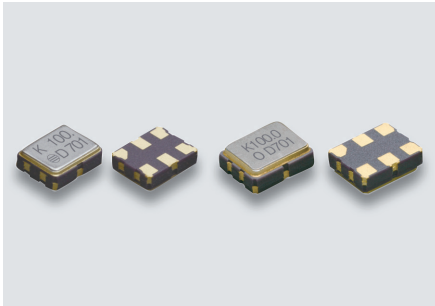


SMD Differential Output Crystal Oscillators (For Automotive)

DSO223SK/DSO323SK/DSO223SJ/DSO323SJ/DSO223SD/DSO323SD



Actual size DSO223S DSO323S

Features

- 2.5V/3.3V operating voltage, High speed type
- 3-state function
- LV-PECL output (DSO223/323SK)
- LVDS output (DSO223/323SJ)
- HCSL output (DSO223/323SD)
- AEC Standard
DSO223SK/SJ/SD: AEC-Q200 Compliant
DSO323SK/SJ/SD: AEC-Q200 Compliant
(Option: Equivalent to AEC-Q100)

Applications

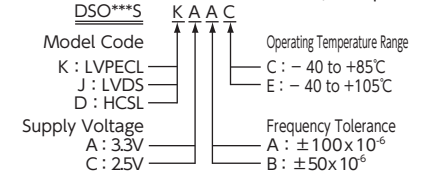
- Multimedia devices such as car navigation systems and car audio

[Type]

DSO223S SERIES	2520 size
DSO323S SERIES	3225 size



[Function Code]



Standard Specification

Item	Type	Legend	DSO223SK DSO323SK	DSO223SJ DSO323SJ	DSO223SD DSO323SD
Output Specification		—	LV-PECL	LVDS	HCSL
Output Frequency Range		fo	13.5 to 167MHz		
Supply Voltage		V _{CC}	+2.5V±0.125V/+3.3V±0.165V		
Frequency Tolerance (Includes frequency tolerance at room temperature.)		f _{tol}	±50×10 ⁻⁶ max., ±80×10 ⁻⁶ max. / ±100×10 ⁻⁶ max.		
Storage Temperature Range		T _{stg}	-40 to +105°C		
Operating Temperature Range		T _{use}	-40 to +85°C, -40 to +105°C		
Current Consumption		I _{CC}	45mA max.	20mA max.	30mA max.
Stand-by Current (#1 pin "L" Level)		I _{std}	10μA max.		
Load Resistance		Load-R	50Ω to V _{CC} -2V	100Ω (Output-OutputN)	50Ω
Symmetry		SYM	45 to 55% [at outputs cross point]		
0 Level Output Voltage		V _{OL}	V _{CC} -1.81 to V _{CC} -1.62V	—	-0.15 to 0.15V
1 Level Output Voltage		V _{OH}	V _{CC} -1.025 to V _{CC} -0.88V	—	0.58 to 0.85V
Rise and Fall Time		tr, tf	0.5ns max. [20 to 80% Output, OutputN]	0.4ns max. [20 to 80% Output-OutputN]	0.5ns max. [0.175 to 0.525V Level]
Differential Output Voltage		V _{OD1} , V _{OD2}	—	0.247 to 0.454V	—
Change to V _{OD}		ΔV _{OD}	—	50mV [ΔV _{OD} = V _{OD1} -V _{OD2}]	—
Offset Voltage		V _{OS}	—	1.125 to 1.375V	—
Offset to V _{OS}		ΔV _{OS}	—	50mV	—
Crossing Point Voltage		V _{CR}	—	—	250 to 550mV
OE Pin 0 Level input Voltage		V _{IL}	V _{CC} ×0.3 max.		
OE Pin 1 Level input Voltage		V _{IH}	V _{CC} ×0.7 min.		
Output Disable Time		t _{PLZ}	200ns		
Output Enable Time		t _{PZL}	2ms		
Period Jitter (1)		t _{RMS}	5ps typ. (13.5MHz≤fo<27MHz) / 2.5ps typ. (27MHz≤fo≤167MHz) (σ)		
		tp-p	33ps typ. (13.5MHz≤fo<27MHz) / 22ps typ. (27MHz≤fo≤167MHz) (Peak to peak)		
Total Jitter (1)		t _{TJL}	50ps typ. (13.5MHz≤fo<27MHz) / 35ps typ. (27MHz≤fo≤167MHz) [t _{DJ} + n×t _{RJ} n=14.1(BER=1×10 ⁻¹²) (2)]		
Phase Jitter		tpj	1.5ps max. (13.5MHz≤fo<27MHz) / 1ps max. (27MHz≤fo≤167MHz) [13.5MHz≤fo<40MHz, fo offset: 1.2kHz to 5MHz fo≥40MHz, fo offset: 1.2kHz to 20MHz]		
Reliability			AEC-Q200(DSO223 SERIES), AEC-Q100/AEC-Q200(DSO323 SERIES)		
Packing Unit (3)			2000pcs./reel(φ180)		

- (1) Measured WAVECREST DTS-2075
- (2) t_{DJ}:Deterministic jitter t_{RJ}: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.

DSO223S SERIES

[mm]

DSO323S SERIES

[mm]

Dimensions

Model Code: DSO223SJ: J, DSO223SK(2.5V): KB, DSO223SK(3.3V): K, DSO223SD: D

Pin Connections:

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

Function: #1 Input, #4,#5 Output condition, H Oscillation out, Open Oscillation out, L High Z

Recommended Land Pattern <Top View>

Dimensions

Model Code: DSO323SJ, DSO323SK(2.5V):KB, DSO323SK(3.3V):K, DSO323SD

Pin Connections:

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

Function: #1 Input, #4,#5 Output condition, H Oscillation out, Open Oscillation out, L High Z

Recommended Land Pattern <Top View>