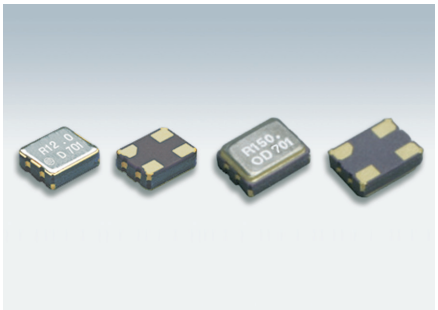
SMD Crystal Oscillators〈For Automotive〉

DSO221SR/DSO321SR



Actual size DSO221SR DSO321SR

■ Features

- 3-state function
- Capable of operating over a wide temperature range, from −40 to +125℃ .
- AEC-Q200 Compliant (Option: Equivalent to AEC-Q100)
- CMOS Level Output

■ Applications

- Multimedia devices such as car navigation systems and car audio
- Automotive camera

[Type]

DSO221SR	2520 size
DSO321SR	3225 size

Pb-Free

RoHS/ELV Compliant

[Function Code]

DSO***SR A A

A : 3.3V
M: 3.0V
B : 2.8V
C : 2.5V
D : 1.8V

A,Y : ±100×10⁻⁶
Z : ±80×10⁻⁶
B : ±50×10⁻⁶

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

■ Standard Specification

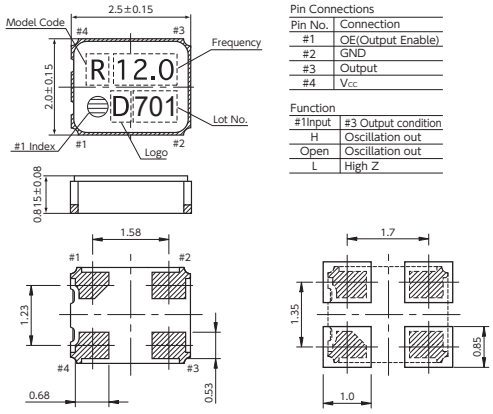
Item	Function Code		Output Frequency Range (MHz)	Legend	Spec.				Condition
	Supply Voltage	Frequency tolerance			min.	typ.	max.	Unit	
Supply Voltage	A	*	0.2≦f₀≦125	V_{CC}	+3.0	+3.3	+3.6	V	
	M		0.2≦f₀≦125		+2.7	+3.0	+3.3		
	B		0.2≦f₀≦100		+2.6	+2.8	+3.0		
	C		0.2≦f₀≦100		+2.25	+2.5	+2.75		
	D		0.2≦f₀≦80		+1.6	+1.8	+2.0		
Frequency Tolerance (Includes frequency tolerance at room temperature.)	*	Y	0.2≦f₀≦100	f_tol	−100	—	+100	×10⁻⁶	−40 to +125℃
		Z	0.2≦f₀≦100		−80	—	+80		−40 to +110℃
		A	100<f₀≦125		−100	—	+100		−40 to +85℃
		B	0.2≦f₀≦100		−50	—	+50		
Current Consumption	A,M	*	0.2≦f₀<54	I_{CC}	—	—	+4.0	mA	No Load
			54≦f₀<80		—	—	+6.0		
			80≦f₀≦125		—	—	+8.0		
	B	*	0.2≦f₀<54		—	—	+3.5		
			54≦f₀<80		—	—	+5.5		
			80≦f₀≦100		—	—	+7.5		
	C	*	0.2≦f₀<54		—	—	+3.0		
			54≦f₀<80		—	—	+5.0		
			80≦f₀≦100		—	—	+7.0		
	D	*	0.2≦f₀<54		—	—	+2.5		
			54≦f₀≦80		—	—	+4.5		
Stand-by Current (#1 pin "L"level)	*	*	*	I_std	—	—	+10	μA	
Load Condition	*	*	*	L_CMOS	—	—	15	pF	
Symmetry	*	*	*	SYM	40	50	60	%	50% V_{CC} Level
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	*	*	0.2≦f₀≦54	tr,tf	—	—	8	ns	10 to 90% V_{CC} Level
			54<f₀<100		—	—	4		
			100≦f₀≦125		—	—	3		
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	—	—	150	ns	
Output Enable Time	*	*	*	tPZL	—	—	5	ms	
Period Jitter (1)	*	*	*	tRMS	—	2.2	—	ps	σ
				tp-p	—	20	—		Peak to peak
Total Jitter (1)	*	*	*	tTL	—	31	—	ps	tDJ+nxtRJ n=14.1(BER=1×10⁻¹²) (2)
Phase Jitter	*	*	40≦f₀≦125	tpj	—	—	1	ps	f₀ offset:12kHz to 20MHz
			10≦f₀<40						f₀ offset:12kHz to 5MHz
Reliability	AEC-Q100/AEC-Q200								
Packing Unit (3)	2000pcs./reel(180 φ)								

(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.

■ DSO221SR [mm]

■ Dimensions



Pin Connections

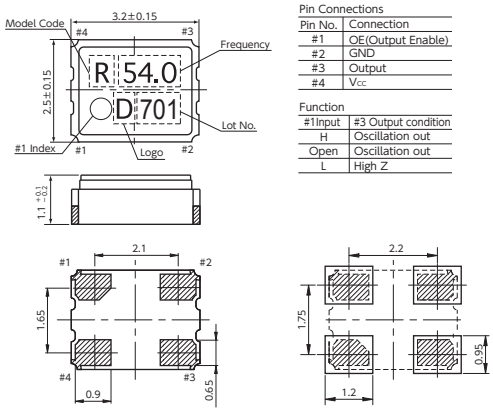
Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	Vcc

Function

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

■ DSO321SR [mm]

■ Dimensions



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