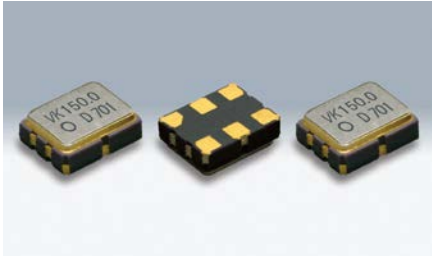


SMD Differential Output Voltage Controlled Crystal Oscillators

DSV323SV/DSV323SK/DSV323SJ/DSV323SD



Actual size

Features

- Available with four types of output functions: CMOS, LV-PECL, LVDS, HCSL
- Differential output (LV-PECL, LVDS, HCSL)
- Low jitter
- 3-state function

Applications

- Optical transmission device, radio transmitter-receiver equipment, digital image devices, and HDTV.



Standard Specification

Item	Type	Legend	DSV323SV	DSV323SK	DSV323SJ	DSV323SD
Output Specification		—	CMOS	LV-PECL	LVDS	HCSL
Output Frequency Range		f_0	6.75 to 170MHz	40 to 170MHz	80 to 170MHz	
Supply Voltage		V_{CC}	$+3.3V \pm 0.165V$			
Frequency Control Voltage		V_{cont}	$+1.65V \pm 1.65V$			
Storage Temperature Range		T_{stg}	-40 to $+85^\circ C$			
Operating Temperature Range		T_{use}	-10 to $+70^\circ C$ / -40 to $+85^\circ C$			
Frequency Tolerance		f_{tol}	$\pm 50 \times 10^{-6}$ max.			
Frequency Adjustment Range		f_{cont}	$\pm 100 \times 10^{-6}$ min. [Positive Slope]			
Current Consumption		I_{CC}	12mA 6.75MHz $\leq f_0 \leq 90$ MHz 25mA 80MHz $\leq f_0 \leq 186$ MHz [No Load]	50mA max.	30mA max.	40mA max.
Stand-by Current (#1 pin "L" Level)		I_{std}	5mA 6.75MHz $\leq f_0 \leq 90$ MHz 30 μA 80MHz $\leq f_0 \leq 186$ MHz	30 μA		
Output Load		Load	15pF max.	50 Ω to $V_{CC}-2V$	100 Ω (Output-OutputN)	50 Ω
Symmetry		SYM	40 to 60% [50% V_{CC} Level]	40 to 60% [at outputs cross point]		
0 Level Output Voltage		V_{OL}	$V_{CC} \times 0.1$ max.	$V_{CC}-1.81$ to $V_{CC}-1.62V$	—	-150 to $150mV$
1 Level Output Voltage		V_{OH}	$V_{CC} \times 0.9$ min.	$V_{CC}-1.025$ to $V_{CC}-0.88V$	—	600 to 850mV
Rise and Fall Time		$t_{r,tf}$	10ns max.(6.75MHz $\leq f_0 \leq 40$ MHz)	0.5ns max. [20 to 80% Output, OutputN]	0.5ns max. [20 to 80% Output-OutputN]	0.5ns max. [0.175 to 0.525V Level]
			6ns max.(40MHz $< f_0 \leq 54$ MHz)			
			4ns max.(54MHz $< f_0 \leq 90$ MHz)			
			2ns max.(80MHz $\leq f_0 \leq 186$ MHz) [10 to 90% V_{CC}]			
Differential Output Voltage		V_{OD1}, V_{OD2}	—	—	0.247 to 0.454V	—
Change to V_{OD}		ΔV_{OD}	—	—	50mV [$\Delta V_{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}	$V_{CC} \times 0.3$ max.			
OE Pin 1 Level Input Voltage		V_{IH}	$V_{CC} \times 0.7$ min.			
Output Disable Time		t_{PLZ}	150ns max. (6.75MHz $\leq f_0 \leq 90$ MHz)	200ns max.		
			200ns max. (80MHz $\leq f_0 \leq 186$ MHz)			
Output Enable Time		t_{PZL}	150ns max. (6.75MHz $\leq f_0 \leq 90$ MHz)	2ms max.		
			2ms max. (80MHz $\leq f_0 \leq 186$ MHz)			
Period Jitter (1)		t_{RMS}	2.3ps typ. (σ)			
			t_{p-p}	22ps typ. (Peak to peak)		
Total Jitter (1)		t_{TL}	32ps typ. [$t_{DJ} + n \times t_{RJ}$ n=14.1 (BER=1 $\times 10^{-13}$) (2)]			
Phase Jitter		t_{pj}	1ps max. [13.5MHz $\leq f_0 < 40$ MHz, f_0 offset:12kHz to 5MHz $f_0 \geq 40$ MHz, f_0 offset:12kHz to 20MHz]			
Packing Unit (3)		—	2000pcs/reel(180 ϕ)			

(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.

[mm]

Dimensions

Model Code: VK120.0, VK150.0, VK170.0, VK186.0, VJ, VD

Pin Connections

Pin No.	Connection
#1	V_{cont}
#2	OE(Output Enable)
#3	GND
#4	Output
#5	NC / OutputN (DSV323SV, DSV323SK, DSV323SJ, DSV323SD)
#6	V_{CC}

Function

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

Recommended Land Pattern

<Top View>