦f0<40						f0 offset:12kHz to 5MHz
Reliability	AEC-Q100/AEC-Q200								
Packing Unit (3)	3000pcs./reel (φ180)								

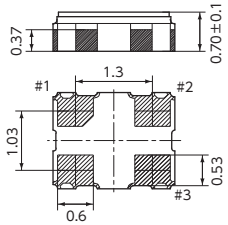
Consult our sales representative for other specifications.

(1) Measured WAVECREST DTS-2075
(2) tDJ:Deterministic jitter tRJ:Random jitter
(3) Moisture prevention packing is unnecessary. Moisture Sensitivity Level:Level1 (IPC/JEDEC J-STD-033)

■ DSO211SX [mm]

■ Dimensions





Pin Connections

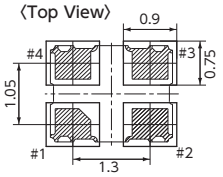
Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	Vcc

Function

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

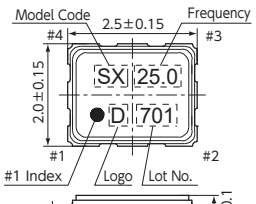
■ Recommended Land Pattern

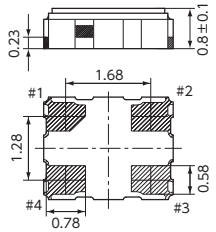
〈Top View〉



■ DSO221SX [mm]

■ Dimensions





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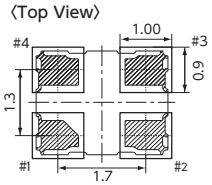
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