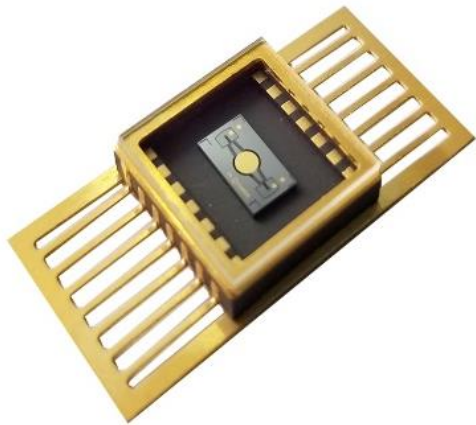




**Xi'an ZhiSENSOR
Technologies Co., Ltd.**

**C1100 Datasheet
V1.1.2**



C1100

MEMS mirror

Introduction

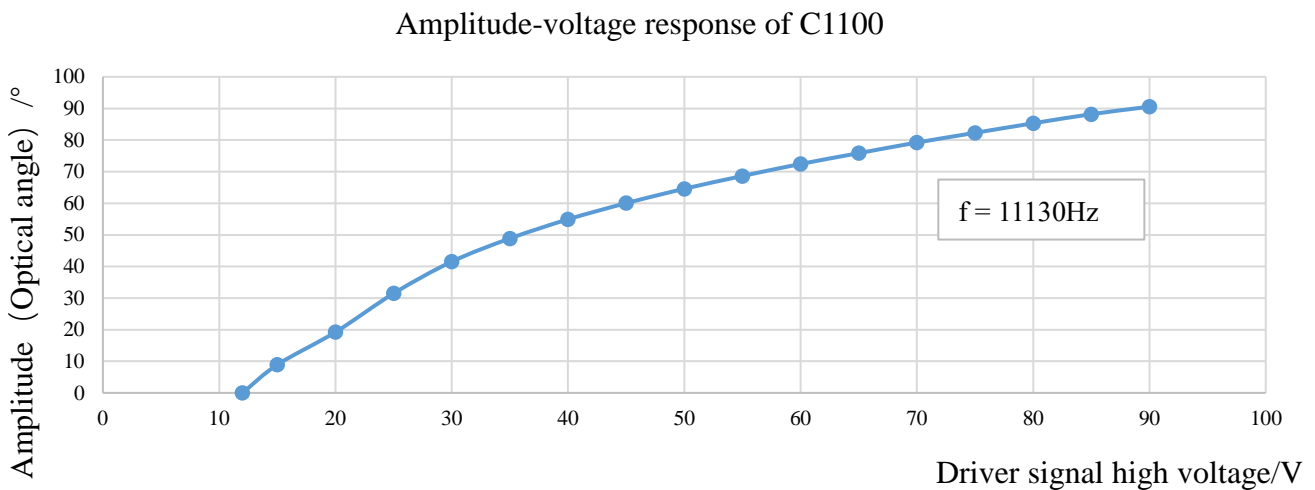
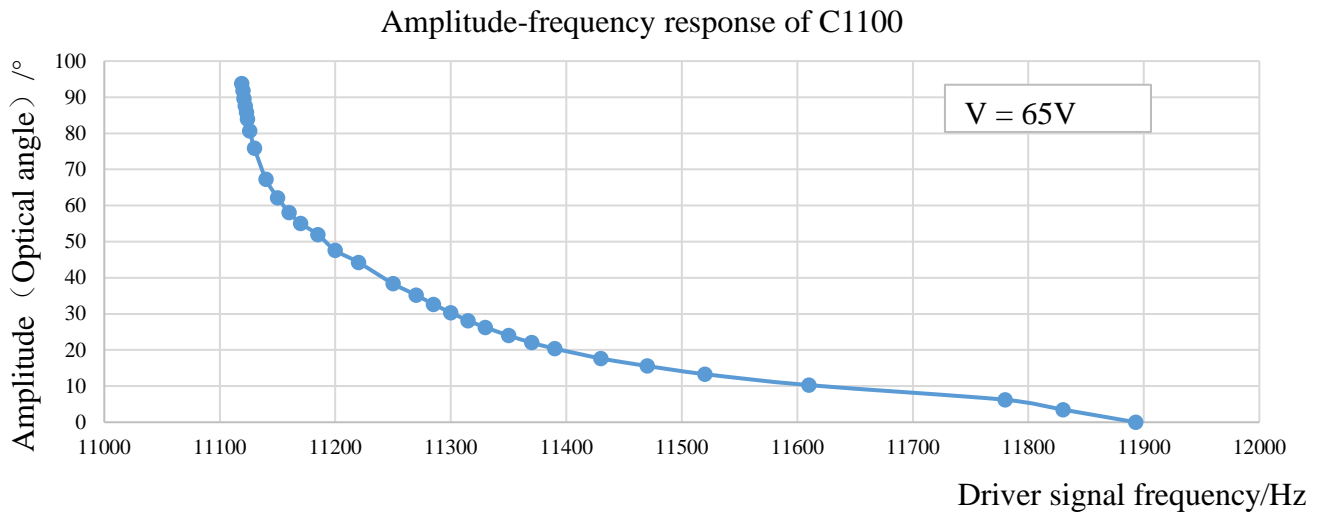
C1100 is a one-axis electrostatic driven resonant MEMS mirror with characteristics of high reliability, small size, and lightweight. The surface of the chip is covered with Au, which reflectivity for infrared light (wavelength $\geq 800\text{nm}$) over 95%.

Features	Applications
1 Electrostatic driven	1 Laser projectors
2 Covered with Au	2 AR/VR
3 Low consumption	3 Machine vision
4 Small size	4 Lidar
5 High reliability
.....	

MEMS Mirror Parameters

Item	Value	Unit
Diameter	1.3	mm
Resonant frequency	$5.8 \pm 10\%$	KHz
Driven voltage	20~90	V
Storage temperature	-40~85	°C
Operating temperature	0~70	°C
Operating environment	GB/T16292-1996	

The Resonant Frequency of C1100



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

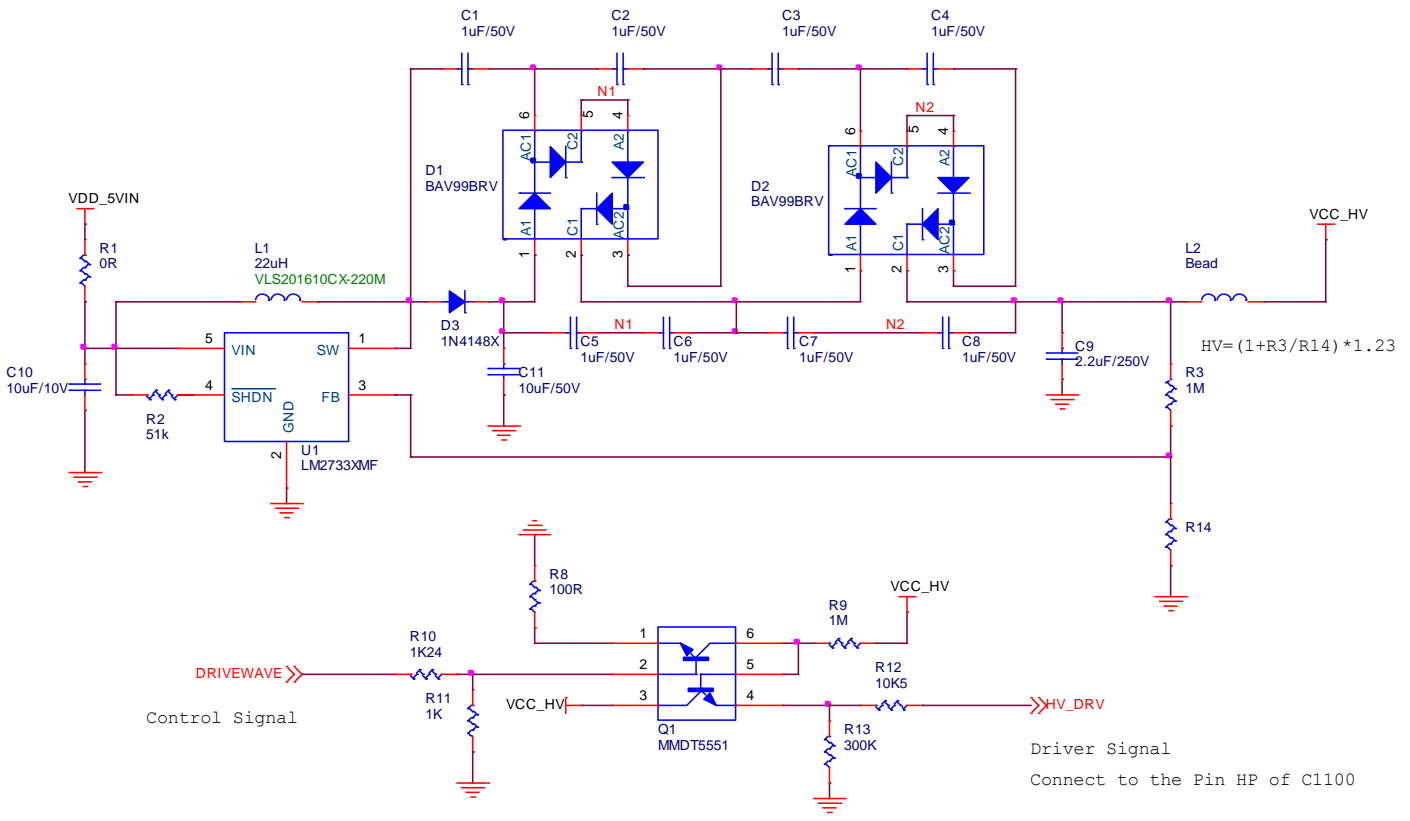
MEMS Mirror Drive

C1100 working in a resonant state, and the torsional angle is related to the frequency and the voltage of the driver signal, users can reference the amplitude-frequency response and amplitude-voltage response for more information. Users must make sure the frequency of the drive signal is between f_2 and f_3 (shown in the table listed 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).

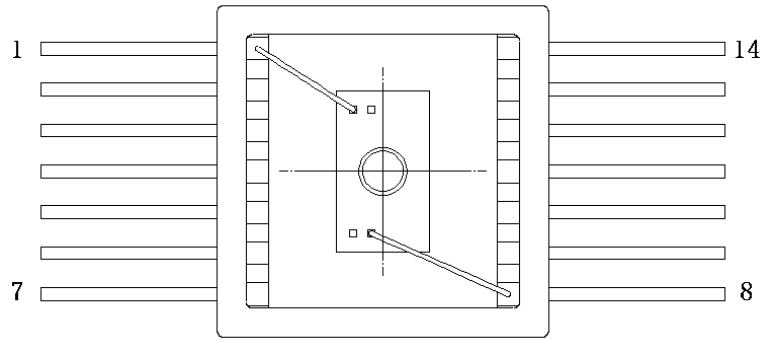
Parameter	f1	f2	f3	Unit
Driver signal frequency	11119	11283	11893	Hz

The driven signals, added to the pins of C1100, are square wave, which duty ration 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 C1100 which is include a boost circuit and switch circuit. The driving signal of the MEMS mirror can be formed by the user accessing the control signal. The frequency of the driving signal of the MEMS mirror is the same as that of the control signal. The user can change the frequency of the driving signal of the MEMS mirror by changing the frequency of the control signal. Therefore, it is recommended that the control signal be by a square wave voltage with a duty cycle of 50% and follow the TTL level standard.



Pin Configuration and Functions

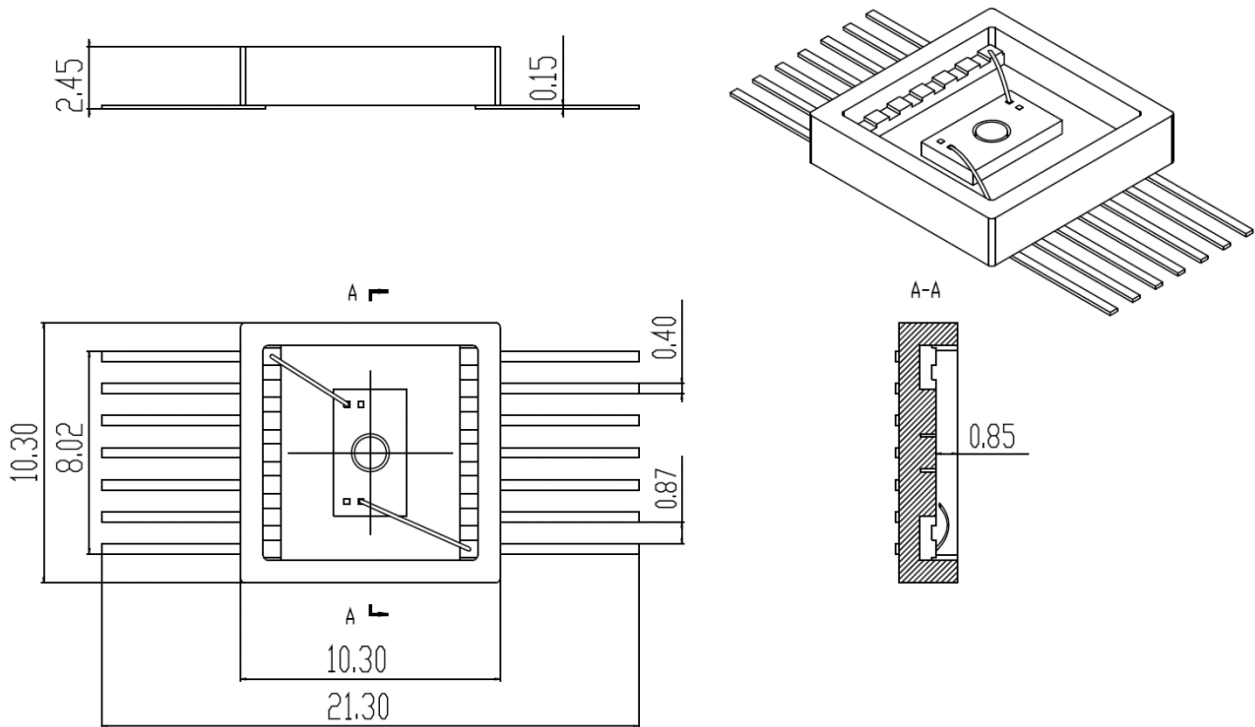


Pins of C1100

Functions of pins

NO.	Function	Description	Note
1	HP	Connect to "HV_DRV"	Refer to the reference driver circuit-
2	-	-	
3	-	Connect to "FastDrive"	See reference drive circuit of C1100
4	-	-	-
5	-	-	-
6	-	-	-
7	-	-	-
8	GND	-	-
9	-	-	-
10	-	-	-
11	-	-	-
12	-	-	-
13	-	-	-
14	-	-	-

Dimension of C1100



Unit: mm

Note: In order to show the internal structure, the dimensions in the above figure do not include the protective glass, and the thickness of the protective glass is 0.5mm;

Do not remove the protective glass unless under a special environment or protection.

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