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SPECIFICATION

SJK P/N: S51000000218J

深圳市晶科鑫实业有限公司
SHENZHEN CRYSTAL TECHNOLOGY INDUSTRIAL CO., LTD.

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High Frequency, Low Power Oscillator

5.0*3.2 mm



Applications

- n Ideal for GPON/GPON, network switches, routers. servers, embedded systems
- n Ideal for Ethernet, PCI-E, DDR, etc.

ELECTRICAL SPECIFICATIONS

No	Parameters	Symbol	Condition	Electrical Specifications			
				MIN	TYP	MAX	UNITS
1	Nominal Frequency	-		100.000000			MHz
2	Output		CMOS				
3	Operating Temperature	Topr		-40	~	85	°C
4	Storage Temperature	Tstg		-55	~	125	°C
5	Frequency Stability	-		±25			ppm
6	Supply Voltage	VDD		1.47	1.8	2.13	V
7	Current Consumption	Idd			6.2	7.5	mA
8	OE Disable Supply Current	I_OE	Vdd = 2.5V to 3.3V, OE = GND, Output in high-Z state			4	mA
9	Standby Current	I_std	ST = GND, Vdd = 2.8V to 3.3V, Output is weakly pulled down		2.6	4.3	μA
10	Duty Cycle	DC	All Vdds	45		55	%
11	Rise/Fall Time	Tr, Tf	Vdd = 3.3V, 20% - 80%		1	2	ns
12	Input Voltage High	VIH	Pin 1, OE or ST	70%			VDD
13	Input Voltage Low	VIL	Pin 1, OE or ST	-	-	30%	VDD
14	Output Voltage High	VoH	IOH = -4 mA (Vdd = 3.0V or 3.3V)	90%VDD	-	-	V
15	Output Voltage Low	VoL	IOL = 4 mA (Vdd = 3.0V or 3.3V)	-	-	10%VDD	V
16	Input Pull-up Impedence	Z_in	Pin 1, OE logic high or logic low, or ST logic high		87	100	KΩ
			Pin 1, ST logic low	2			MΩ
17	Startup Time	T_start	Measured from the time Vdd reaches its rated minimum value			5	mS
18	RMS Period Jitter	T_jitt	f = 75 MHz, Integration bandwidth = 12 kHz to 20 MHz		1.93	3	ps
19	Aging	-	1st Year at 25°C	±3			ppm

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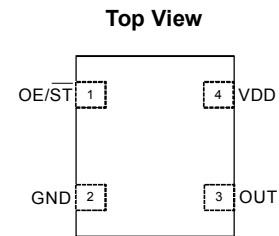


Pin Description

Pin	Symbol	Functionality
1	OE/ $\overline{\text{ST}}$	Output Enable H or Open ^[2] : specified frequency output L: output is high impedance. Only output driver is disabled.
		Standby H or Open ^[2] : specified frequency output L: output is low (weak pull down). Device goes to sleep mode. Supply current reduces to I _{std} .
2	GND	Power Electrical ground ^[3]
3	OUT	Output Oscillator output
4	VDD	Power Power supply voltage ^[3]

Notes:

2. A pull-up resistor of <10 k Ω between OE/ $\overline{\text{ST}}$ pin and Vdd is recommended in high noise environment.
3. A capacitor value of 0.1 μF between Vdd and GND is recommended.



Absolute Maximum

Attempted operation outside the absolute maximum ratings of the part may cause permanent damage to the part. Actual performance of the IC is only guaranteed within the operational specifications, not at absolute maximum ratings.

Parameter	Min.	Max.	Unit
Storage Temperature	-65	150	$^{\circ}\text{C}$
VDD	-0.5	4	V
Electrostatic Discharge	—	2000	V
Soldering Temperature (follow standard Pb free soldering guidelines)	—	260	$^{\circ}\text{C}$
Junction Temperature	—	150	$^{\circ}\text{C}$

Thermal Consideration

Package	θ_{JA} , 4 Layer Board ($^{\circ}\text{C/W}$)	θ_{JA} , 2 Layer Board ($^{\circ}\text{C/W}$)	θ_{JC} , Bottom ($^{\circ}\text{C/W}$)
5032	97	199	24

Environmental Compliance

Parameter	Condition/Test Method
Mechanical Shock	MIL-STD-883F, Method 2002
Mechanical Vibration	MIL-STD-883F, Method 2007
Temperature Cycle	JESD22, Method A104
Solderability	MIL-STD-883F, Method 2003
Moisture Sensitivity Level	MSL1 @ 260 $^{\circ}\text{C}$

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Test Circuit and Waveform

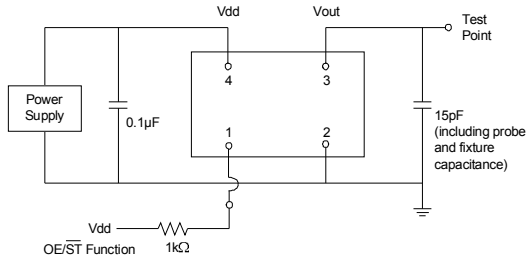


Figure 1. Test Circuit

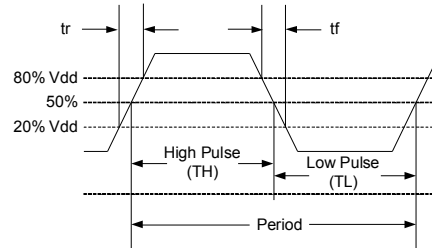


Figure 2. Waveform

Note:

1. Duty Cycle is computed as $\text{Duty Cycle} = \text{TH} / \text{Period}$.

Timing Diagrams

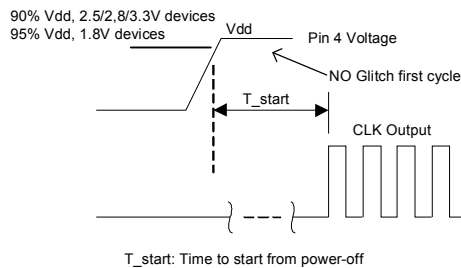


Figure 3. Startup Timing (OE/ST Mode)

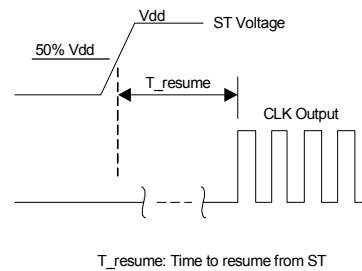


Figure 4. Standby Resume Timing (ST Mode Only)

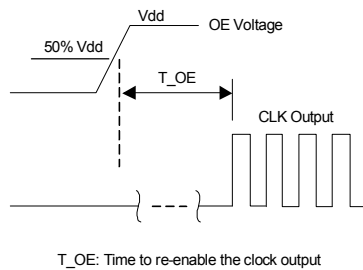


Figure 5. OE Enable Timing (OE Mode Only)

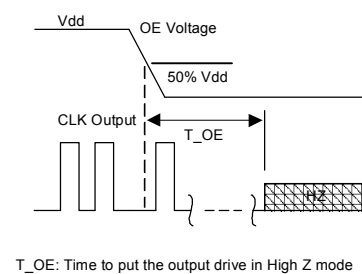


Figure 6. OE Disable Timing (OE Mode Only)

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Dimensions and Patterns

Package Size – Dimensions (Unit: mm)	Recommended Land Pattern (Unit: mm)
5.0 x 3.2 x 0.75 mm	

Notes:

A. capactor of value 0.1uF between Vdd and GND is recommended

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