

SMD Crystal Oscillators

DSO221SHH

NEW



Actual size

Features

- Supply Voltage: 1.8V/2.5V/2.8V/3.3V
- Low phase noise : Offset 1kHz -146dBc/Hz(typ.)
: Offset 100kHz -164dBc/Hz(typ.)
- Available frequency range: 2.0 to 54MHz
- Low profile : 0.8 mm
- CMOS Level Output
- 3-state function

Applications

- WiLAN, WiMAX, Bluetooth
- Visual applications
- PC, gaming equipment, audio equipment

[Function Code]

DSO221SHH

A A

A : 3.3V

B : 2.8V

C : 2.5V

D : 1.8V

A : $\pm 100 \times 10^{-6}$

B : $\pm 50 \times 10^{-6}$

C : $\pm 30 \times 10^{-6}$

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



Pb-Free



RoHS Compliant

Standard Specification

Item	Function Code		Output Frequency Range (MHz)	Legend	Spec.				Condition	
	Supply Voltage	Frequency tolerance			min.	typ.	max.	Unit		
Supply Voltage	A	*	2.0≤fo≤54	Vcc	+3.0	+3.3	+3.6	V		
	B				+2.6	+2.8	+3.0			
	C				+2.25	+2.5	+2.75			
	D				+1.62	+1.8	+2.0			
Frequency Tolerance (Includes frequency tolerance at room temperature.)	*	A	*	f_tol	-100	—	+100	×10 ⁻⁶	-40 to +85℃	-10 to +70℃ (Standard Operating Temperature Range)
		B			-50	—	+50			
		C			-30	—	+30			
Current Consumption	A	*	2.0≤fo≤54	Icc	—	—	4.2	mA	No Load	
	B				—	—	—			
	C				—	—	—			
	D				—	—	2.3			
Stand-by Current (#1 pin "L" Level)	*	*	*	I_std	—	—	10	μA		
Symmetry	*	*	*	SYM	40	50	60	%	50% Vcc Level	
0 Level Output Voltage	*	*	*	V _{OL}	—	—	Vcc×0.1	V		
1 Level Output Voltage	*	*	*	V _{OH}	Vcc×0.9	—	—	V		
Rise and Fall Time	A, B, C	*	*	tr, tf	—	—	4	ns	10 to 90% Vcc Level	
	D				—	—	6.5			
Load Condition	*	*	*	L _{CMOS}	—	—	15	pF		
OE Pin 0 Level Input Voltage	*	*	*	V _{IL}	—	—	Vcc×0.2	V		
OE Pin 1 Level Input Voltage	*	*	*	V _{IH}	Vcc×0.8	—	—	V		
Output Disable Time	*	*	*	tPLZ	—	—	100	ns		
Output Enable Time	*	*	*	tPZL	—	—	2	ms		
Phase Noise	*	*	*	—	—	-146	—	dBc/Hz	Offset 1kHz	
					—	-164	—		Offset 100kHz	
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≤fo≤54	tpj	—	—	1	ps	f0 offset:12kHz to 20MHz	
			10≤fo<40						f0 offset:12kHz to 5MHz	
Packing Unit (3)	3000pcs./reel (φ180)									

(1) Measured WAVECREST DTS-2075

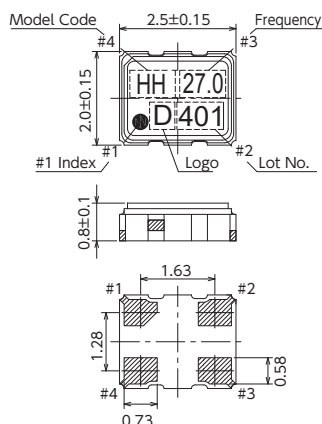
(2) tDJ : Deterministic jitter tRJ : Random jitter

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

Consult our sales representative for other specifications.

[mm]

Dimensions



Pin Connections

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

Function

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

Recommended Land Pattern

<Top View>

