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Checked by: 杨霞
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SPECIFICATION

SJK P/N: S102600000118J

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

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Low Power Programmable Oscillator
2.0*1.6 mm

Applications

- Ideal for DSC, DVC, DVR, IP CAM, Tablets, e-Books, SSD, GPON, EPON, etc
- Ideal for high-speed serial protocols such as: USB, SATA, SAS, Firewire, 100M / 1G / 10G Ethernet, etc.

ELECTRICAL SPECIFICATIONS

No	Parameters	Symbol	Condition	Electrical Specifications			
				MIN	TYP	MAX	UNITS
1	Nominal Frequency	-		26.000			MHz
2	Output		CMOS				
3	Operating Temperature	Topr		-40	~	85	°C
4	Storage Temperature	Tstg		-55	~	125	°C
5	Frequency Stability	-		±10			ppm
6	Supply Voltage	VDD		1.62	1.8	1.98	V
7	**Current Consumption**	Idd	No load condition, f = 20 MHz, Vdd =1.8V		3.5	4.1	mA
8	**OE Disable Supply Current**	I_OE	Vdd = 1.8V, OE = GND, Output in high-Z state			4.0	mA
9	**Standby Current**	I_std	ST = GND, Vdd = 1.8V, Output is weakly pulled down		0.2	1.3	µA
10	**Duty Cycle**	DC	All Vdds	45		55	%
11	**Rise/Fall Time**	Tr, Tf	Vdd =1.8V, 20% - 80%		1.3	2.5	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 = -2 mA (Vdd = 1.8V)	90%VDD	-	-	V
15	Output Voltage Low	VoL	IOL = 2 mA (Vdd = 1.8V)	-	-	10%VDD	V
16	Input Pull-up Impedence	Z_in	Pin 1, OE logic high or logic low, or ST logic high		87	150	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

Note:

All electrical specifications in the above table are specified with 15 pF output load and for all Vdd(s) unless otherwise stated. Typical values are at 25°C and nominal supply voltage.

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Table 1. Pin Description

Pin	Symbol	Functionality	
1	OE/ $\overline{ST}$/NC	Output Enable	H[1]: specified frequency output L: output is high impedance. Only output driver is disabled.
		Standby	H[1]: specified frequency output L: output is low (weak pull down). Device goes to sleep mode. Supply current reduces to I_std.
		No Connect	Any voltage between 0 and Vdd or Open[1]: Specified frequency output. Pin 1 has no function.
2	GND	Power	Electrical ground
3	OUT	Output	Oscillator output
4	VDD	Power	Power supply voltage

Top View

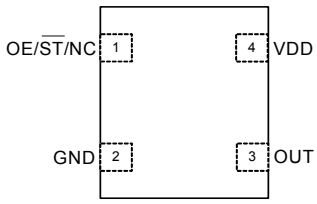


Figure 1. Pin Assignments

Notes:

1. In OE or $\overline{ST}$ mode, a pull-up resistor of 10 kΩ or less is recommended if pin 1 is not externally driven. If pin 1 needs to be left floating, use the NC option.
2. A capacitor of value 0.1 µF or higher between Vdd and GND is required.

Table 2. Absolute Maximum Limits

Attempted operation outside the absolute maximum ratings 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	°C
Vdd	-0.5	4	V
Electrostatic Discharge	–	2000	V
Soldering Temperature (follow standard Pb free soldering guidelines)	–	260	°C
Junction Temperature[3]	–	150	°C

Note:

2. Exceeding this temperature for extended period of time may damage the device.

Table 3. Thermal Consideration

Package	θJA, 4 Layer Board (°C/W)	θJA, 2 Layer Board (°C/W)	θJC, Bottom (°C/W)
2016	152	252	36

Note:

3. Refer to JESD51 for θJA and θJC definitions, and reference layout used to determine the θJA and θJC values in the above table.

Table 4. Maximum Operating Junction Temperature

Max Operating Temperature (ambient)	Maximum Operating Junction Temperature
70°C	80°C
85°C	95°C

Note:

4. Datasheet specifications are not guaranteed if junction temperature exceeds the maximum operating junction temperature.

Table 5. 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°C**

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Test Circuit and Waveform

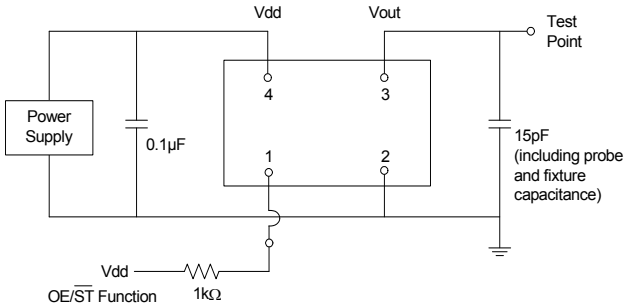


Figure 2. Test Circuit

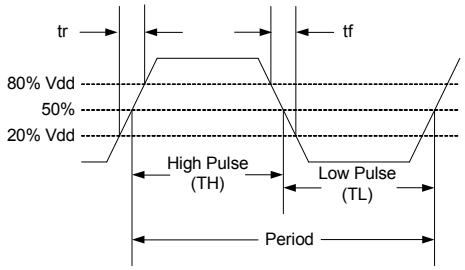
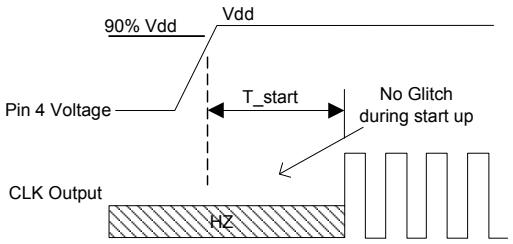


Figure 3. Waveform

Note:

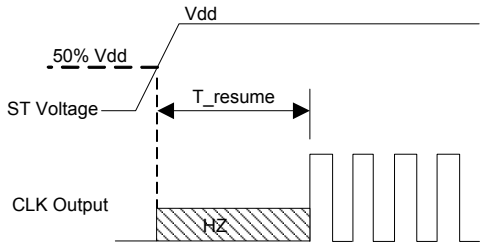
2. Duty Cycle is computed as Duty Cycle = TH/Period.

Timing Diagrams



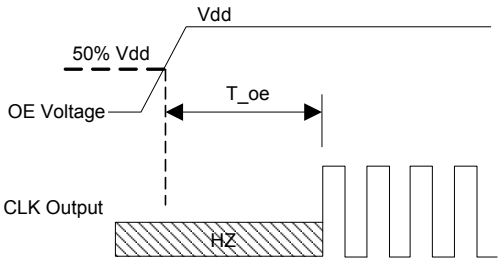
T_start: Time to start from power-off

Figure 4. Startup Timing (OE/$\overline{ST}$ Mode)



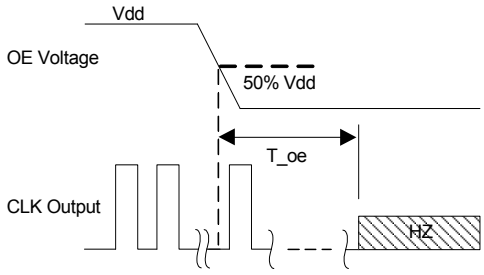
T_resume: Time to resume from ST

Figure 5. Standby Resume Timing ($\overline{ST}$ Mode Only)



T_oe: Time to re-enable the clock output

Figure 6. OE Enable Timing (OE Mode Only)



T_oe: Time to put the output in High Z mode

Figure 7. OE Disable Timing (OE Mode Only)

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Performance Plots

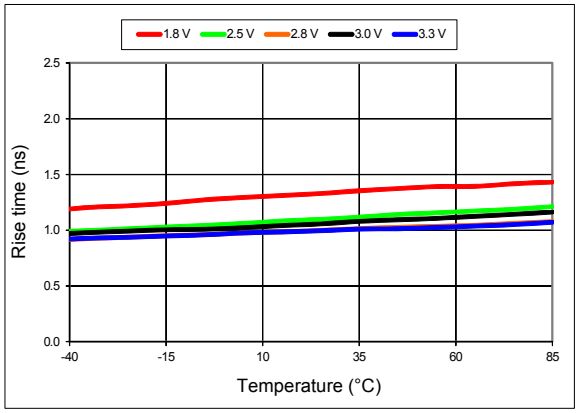


Figure 8. 20%-80% Rise Time vs Temperature

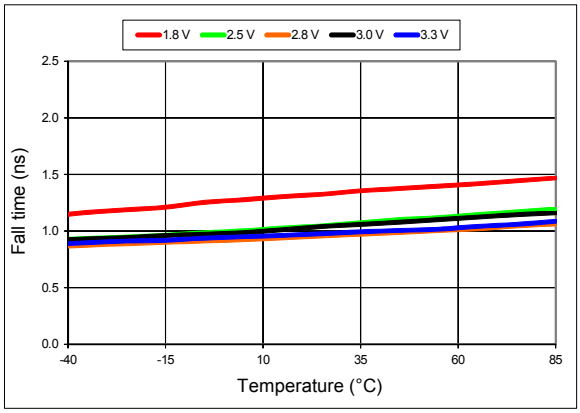
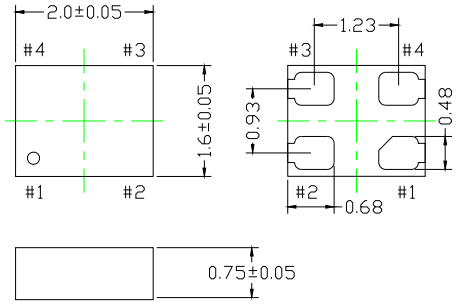
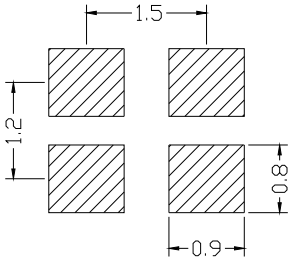


Figure 9. 20%-80% F all Time vs Temperature

Dimensions and Patterns

2.0 x 1.6 x 0.75 mm





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