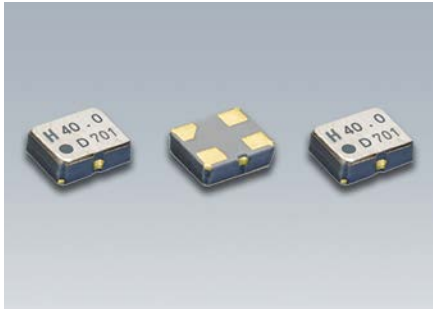


SMD Low Phase Noise Crystal Oscillators (For Automotive)

DSO211AH



Actual size

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
- AEC-Q100/AEC-Q200 Compliant
- 3-state function

Applications

- Multimedia devices such as car navigation systems and car audio
- Automotive radio applications such as Bluetooth, wireless LAN and automotive camera

[Function Code]
DSO211AH A A

A : 3.3V	A : $\pm 100 \times 10^{-6}$
M : 3.0V	Z : $\pm 80 \times 10^{-6}$
B : 2.8V	B : $\pm 50 \times 10^{-6}$
C : 2.5V	C : $\pm 30 \times 10^{-6}$
D : 1.8V	D : $\pm 25 \times 10^{-6}$
	E : $\pm 20 \times 10^{-6}$



Standard Specification

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

Item	Function Code		Output Frequency Range (MHz)	Legend	Spec.				Condition
	Supply Voltage	Frequency tolerance			min.	typ.	max.	Unit	
Supply Voltage	A	*	$1.2 \leq f_0 \leq 80$	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.)	*	Z	$1.2 \leq f_0 \leq 80$	f _{tol}	-80	-	+80	$\times 10^{-6}$	-40 to +105°C
		A			-100	-	+100		-40 to +85°C
		B			-50	-	+50		-20 to +70°C
		C			-30	-	+30		-10 to +70°C
		D			-25	-	+25		
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		
	D				-	-	3.4		
Stand-by Current (#1 pin "L" Level)	*	*	*	I _{std}	-	-	10	μA	
Load Condition	*	*	*	L _{CMOS}	-	-	15	pF	
Symmetry	*	*	*	SYM	45	50	55	%	at 50% V _{cc}
0 Level Output Voltage	*	*	*	V _{OL}	-	-	V _{cc} ×0.1	V	
1 Level Output Voltage	*	*	*	V _{OH}	V _{cc} ×0.9	-	-	V	
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	V	
OE Pin 1 Level Input Voltage	*	*	*	V _{IH}	V _{cc} ×0.8	-	-	V	
Output Disable Time	*	*	*	t _{PLZ}	-	-	150	ns	
Output Enable Time	*	*	*	t _{PZL}	-	-	5	ms	
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	-		Offset 100kHz
	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)	*	*	*	tp-p	-	23	-	ps	Peak to peak
Phase Jitter	*	*	$40 \leq f_0 \leq 80$ $10 \leq f_0 < 40$	t _{TL}	-	34	-	ps	t _{DJ} +n×t _{RJ} n=14.1(BER=1×10 ⁻¹²) (2)
				tpj	-	-	1	ps	f _o offset: 12kHz to 20MHz f _o offset: 12kHz to 5MHz
Reliability	AEC-Q100/AEC-Q200								
Packing Unit (3)	3000pcs./reel (φ 180)								

- (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.

[mm]

Dimensions

Recommended Land Pattern

<Top View>

Pin Connections

Pin No.	Connection
#1	OE (Output Enable)
#2	GND
#3	Output
#4	V _{cc}

Function

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