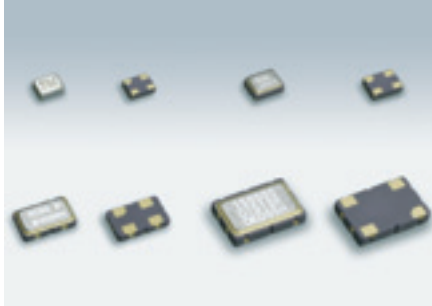


# SMD Crystal Oscillators

## DS0221SR/DS0321SR/DS0321LR/DS0531SR/DS0751SR



### ■ Features

- Low current consumption: 6mA MAX (125MHz, 3.3V)
- Low voltage operation: 1.8V/2.5V/2.8V/3.3V
- Offers Narrow deviation:  $\pm 20 \times 10^{-6} / \pm 30 \times 10^{-6} / \pm 50 \times 10^{-6} / \pm 100 \times 10^{-6}$
- Available up to 150MHz by using AT cut fundamental resonator. Low jitter provides for high performance.
- Low profile: 0.82mm (DS0221SR), 0.855mm (DS0321LR), 1.1mm (DS0321SR/DS0531SR), 1.5mm (DS0751SR)



### ■ Product

- DS0751SR A A** ←7349 Size 3.3V,  $\pm 100 \times 10^{-6}$   
**DS0531SR A B** ←5032 Size 3.3V,  $\pm 50 \times 10^{-6}$   
**DS0321SR D B** ←3225 Size 1.8V,  $\pm 50 \times 10^{-6}$   
**DS0221SR C C** ←2520 Size 2.5V,  $\pm 30 \times 10^{-6}$

Type

Function Code (Frequency tolerance)

Function Code (Supply Voltage)

Supply Voltage	3.0V–3.6V 3.3V typ.	2.6V–3.0V 2.8V typ.	2.25V–2.75V 2.5V typ.	1.6V–2.0V 1.8V typ.
Frequency tolerance (-10~+70°C)				
$\pm 100 \times 10^{-6}$	<b>AA</b>	<b>BA</b>	<b>CA</b>	<b>DA</b>
$\pm 50 \times 10^{-6}$	<b>AB</b>	<b>BB</b>	<b>CB</b>	<b>DB</b>
$\pm 30 \times 10^{-6}$	<b>AC</b>	<b>BC</b>	<b>CC</b>	<b>DC</b>
$\pm 25 \times 10^{-6}$	<b>AD</b>	<b>BD</b>	<b>CD</b>	<b>DD</b>
$\pm 20 \times 10^{-6}$	<b>AE</b>	<b>BE</b>	<b>CE</b>	<b>DE</b>

### ■ Standard Specification

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

Item	Function Code		Available Frequency Range (MHz)	Legend	Spec.				Condition
	Supply Voltage	Frequency tolerance			MIN.	TYP.	MAX.	Unit	
Operating Temperature Range	*	*	*	T <sub>use</sub>	-10	+25	+70	deg. C	
Supply Voltage	A	*	$0.7 \leq F_o \leq 150$	V <sub>dd</sub>	+3.0	+3.3	+3.6	V	
	B	*	$0.7 \leq F_o \leq 100$		+2.6	+2.8	+3.0		
	C	*	$0.7 \leq F_o \leq 100$		+2.25	+2.5	+2.75		
	D	*	$0.7 \leq F_o \leq 80$		+1.6	+1.8	+2.0		
Frequency Tolerance	*	A	$0.7 \leq F_o \leq 150$	F <sub>tol</sub>	-	-	$\pm 100$	$\times 10^{-6}$	-10~+70°C, Includes frequency tolerance at room temperature.
	*	B	$0.7 \leq F_o \leq 100$		-	-	$\pm 50$		
	*	C	$0.7 \leq F_o \leq 80$		-	-	$\pm 30$		
	*	D	$0.7 \leq F_o \leq 80$		-	-	$\pm 25$		
	*	E	$0.7 \leq F_o \leq 50$		-	-	$\pm 20$		
Current Consumption	A	*	$0.7 \leq F_o < 32$	I <sub>dd</sub>	-	-	+1.8	mA	No Load
			$32 \leq F_o < 54$		-	-	+2.5		
			$54 \leq F_o < 80$		-	-	+5.0		
			$80 \leq F_o < 125$		-	-	+6.0		
			$125 \leq F_o \leq 150$		-	-	+8.0		
	B	*	$0.7 \leq F_o < 32$		-	-	+1.8		
			$32 \leq F_o < 54$		-	-	+2.5		
			$54 \leq F_o \leq 100$		-	-	+5.0		
	C	*	$0.7 \leq F_o < 32$		-	-	+1.5		
			$32 \leq F_o < 54$		-	-	+2.0		
			$54 \leq F_o \leq 100$		-	-	+4.0		
	D	*	$0.7 \leq F_o < 32$		-	-	+1.0		
$32 \leq F_o < 54$			-	-	+1.4				
$54 \leq F_o \leq 80$			-	-	+3.0				
Stand-by current (#1 pin "L" Level)	*	*	*	I <sub>std</sub>	-	-	+10	μA	
Symmetry	*	*	$F_o < 50$	SYM	45	50	55	%	at 50% V <sub>dd</sub>
	*	*	$F_o \geq 50$		40	50	60		
"0" Level	*	*	*	V <sub>ol</sub>	-	-	0.1V <sub>dd</sub>	V	
"1" Level	*	*	*	V <sub>oh</sub>	0.9V <sub>dd</sub>	-	-		
Rise and Fall Time	*	*	$0.7 \leq F_o < 50$	tr, tf	-	-	10	ns	0.1 V <sub>dd</sub> — 0.9 V <sub>dd</sub>
	*	*	$50 \leq F_o < 67$		-	-	7		
	*	*	$67 \leq F_o < 100$		-	-	5		
	*	*	$100 \leq F_o \leq 150$		-	-	3		
Output Load	*	*	*	L <sub>CMOS</sub>	-	-	15	pF	
#1 (OE) Pin 0 Level Input Voltage	*	*	*	V <sub>il</sub>	-	-	0.2V <sub>dd</sub>	V	
#1 (OE) Pin 1 Level Input Voltage	*	*	*	V <sub>ih</sub>	0.8V <sub>dd</sub>	-	-		
Output Disable Time	*	*	*	T <sub>plz</sub>	-	-	150	ns	
Output Enable Time	*	*	*	T <sub>pzl</sub>	-	-	5	ms	
Phase Jitter	A	*	$75 \leq F_o \leq 150$	t <sub>pj</sub>	-	-	1	ps	F <sub>o</sub> offset: 12kHz~20MHz

Consult our sales representative for other specifications.

# SMD Crystal Oscillators

## DS0221SR/DS0321SR/DS0321LR/DS0531SR/DS0751SR

### Applications

- PC, PDA, and peripherals
- DSC, DVD, Blue-ray Disk, HD DVD, TV, HDTV, DVC
- Wireless LAN, WiMAX
- Mobile phones (AP, camera module, WiLAN module)
- Telecommunications (GbEthernet, ISDN)

### Dimensions [mm]

Model	Dimensions [mm]	Pin Connections	Function																		
DS0221SR		<table border="1"> <tr><th>Pin No.</th><th>Connection</th></tr> <tr><td>#1</td><td>OE</td></tr> <tr><td>#2</td><td>GND</td></tr> <tr><td>#3</td><td>Output</td></tr> <tr><td>#4</td><td>Vdd</td></tr> </table>	Pin No.	Connection	#1	OE	#2	GND	#3	Output	#4	Vdd	<table border="1"> <tr><th>#1 input</th><th>#3 output condition</th></tr> <tr><td>H</td><td>Oscillation out</td></tr> <tr><td>Open</td><td>Oscillation out</td></tr> <tr><td>L</td><td>High Z</td></tr> </table>	#1 input	#3 output condition	H	Oscillation out	Open	Oscillation out	L	High Z
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### Packing Unit

DS0221SR/ DS0321SR/ DS0321LR: 2000pcs./reel (φ180)

DS0531SR: 1000pcs./reel (φ180)

DS0751SR: 1000pcs./reel (φ254)