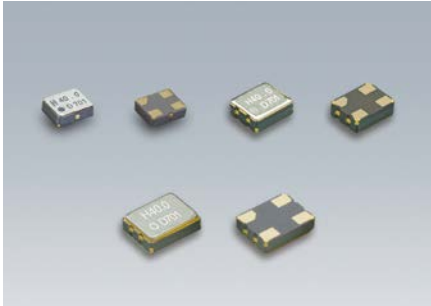


SMD Low Phase Noise Crystal Oscillators

DSO211AH/DSO221SH/DSO321SH



Actual size DSO211AH □ DSO221SH □
DSO321SH □

■ Features

- Supply Voltage : 1.8V/2.5V/2.8V/3.0V/3.3V
- Low phase noise : $f_{out} \pm 1\text{kHz}$ $-145 \text{ dBc/Hz(Typ.)}$
 $f_{out} \pm 100\text{kHz}$ $-158 \text{ dBc/Hz(Typ.)}$
- Low profile : 0.72mm(DSO211AH), 0.815mm(DSO221SH),
1.1mm(DSO321SH)
- AEC-Q100/AEC-Q200 Compliant
- 3-state function

■ Applications

- WiLAN, WiMAX, Bluetooth
- DVC, HDTV, Blu-ray
- PC, gaming equipment, audio equipment
- Automotive multimedia device

[Type]	Model	Size
	DSO211AH	2016 size
	DSO221SH	2520 size
	DSO321SH	3225 size

[Function Code]

DSO****H	A A
A : 3.3V	A : $\pm 100 \times 10^{-6}$
M : 3.0V	B : $\pm 50 \times 10^{-6}$
B : 2.8V	C : $\pm 30 \times 10^{-6}$
C : 2.5V	D : $\pm 25 \times 10^{-6}$
D : 1.8V	E : $\pm 20 \times 10^{-6}$



■ Standard Specification

Item	Function Code		Output Frequency Range (MHz)	Legend	Spec.				Condition								
	Supply Voltage	Frequency tolerance			min.	typ.	max.	Unit									
Supply Voltage	A	*	DSO211AH $1.2 \leq f_0 \leq 80$ DSO221/321SH $3.5 \leq f_0 \leq 52$	V _{CC}	+3.0	+3.3	+3.6	V									
	M				+2.7	+3.0	+3.3										
	B				+2.6	+2.8	+3.0										
	C				+2.25	+2.5	+2.75										
Frequency Tolerance (Includes frequency tolerance at room temperature.)	*	A	DSO211AH $1.2 \leq f_0 \leq 80$ DSO221/321SH $3.5 \leq f_0 \leq 52$	f _{tol}	-100	-	+100	$\times 10^{-6}$	-40 to +85°C -10 to +70°C (Standard Operating Temperature Range)								
		B			-50	-	+50										
		C			-30	-	+30										
		D			-25	-	+25										
		E			-20	-	+20										
Current Consumption	A,M	*	$1.2 \leq f_0 \leq 60$ $60 < f_0 \leq 80$	I _{CC}	-	-	4.0	mA	No Load								
	B				-	-	5.0										
	C				-	-	3.6										
					-	-	4.5										
Stand-by Current (#1 pin "L" Level)	*	*	*	I _{std}	-	-	10	μA									
					Load Condition	*	*			L _{CMOS}	-	-	15				
											Symmetry	*	*	SYM	45	50	55
															0 Level Output Voltage	*	*
1 Level Output Voltage	*	*	V _{OH}	V _{CC} ×0.9	-	-											
				Rise and Fall Time	*	*	*	tr, tf	-	-	6 (5)	ns	10 to 90% V _{CC} Level (20 to 80% V _{CC} Level)				
OE Pin 0 Level Input Voltage	*	*	*						V _{IL}	-	-			V _{CC} ×0.2			
				OE Pin 1 Level Input Voltage	*	*	*	V _{IH}		V _{CC} ×0.8	-	-					
Output Disable Time	*	*	*						tPLZ	-	-	150	ns				
				Output Enable Time	*	*	*	tPZL		-	-	5					
Phase Noise	A,M,B,C	*	$1.2 \leq f_0 \leq 60$						-	-	-145	-	dBc/Hz	Offset 1kHz			
	D			-	-140	-											
	A,M,B,C		$60 < f_0 \leq 80$	-	-135	-											
	D			-	-135	-											
	A,M,B,C		$1.2 \leq f_0 \leq 60$	-	-158	-											
	D			-	-152	-											
A,M,B,C	$60 < f_0 \leq 80$	-	-155	-													
D		-	-150	-													
Period Jitter (1)	*	*	*	t _{RMS}	-	2.4	-	ps	σ								
Total Jitter (1)	*	*	*	t _{P-P}	-	23	-	ps	Peak to peak								
Phase Jitter	*	*	$40 \leq f_0 \leq 80$ $10 \leq f_0 < 40$	tpj	-	34	-	ps	t _{DJ} +n×t _{RJ} n=14.1 (BER=1×10 ⁻¹⁵) (2)								
											f _o offset: 12kHz to 20MHz f _o offset: 12kHz to 5MHz						
Packing Unit (3)	DSO211AH: 3000pcs./reel(φ180) , DSO221SH/DSO321SH: 2000pcs./reel(φ180)																

- (1) Measured WAVECREST DTS-2075
 (2) t_{DJ}: Deterministic jitter t_{RJ}: Random jitter
 (3) Moisture prevention packing is unnecessary.
 Moisture Sensitivity Level: Level 1 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications.

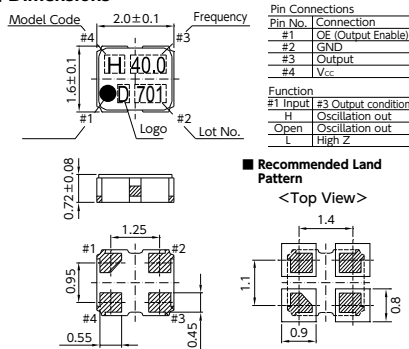
■ DSO211AH

■ DSO221SH

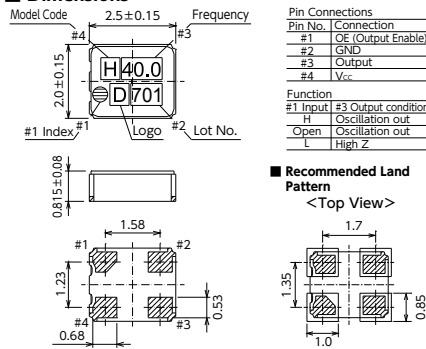
■ DSO321SH

[mm]

■ Dimensions



■ Dimensions



■ Dimensions

