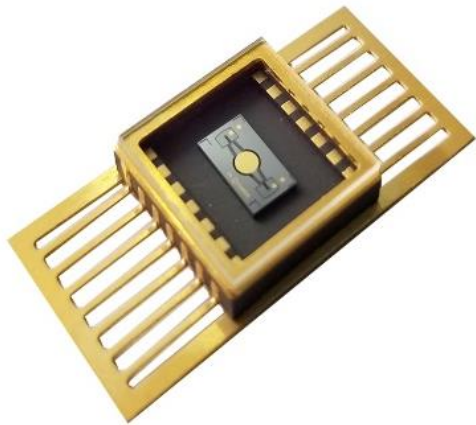




**Xi'an ZhiSENSOR
Technologies Co., Ltd.**

**C1130 Datasheet
V1.0**



C1130

MEMS mirror

Introduction

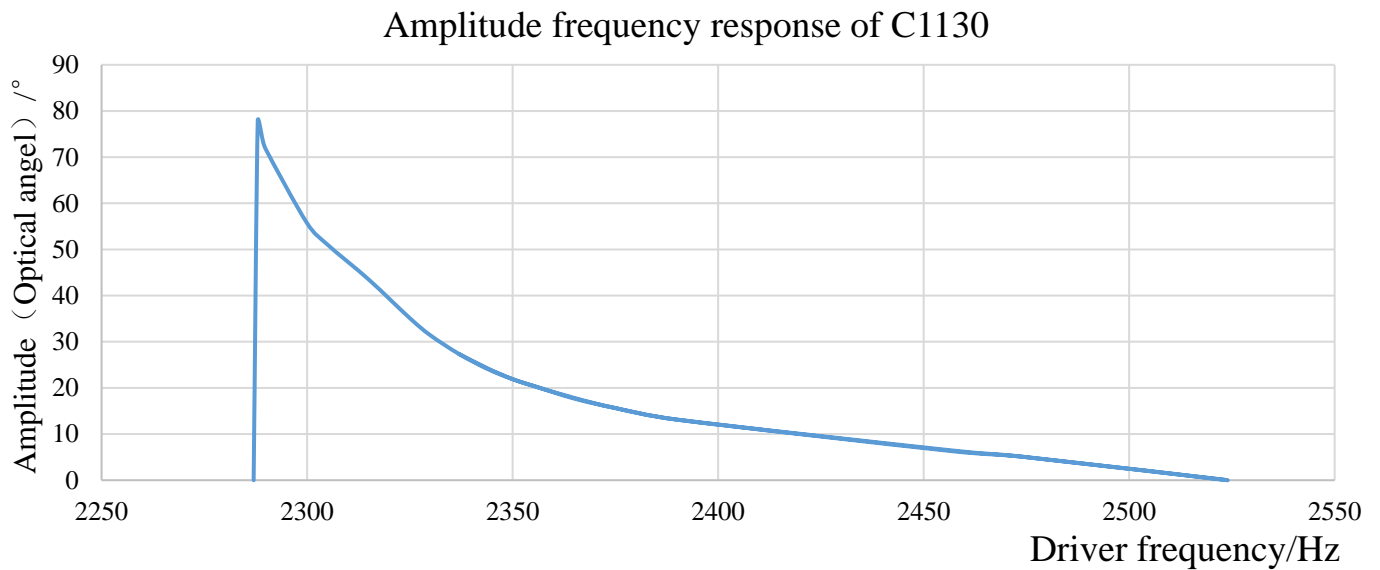
C1130 is a one-axis electrostatic driven resonant MEMS mirror with characteristics of high reliability, small size, and lightweight. The surface of the chip is covered with Au, which reflectivity for infrared light (wavelength $\geq 800\text{nm}$) over 95%.

Features	<ul style="list-style-type: none"> 1 Electrostatic driven 2 Covered with Au 3 Low consumption 4 Small size 5 High reliability 	Applications	<ul style="list-style-type: none"> 1 Laser projectors 2 AR/VR 3 Machine vision 4 Lidar
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MEMS Mirror Parameters

Item	Value	Unit
Diameter	3.0	mm
Resonant frequency	$1.15 \pm 10\%$	KHz
Driven voltage	120~140s	V
Storage temperature	-40~85	°C
Operating temperature	0~70	°C
Operating environment	GB/T16292-1996	

The Resonant Frequency of C1130



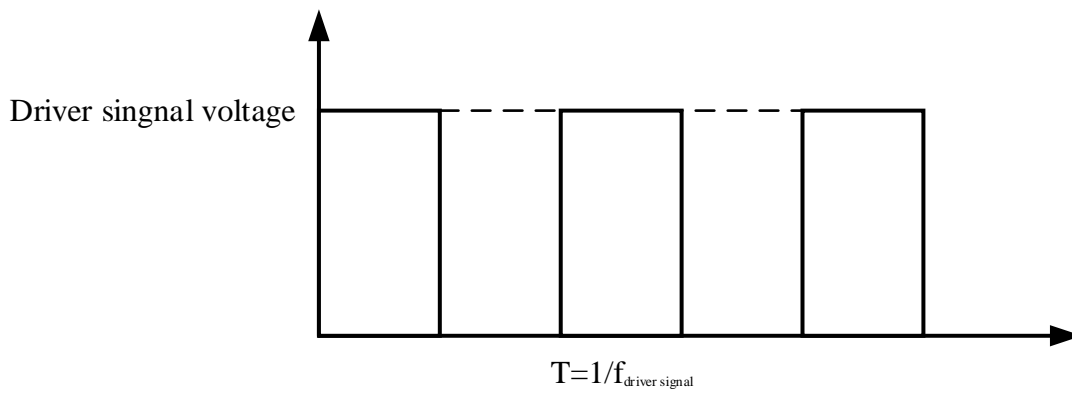
Note: The “Driver frequency” in the figure is twice the resonant frequency.

MEMS Mirror Drive

C1130 working in resonant state, and the torsional angle is related to the frequency, users can reference the amplitude frequency response for more information. Users must make sure the frequency of drive signal is between $f_2/2$ and $f_3/2$ (shown at the frequency response curve, and the value are list as below) in order to stabilize the MEMS mirror. Then change the frequency of the drive signal to the desired torsional angle (Keep in mind that the frequency of the drive signal is twice the resonant frequency).

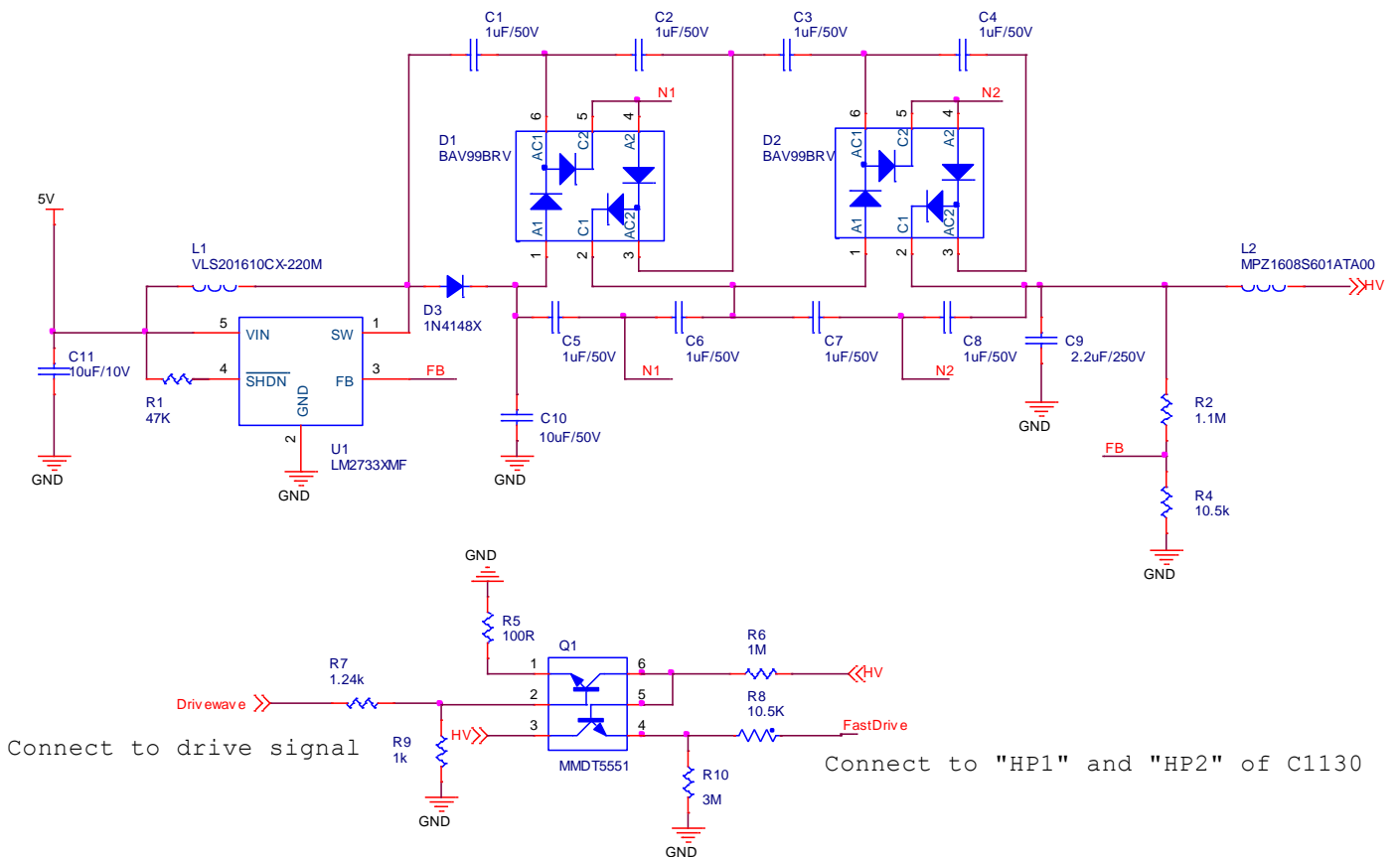
Item		Working frequece	Corresponding drive signal frequency	Unit
C1100	f1	1144	2288	Hz
	f2	1168.5	2337	Hz
	f3	1262	2524	Hz

Note: f1 is the low cutoff frequency.



The driven voltage signals, added to the pins of C1130, are square wave as shown in the figure, which duty ratio are 50%. Keep in mind that the frequency of the drive signal is twice the resonant frequency.

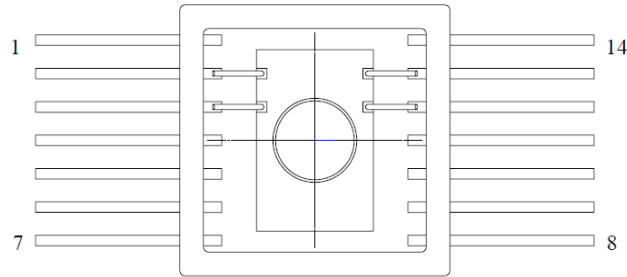
The following is the reference drive circuit of C1130.



Note: 1. HV is the driving voltages of the chip;

2. The reference circuit only includes boost circuit and switch circuit, the square wave signal are given by users.

Pin Configuration and Functions

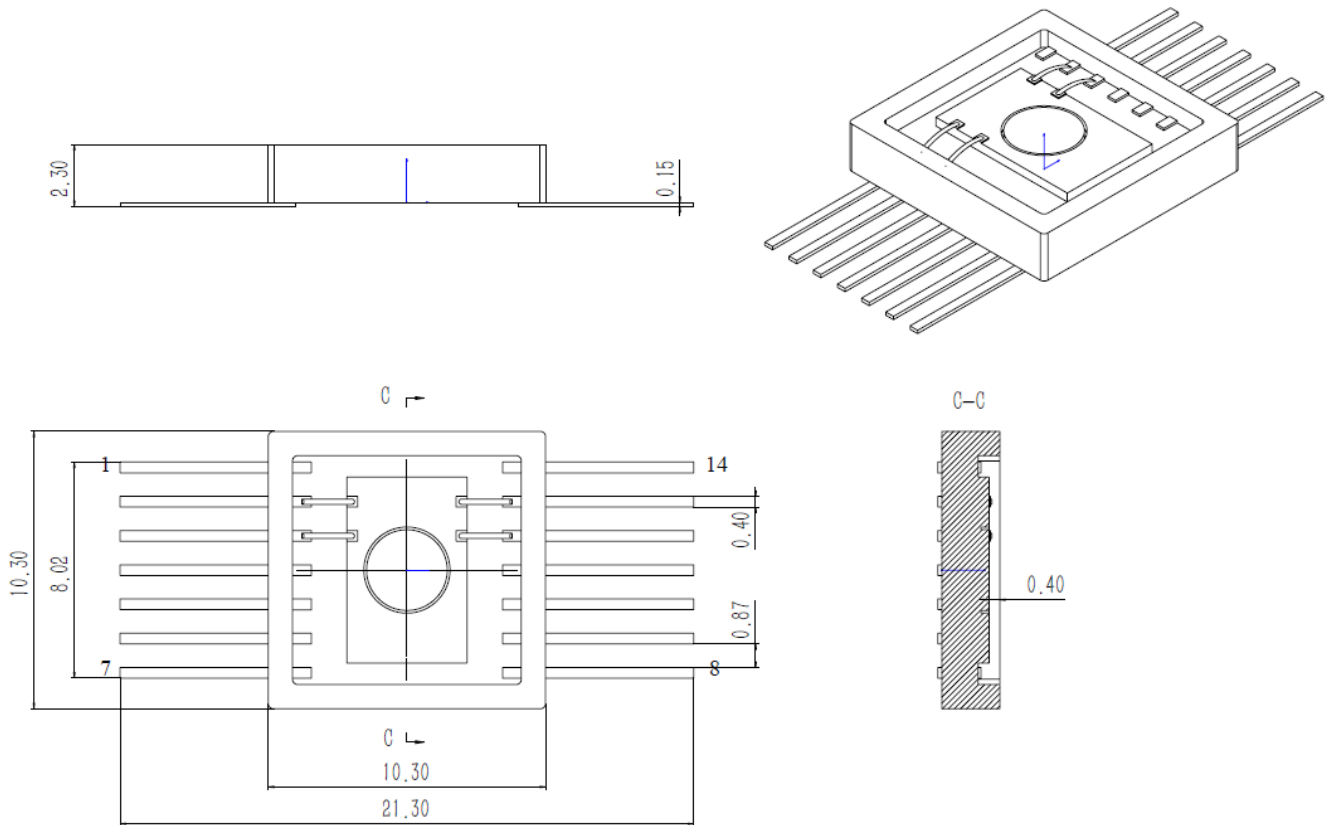


Pins of C1100

Functions of pins

NO.	Function	Description	Note
1	-	-	-
2	GND	-	-
3	HP1	Connect to "FastDrive"	See reference drive circuit of C1130
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
11	-	-	-
12	HP2	Connect to "FastDrive"	See reference drive circuit of C1130
13	GND	-	-
14	-	-	-

Dimension of C1130



Unit: mm

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