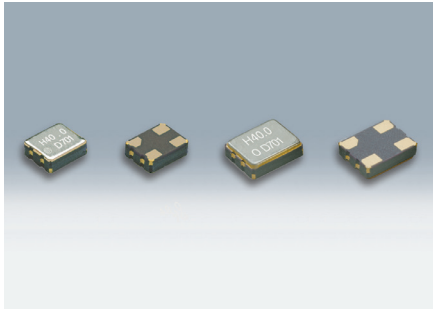


SMD Low Phase Noise Crystal Oscillators

DSO221SH/DSO321SH



Actual size 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 : 0.815mm(DSO221SH), 1.1mm(DSO321SH)
- AEC-Q200 Compliant (Option: Equivalent to AEC-Q100)
- CMOS Level Output
- 3-state function

Applications

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

[Type]	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	*	$3.5 \leq f_0 \leq 52$	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		
	D				+1.6	+1.8	+2.0		
Frequency Tolerance (Includes frequency tolerance at room temperature.)	*	A	$3.5 \leq f_0 \leq 52$	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	*	$3.5 \leq f_0 \leq 52$	I _{cc}	-	-	4.2	mA	No Load
	B	*			-	-	2.3		
	C	*			-	-	-		
	D	*			-	-	-		
Stand-by Current (#1 pin "L" Level)	*	*	*	I _{std}	-	-	10	μA	
Load Condition	*	*	*	L _{cmos}	-	-	15	pF	
Symmetry	A,M,B,C	*	*	SYM	45	50	55	%	at 50% V _{cc}
	D				40	50	60		
0 Level Output Voltage	*	*	*	V _{OL}	-	-	V _{cc} × 0.1	V	
1 Level Output Voltage	*	*	*	V _{OH}	V _{cc} × 0.9	-	-		
Rise and Fall Time	A,M,B	*	*	tr, tf	-	-	4.0	ns	10 to 90% V _{cc} Level
	C,D				-	-	6.5		
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	-	-		
Output Disable Time	*	*	*	tPLZ	-	-	100	ns	
Output Enable Time	*	*	*	tPZL	-	-	2.0	ms	
Phase Noise	*	*	*	-	-	-140	-	dBc/Hz	Offset 1kHz Offset 100kHz
					-	-153	-		
Period Jitter (1)	*	*	*	tRMS	-	2.4	-	ps	σ
Total Jitter (1)	*	*	*	tp-p	-	23	-	ps	Peak to peak
Phase Jitter	*	*	$40 \leq f_0 \leq 52$ $10 \leq f_0 < 40$	tpj	-	34	-	ps	tDJ+n×tRJ n=14.1 (BER=1×10 ⁻¹⁵) (2) f ₀ offset: 12kHz to 20MHz f ₀ offset: 12kHz to 5MHz
					-	-	1		
Packing Unit (3)	2000pcs./reel (φ180)								

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

- (1) Measured WAVECREST DTS-2075
- (2) tDJ : Deterministic jitter tRJ : 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.

DSO221SH

[mm] DSO321SH

[mm]

DSO221SH	DSO321SH
<p>Dimensions</p> <p>Model Code: H40.0 D701</p> <p>Pin Connections: #1 OE (Output Enable) #2 GND #3 Output #4 V_{cc}</p> <p>Function: #1 Input #3 Output condition H Oscillation out Open Oscillation out L High Z</p> <p>Recommended Land Pattern <Top View></p>	<p>Dimensions</p> <p>Model Code: H40.0 D701</p> <p>Pin Connections: #1 OE (Output Enable) #2 GND #3 Output #4 V_{cc}</p> <p>Function: #1 Input #3 Output condition H Oscillation out Open Oscillation out L High Z</p> <p>Recommended Land Pattern <Top View></p>