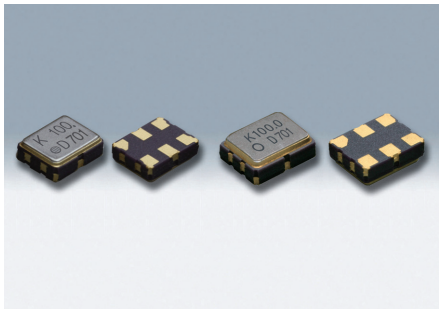
SMD Differential Output Crystal Oscillators〈For Automotive〉

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)

Pb-Free

RoHS/ELV Compliant

■ Applications

- Multimedia devices such as car navigation systems and car audio

[Type]

DSO223S SERIES	2520 size
DSO323S SERIES	3225 size

[Function Code]

DSO***S K A A C

- Model Code: K : LVPECL / J : LVDS / D : HCSL
- Operating Temperature Range: C : − 40 to +85℃ / E : − 40 to +105℃
- Supply Voltage: A : 3.3V / C : 2.5V
- Frequency Tolerance: A : ±100×10^{-6} / B : ±50×10^{-6}

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

■ Standard Specification

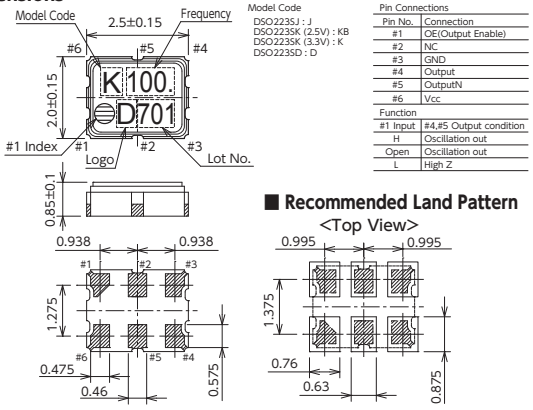
Item \ Type	Legend	DSO223SK DSO323SK	DSO223SJ DSO323SJ	DSO223SD DSO323SD
Output Specification	–	LV-PECL	LVDS	HCSL
Output Frequency Range	f0	13.5 to 167MHz		
Supply Voltage	Vcc	+2.5V±0.125V/+3.3V±0.165V		
Frequency Tolerance (Includes frequency tolerance at room temperature.)	f_tol	±50×10^{-6} max., ±80×10^{-6} max. / ±100×10^{-6} max.		
Storage Temperature Range	T_stg	−40 to +105℃		
Operating Temperature Range	T_use	−40 to +85℃, −40 to +105℃		
Current Consumption	Icc	45mA max.	20mA max.	30mA max.
Stand-by Current (#1 pin "L" Level)	I_std	10μA max.		
Load Resistance	Load-R	50Ω to Vcc−2V	100Ω (Output−OutputN)	50Ω
Symmetry	SYM	45 to 55% [at outputs cross point]		
0 Level Output Voltage	VOL	Vcc−1.81 to Vcc−1.62V	–	−0.15 to 0.15V
1 Level Output Voltage	VOH	Vcc−1.025 to Vcc−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	VOD1, VOD2	–	0.247 to 0.454V	–
Change to VOD	⊿VOD	–	50mV [⊿VOD= | VOD1−VOD2 |]	–
Offset Voltage	VOS	–	1.125 to 1.375V	–
Offset to VOS	⊿VOS	–	50mV	–
Crossing Point Voltage	Vcr	–	–	250 to 550mV
OE Pin 0 Level input Voltage	VIL	Vcc×0.3 max.		
OE Pin 1 Level input Voltage	VIH	Vcc×0.7 min.		
Output Disable Time	tPLZ	200ns		
Output Enable Time	tPZL	2ms		
Period Jitter (1)	tRMS	5ps typ. (13.5MHz≦f0<27MHz) / 2.5ps typ. (27MHz≦f0≦167MHz) (σ)		
	tp-p	33ps typ. (13.5MHz≦f0<27MHz) / 22ps typ. (27MHz≦f0≦167MHz) (Peak to peak)		
Total Jitter (1)	tTL	50ps typ. (13.5MHz≦f0<27MHz) / 35ps typ. (27MHz≦f0≦167MHz) [tDJ + n×tRJ n=14.1(BER=1×10^{-12}) (2)]		
Phase Jitter	tpj	1.5ps max. (13.5MHz≦f0<27MHz) / 1ps max. (27MHz≦f0≦167MHz) [13.5MHz≦f0<40MHz,f0 offset:12kHz to 5MHz f0≧40MHz,f0 offset:12kHz 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) tDJ:Deterministic jitter tRJ: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]

■ 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	Vcc

Function

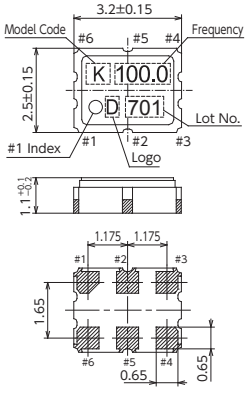
#1 Input	#4,#5 Output condition
H	Oscillation out
Open	Oscillation out
L	High Z

■ Recommended Land Pattern

<Top View>

■ DSO323S SERIES [mm]

■ Dimensions



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