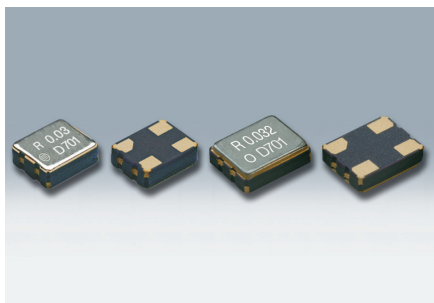


SMD Crystal Oscillators

DSO221SR/DSO321SR(kHz)



Actual size DSO221SR DSO321SR

Features

- Supply Voltage: 1.8V/2.5V/2.8V/3.0V/3.3V/5.0V
- 3-state function
- Low current consumption
- CMOS Level Output
- High speed start-up: 2ms max. until frequency output after power on
- Stable frequency variation realized by adopting an At cut resonator
- AEC-Q 100 compliant



Applications

- Timer module, Industrial measuring equipment, Consumer Product, Clock source for RTC, automotive multimedia device

[Type]	Model	Size
DSO221SR		2520 size
DSO321SR		3225 size

[Function Code]
DSO***SR A A

Function Code	Supply Voltage	Frequency Tolerance
A	3.3V	$\pm 100 \times 10^{-6}$
M	3.0V	$\pm 50 \times 10^{-6}$
B	2.8V	$\pm 35 \times 10^{-6}$
C	2.5V	$\pm 30 \times 10^{-6}$
D	1.8V	$\pm 25 \times 10^{-6}$
Y	5.0V	

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

Standard Specification

Item	Function Code		Output Frequency Range (KHz)	Legend	Spec.				Condition
	Supply Voltage	Frequency tolerance			min.	typ.	max.	Unit	
Supply Voltage	A	*	$32.768 \leq f_o \leq 50$	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		
	Y				+4.5	+5.0	+5.5		
Frequency Tolerance (includes frequency tolerance at room temperature)	*	A	$32.768 \leq f_o \leq 50$	f _{tol}	-100	-	+100	$\times 10^{-6}$	-40 to +85°C -10 to +70°C (Standard Operating Temperature Range)
		B			-50	-	+50		
		N			-35	-	+35		
		C			-30	-	+30		
		D			-25	-	+25		
Current Consumption	A,M,B,C,D	*	$f_o = 32.768$ $32.768 < f_o \leq 50$	I _{cc}	-	-	50	μA	No Load
	Y				-	-	82		
					-	-	60		
					-	-	100		
Stand-by Current (#1 pin "L" Level)	*	*	$32.768 \leq f_o \leq 50$	I _{std}	-	-	1.5	μA	-40 to +85°C
Load Condition	*	*	$32.768 \leq f_o \leq 50$	L _{CMOS}	-	-	15	pF	
Symmetry	*	*	$32.768 \leq f_o \leq 50$	SYM	45	50	55	%	at 50% V _{cc}
0 Level Input Voltage	*	*	*	V _{OL}	-	-	V _{cc} × 0.1	V	
1 Level Input Voltage	*	*	*	V _{OH}	V _{cc} × 0.9	-	-	V	
Rise and Fall Time	*	*	$32.768 \leq f_o \leq 50$	tr, tf	-	-	20	ns	10 to 90% 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	*	*	*	tPLZ	-	-	150	ns	
Output Enable Time	*	*	*	tPZL	-	-	2	ms	
Period Jitter (1)	*	*	*	tRMS	-	15	-	ps	σ
				tp-p	-	150	-	ps	Peak to peak
Total Jitter (1)	*	*	*	tTL	-	220	-	ps	tDJ+n×tRJ n=14.1 (BER=1×10 ⁻¹²) (2)
Packing Unit	2000pcs./reel (φ 180)								

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

Consult our sales representative for other specifications.

DSO221SR(kHz)

DSO321SR(kHz)

Dimensions

Model Code: #4, #3, #1, #2, #3, #4

Pin Connections:
#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)

Dimensions

Model Code: #4, #3, #1, #2, #3, #4

Pin Connections:
#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)