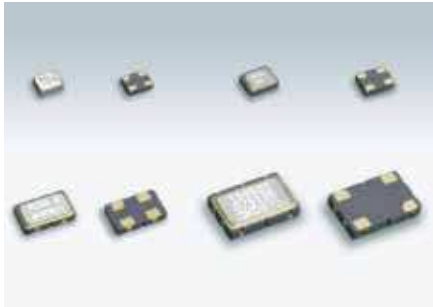


SMD Crystal Oscillators

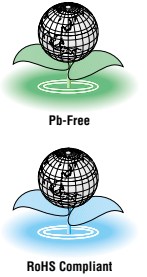
DSO221SR/DSO321SR/DSO531SR/DSO751SR



Actual size DSO221SR □ DSO321SR □
DSO531SR □ DSO751SR □

■ Features

- Low current consumption: 8mA max (167MHz, 3.3V)
- Supply Voltage: 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 167MHz by using AT cut fundamental resonator. Low jitter provides for high performance.
- Low profile: 0.815mm(DSO221SR),
1.1mm(DSO321SR/DSO531SR),
1.5mm(DSO751SR)
- AEC-Q100 compliant



[Type]	DSO221SR	2520 size
	DSO321SR	3225 size
	DSO531SR	5032 size
	DSO751SR	7349 size

[Function Code]
DSO***SR A A

A : 3.3V	A : $\pm 100 \times 10^{-6}$
M : 3.0V	B : $\pm 50 \times 10^{-6}$
B : 2.8V	C : $\pm 30 \times 10^{-6}$
C : 2.5V	D : $\pm 25 \times 10^{-6}$
D : 1.8V	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.			Unit	Condition	
	Supply Voltage	Frequency tolerance			min.	Typ.	max.			
Supply Voltage	A	*	$0.2 \leq f_o \leq 167$	V _{cc}	+3.0	+3.3	+3.6	v		
	M	*	$0.2 \leq f_o \leq 167$		+2.7	+3.0	+3.3			
	B	*	$0.2 \leq f_o \leq 157$		+2.6	+2.8	+3.0			
	C	*	$0.2 \leq f_o \leq 157$		+2.25	+2.5	+2.75			
	D	*	$0.2 \leq f_o \leq 80$		+1.6	+1.8	+2.0			
Frequency Tolerance (Includes frequency tolerance at room temperature.)	*	A	$0.2 \leq f_o \leq 167$	f _{tol}	-100	-	+100	×10 ⁻⁶	-40~+85°C	-10~+70°C (Standard Operating Temperature Range)
	*	B	$0.2 \leq f_o \leq 125$		-50	-	+50		-20~+70°C	
	*	C	$0.2 \leq f_o \leq 80$		-30	-	+30		-10~+70°C	
	*	D	$0.2 \leq f_o \leq 80$		-25	-	+25			
	*	E	$0.2 \leq f_o \leq 50$		-20	-	+20			
Current Consumption	A,M	*	$0.2 \leq f_o < 32$	I _{cc}	-	-	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			
	B	*	$125 \leq f_o \leq 167$		-	-	8.0			
			$0.2 \leq f_o < 32$		-	-	1.8			
			$32 \leq f_o < 54$		-	-	2.5			
			$54 \leq f_o < 125$		-	-	5.0			
	C	*	$125 \leq f_o \leq 157$		-	-	7.0			
			$0.2 \leq f_o < 32$		-	-	1.5			
			$32 \leq f_o < 54$		-	-	2.0			
			$54 \leq f_o < 125$		-	-	4.0			
	D	*	$125 \leq f_o \leq 157$		-	-	6.0			
			$0.2 \leq f_o < 32$		-	-	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 _{std}	-	-	10	μA		
Load Condition	*	*	*	L _{cmos}	-	-	15	pF		
	A,M	*	$0.2 \leq f_o \leq 80$		-	-	30			
Symmetry	*	*	$f_o < 50$	SYM	45	50	55	%	50% V _{cc} Level	
	*	*	$f_o \geq 50$		40	50	60			
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	A,M,B,C	*	$0.2 \leq f_o \leq 54$	tr, tf	-	-	5(4)	ns	L _{cmos} :15pF 10~90% V _{cc} Level (20~80% V _{cc} Level)	
	D	*	$0.2 \leq f_o \leq 54$		-	-	7(6)			
	*	*	$54 < f_o < 100$		-	-	4(3)			
	*	*	$100 \leq f_o \leq 167$		-	-	3(2.5)			
	A,M	*	$0.2 \leq f_o \leq 54$		-	-	10			
	A,M	*	$54 < f_o \leq 80$		-	-	6			
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}	-	-	1	ms		
Period Jitter (1)	*	*	*	t _{RMS}	-	2.2	-	ps	σ Peak to peak	
	*	*	*	t _{p-p}	-	20	-			
Total Jitter (1)	*	*	*	t _{TL}	-	31	-	ps	t _{DJ} +n*t _{RJ} n=14.1(BER=1*10 ⁻¹²) (2)	
Phase Jitter	*	*	$40 \leq f_o \leq 167$	t _{pj}	-	-	1	ps	fo offset:12kHz~20MHz	
			$10 \leq f_o < 40$						fo offset:12kHz~5MHz	
Packing Unit	DSO221SR, DSO321SR: 2000pcs./reel (φ 180) , DSO531SR: 1000pcs./reel (φ 180) , DSO751SR: 1000pcs./reel (φ 254)									

(1) Measured WAVECREST DTS-2075

(2) t_{DJ}:Deterministic jitter t_{RJ}:Random jitter

Consult our sales representative for other specifications.

SMD Crystal Oscillators

DS0221SR/DS0321SR/DS0531SR/DS0751SR

Applications

- PC, PDA, and peripherals, gaming equipment
- DSC, DVD, Blu-ray Disk, TV, HDTV, DVC, HDD
- WiMAX
- Mobile phones: camera module
- Telecommunications: GbEthernet, ISDN
- Automotive multimedia device

Dimensions[mm]

