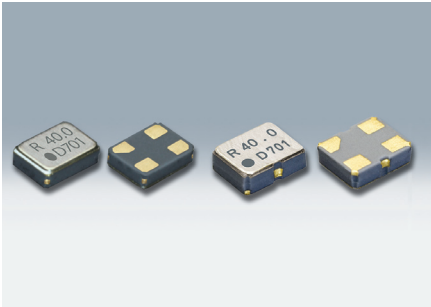


# SMD Crystal Oscillators <For Automotive>

## DSO1612AR/DSO211AR



### ■ Features

- 3-state function
- Capable of operating over a wide temperature range, from -40 to +125°C.
- AEC-Q100 Compliant
- Applications
  - Multimedia devices such as car navigation systems and car audio
  - Automotive camera

[Function Code]

DSO\*\*\*\*AR A Y

A : 3.3V

M : 3.0V

B : 2.8V

C : 2.5V

D : 1.8V

Y

Y : ±100×10<sup>-6</sup>

Z : ±80×10<sup>-6</sup>

B : ±50×10<sup>-6</sup>



Actual size DSO1612AR □ DSO211AR □

### ■ Standard Specification

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

Item	Function Code		DSO1612AR					DSO211AR					Condition	
	Supply Voltage		Legend	Output Frequency Range (MHz)	Spec.			Output Frequency Range (MHz)	Spec.			Unit		
	DSO1612AR	DSO211AR			min.	typ.	max.		min.	typ.	max.			
Supply Voltage	A	*	Vcc	0.584375≤fo<80	+3.0	+3.3	+3.6	0.4≤fo<80	+3.0	+3.3	+3.6	V		
	M				+2.7	+3.0	+3.3		+2.7	+3.0	+3.3			
	B				+2.6	+2.8	+3.0		+2.6	+2.8	+3.0			
	C				+2.25	+2.5	+2.75		+2.25	+2.5	+2.75			
Frequency Tolerance (Includes frequency tolerance at room temperature.)	D	*	f <sub>tol</sub>	0.584375≤fo<80	+1.6	+1.8	+2.0	0.4≤fo<80	+1.6	+1.8	+2.0	×10 <sup>-6</sup>	-40 to +125°C -40 to +110°C -40 to +85°C	
	Y				-100	-	+100		-100	-	+100			
	Z				-80	-	+80		-80	-	+80			
	B				-50	-	+50		-50	-	+50			
Current Consumption	A,M	*	I <sub>cc</sub>	0.584375≤fo<40	-	-	+3.0	0.4≤fo<54	-	-	4.0	mA	No Load	
				40≤fo<60	-	-	+3.4	54≤fo≤80	-	-	6.0			
				60≤fo≤80	-	-	+3.8	54≤fo≤80	-	-	6.0			
				0.584375≤fo<40	-	-	+2.4	0.4≤fo<54	-	-	3.5			
				40≤fo<60	-	-	+2.8	0.4≤fo<54	-	-	3.5			
				60≤fo≤80	-	-	+3.1	54≤fo≤80	-	-	5.5			
	B	*	I <sub>cc</sub>	0.584375≤fo<40	-	-	+2.0	0.4≤fo<54	-	-	3.0			
				40≤fo<60	-	-	+2.4	0.4≤fo<54	-	-	3.0			
				60≤fo≤80	-	-	+2.7	54≤fo≤80	-	-	5.0			
				0.584375≤fo<40	-	-	+1.4	0.4≤fo<54	-	-	2.5			
				40≤fo<60	-	-	+1.6	0.4≤fo<54	-	-	2.5			
				60≤fo≤80	-	-	+1.9	54≤fo≤80	-	-	4.5			
C	*	I <sub>cc</sub>	0.584375≤fo<40	-	-	+2.0	0.4≤fo<54	-	-	3.0				
			40≤fo<60	-	-	+2.4	0.4≤fo<54	-	-	3.0				
D	*	I <sub>cc</sub>	0.584375≤fo<40	-	-	+1.4	0.4≤fo<54	-	-	2.5				
			40≤fo<60	-	-	+1.6	0.4≤fo<54	-	-	2.5				
60≤fo≤80	*	I <sub>cc</sub>	0.584375≤fo<40	-	-	+1.9	54≤fo≤80	-	-	4.5				
			40≤fo<60	-	-	+1.9	54≤fo≤80	-	-	4.5				
Stand-by Current (#1 pin "L" level)	*	*	I <sub>std</sub>	*	-	+20	*	-	+10	μA				
Load Condition	*	*	L <sub>CMOS</sub>	*	-	15	*	-	15	pF				
Symmetry	*	*	SYM	*	40	50	60	*	40	50	60	%	at 50% Vcc	
0 Level Output Voltage	*	*	V <sub>OL</sub>	*	-	-	Vcc×0.1	*	-	-	Vcc×0.1	V		
1 Level Output Voltage	*	*	V <sub>OH</sub>	*	Vcc×0.9	-	-	*	Vcc×0.9	-	-	V		
Rise and Fall Time	A,M,B,C	*	tr, tf	*	-	-	3.5	0.4≤fo<54	-	-	8	ns	10 to 90% Vcc Level	
	D				-	-	5	54≤fo≤80	-	-	8			
OE Pin 0 Level Input Voltage	*	*	V <sub>IL</sub>	*	-	-	Vcc×0.2	*	-	-	Vcc×0.2	V		
OE Pin 1 Level Input Voltage	*	*	V <sub>IH</sub>	*	Vcc×0.8	-	-	*	Vcc×0.8	-	-	V		
Output Disable Time	*	*	tPLZ	*	-	-	200	*	-	-	150	ns		
Output Enable Time	*	*	tPZL	*	-	-	1	*	-	-	5	ms		
Period Jitter (1)	*	*	tRMS	*	-	-	2.2	-	-	-	2.2	ps	σ Peak to peak	
					tp-p	-	-	20	-	-	20			
Total Jitter (1)	*	*	tTL	*	-	-	31	-	-	-	31	ps	tDJ+n×tRJ n=14.1(BER=1×10 <sup>-13</sup> ) (2)	
					fo offset:12kHz to 20MHz	-	-	1	-	-	1			
Phase Jitter	*	*	tpj	*	40≤fo≤80	-	-	1	40≤fo≤125	-	-	1	ps	fo offset:12kHz to 5MHz
					10≤fo<40	-	-	1	10≤fo<40	-	-	1		
Reliability	AEC-Q100													
Packing Unit	3000pcs./reel(φ 180)													

(1) Measured WAVECREST DTS-2075

Consult our sales representative for other specifications.

(2) tDJ: Deterministic jitter tRJ: Random jitter

### ■ DSO1612AR

[mm]

### ■ DSO211AR

[mm]

