

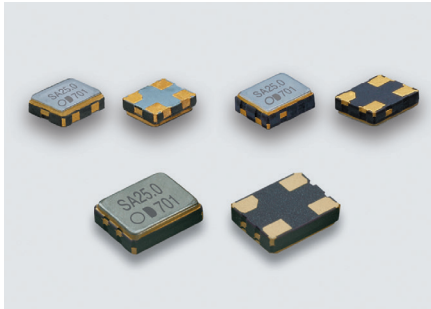


Ark.h.2G

SMD Crystal Oscillators

Under Development

DS2016AA/DS2520AA/DS3225AA



Actual size DS2016AA □ DS2520AA □
DS3225AA □

■ Features

- Supply voltage : 1.8V/2.5V/3.3V
- Available frequency range : 2 to 160MHz
- Low profile : 0.7mm(DS2016AA), 0.8mm(DS2520AA), 1.1mm(DS3225AA)
- CMOS output
- Supports a wide operating temperature range from -40 to +125°C
- AEC-Q200 Compliant (Option:Equivalent to AEC-Q100)

■ Applications

- PC, amusement equipment, HDD, camera module, automotive multimedia devices

[Function Code]

DS***AA A A

A : 3.3V — A : $\pm 100 \times 10^{-6}$
C : 2.5V — Z : $\pm 80 \times 10^{-6}$
D : 1.8V — B : $\pm 50 \times 10^{-6}$



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	*	$2 \leq f_0 \leq 160$	V _{cc}	+3.0	+3.3	+3.6	V		
	C				+2.25	+2.5	+2.75			
	D		$2 \leq f_0 \leq 150$		+1.6	+1.8	+2.0			
Frequency Tolerance (Includes frequency tolerance at room temperture)	*	A	*	f _{tol}	−100	—	+100	$\times 10^{-6}$	−40 to +125 °C	− 10 to +70°C (Standard Operating Temperature Range)
		Z			−80	—	+80		−40 to +110 °C	
		A			−100	—	+100		−40 to +85 °C	
		B			−50	—	+50			
Current Consumption	A	*	$2 \leq f_0 < 60$	I _{cc}	—	—	6.0	mA	No Load	
			$60 \leq f_0 < 125$		—	—	8.0			
			$125 \leq f_0 \leq 160$		—	—	10.5			
	C		$2 \leq f_0 < 60$		—	—	5.0			
			$60 \leq f_0 < 125$		—	—	7.0			
			$125 \leq f_0 \leq 160$		—	—	9.5			
	D		$2 \leq f_0 < 60$		—	—	4.0			
			$60 \leq f_0 < 125$		—	—	6.5			
$125 \leq f_0 \leq 160$		—	—	8.5						
Stand-by Current (#1 pin"L"Level)	*	*	*	I _{std}	—	—	10.0	μ A		
Load Condition	*	*	*	L _{CMOS}	—	—	15	pF		
Symmetry	*	*	*	SYM	40	50	60	%	at 50% V _{cc}	
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	*	*	$2 \leq f_0 < 60$	tr, tf	—	—	7	ns	10 to 90% V _{cc} Level	
			$60 \leq f_0 \leq 160$		—	—	4			
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	—	—	2	ms		
Phase Jitter	*	*	$10 \leq f_0 < 40$	tpj	—	—	1	ps	f _o offset:12kHz to 5MHz	
			$40 \leq f_0 \leq 160$						f _o offset:12kHz to 20MHz	
Packing unit(1)	DS2016AA/DS2520AA : 3000pcs./reel (Φ 180). DS3225AA : 2000pcs./reel (Φ 180)									

Packing unit(1)

DS2016AA/DS2520AA : 3000pcs./reel (Φ 180), DS3225AA : 2000pcs./reel (Φ 180)

(1) Moisture prevention packing is unnecessary.

Moisture Sensitivity Level : Level1 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications

■ DS2016AA

[mm]

■ DS2520AA

[mm]

■ DS3225AA

[mm]

■ Dimensions

Model Code: SA725.0, 701

Frequency: 2.0±0.1

Pin Connections:

Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	V _{CC}

Function:

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

#1 Index, Logo, Lot No.

■ Recommended Land Pattern (Top View)

#1, #2, #3, #4

1.3, 1.05, 0.53, 0.75, 0.6, 0.9

■ Dimensions

Model Code: SA725.0, 701

Frequency: 2.5±0.15

Pin Connections:

Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	V _{CC}

Function:

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

#1 Index, Logo, Lot No.

■ Recommended Land Pattern (Top View)

#1, #2, #3, #4

1.7, 0.9, 1.3, 1.00, 0.78, 1.68, 0.58, 1.28

■ Dimensions

Model Code: SA725.0, 701

Frequency: 3.2±0.15

Pin Connections:

Pin No.	Connection
#1	OE(Output Enable)
#2	GND
#3	Output
#4	V _{CC}

Function:

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

#1 Index, Logo, Lot No.

■ Recommended Land Pattern (Top View)

#1, #2, #3, #4

2.2, 1.2, 1.75, 0.95, 0.9, 2.1, 0.65, 1.65, 0.3, 0.3