Dynamic Loudspeaker

28×16×5.1 mm

Guts

With waterproof IPX5

CR2816S051YN8WPZ

Revision

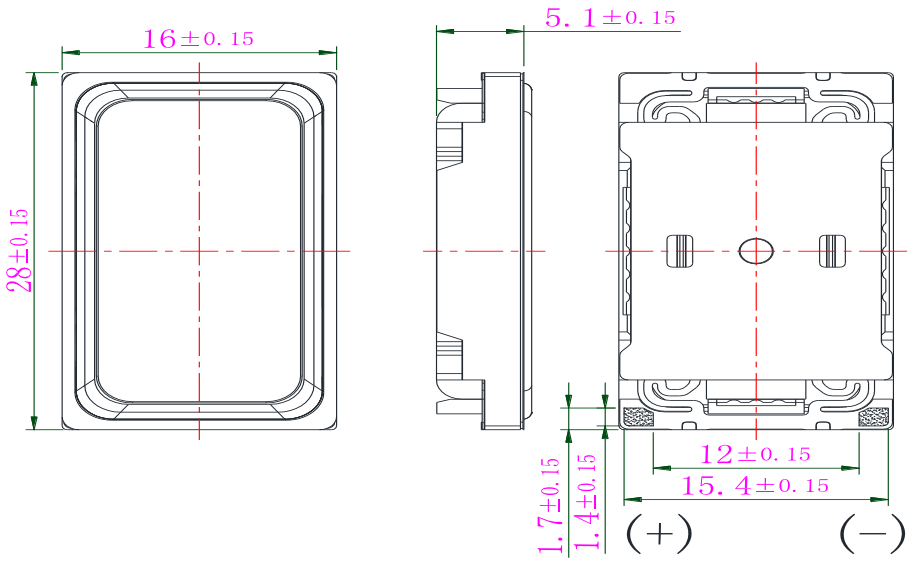
Date	Version	Status	Changes	Approver
2025/9/17	V0.1	Draft	First release	AX

Parameter	Conditions/Description	Values	Units
Rated Input Power	In 5CC BOX	2.0	W
Max Input Power	In 5CC BOX	2.2	W
Rated Impedance	1V input In 5CC BOX	8±15%	Ω
Sound Pressure Level	2.0W/0.1M at 1K . In 5CC BOX	108±3	dB
Resonant Frequency	At 1V In 5CC BOX	750±20%	Hz
Frequency Range	Output S.P.L. -10dB	F0-10k	Hz
Distortion	input 2.0W/ 0.1M With Baffle In 5CC BOX	See limIts	
Rub&Buzz	input 2.0W/ 0.1M With Baffle In 5CC BOX	See limIts	
Magnet	NdFeB		
Buzz, Rattle, etc.	must be normal at sine wave between 300 ~ 5kHz,In 5CC BOX	4.0	V
Polarity	cone will move forward with positive dc current to "+" terminal		
Weight			g
Operating		-40~+85	℃
Storage Temperature		-40~+85	℃
WaterProof	膜片面防水	IPX5	
Air Leak Test	音膜面防水,设置气压：11.5-13.5KPa，充气时间 2S,稳定时间 2S，测试时间 5S，泄露≤40Pa	IPX5	

Notes: Above Measuring condition under temperature :15~35℃ R.H. 25~75%. Accordig to standard GB/T9396-1996

MECHANICAL DRAWING

Units: mm
Tolerance: ±0.1mm



CONSTRUCTION DETAIL

1	VOICE COIL	COPPER WIRE	1
2	DIAPHRAGM	PEEK	1
3	U YOKE	SPCC	1
4	POLE PIECE	SPCC	1
5	MAGNET	NdFeB	1
6	FRAME	PPA	1

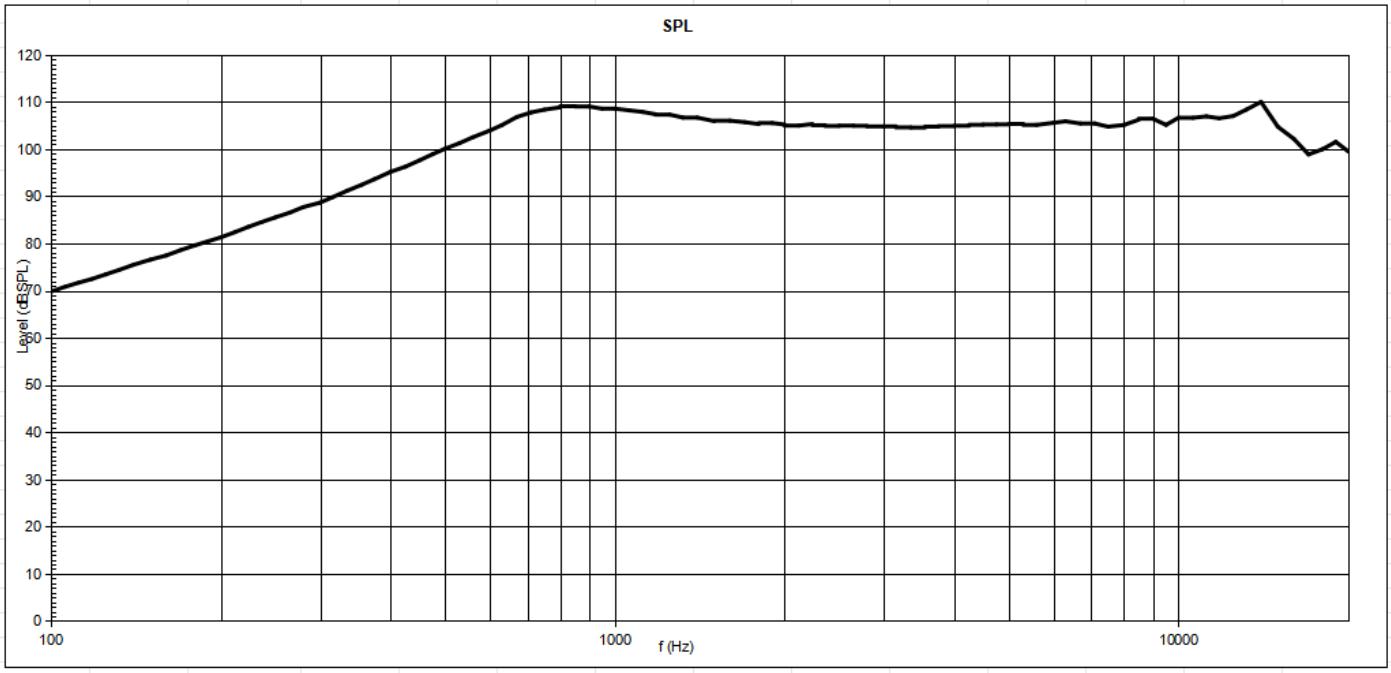
The material must be meet to GU-001

PART NO.	PART NAME	Q'TY	MATERIAL	REMARK

RESPONSE CURVES

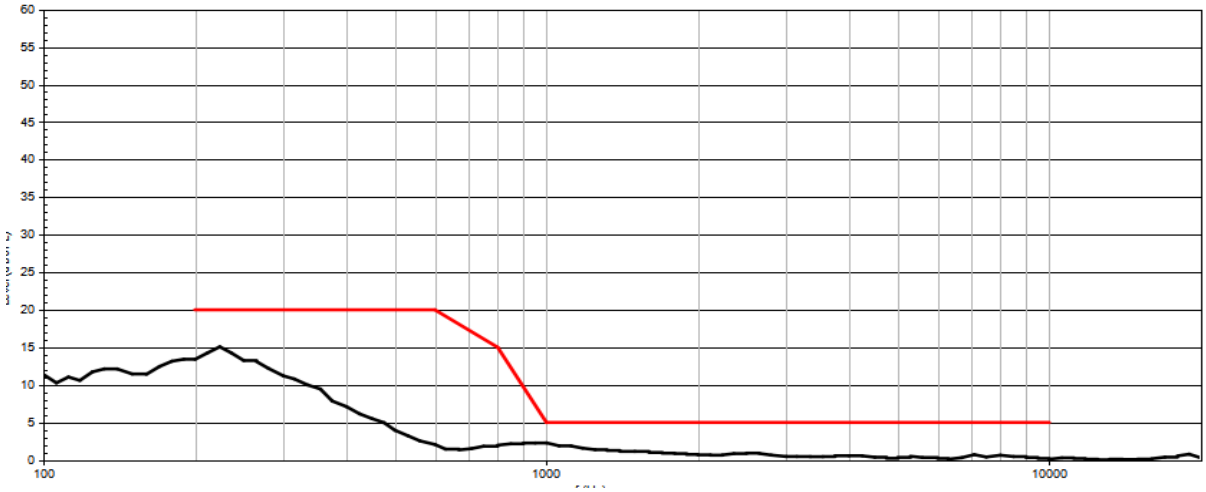
Frequency Response Curve

Test condition: 2.0W/0.1M



THD

Test condition: 2.0W/0.1M



Frequency(Hz)	200-600	800	1K-10K
limit(%)	20%	15%	5%

RELIABLITY TEST

1	Reliability Test Performance	After any following test, parts should conform to original performance within ± 3 dB tested with Rated Power, after 6 hours of recovery period.(with Test Signal: Pink noise crest factor=6, High-Pass filter: 12dB/Oct, -3dB@Fb)
2	Long-term rated power test	Input rated power pink noise to the speaker, low temperature（-40± 2°）for 24hrs, then raising temperature to（70±2°) for 72hrs
3	Short-term maximum power test	Room temperature 25℃ Input 1sec Max power pink noise to the speaker, idle for 59sec, cycling 30times.
4	Voice coil destructive test	(1) Before testing, Please use multimeter to measure the sample’s DC resistance and use X-Ray to check the voice coil, it must meet specification and not be broken, scattered, deformed and short-circuited. (2)Room temperature 25℃ Input Max power DC Signal for 30sec. 5Pcs for normal connection(Power+→Speaker+, Power-→Speaker-) 5Pcs for inverse connection(Power+→Speaker-, Power-→Speaker+)
5	Voice coil destructive test Ⅱ	(1) Before testing, Please use multimeter to measure the sample’s DC resistance and use X-Ray to check the voice coil, it Must meet specification and not be broken, scattered, deformed and short-circuited. (2)Input Max power sweep signal to the speaker. Sweep frequency range: 300Hz to 20kHz Cycle time: 2Sec for one cycle, cycling for 8 hrs. (3) After test, measure sample’s DC resistance and use X-Ray to check whether the voice coil is scattered, deformed or short-circuited.

6	Long-term temperature cycling test	Input rated power pink noise to the speaker Temperature range: -40°C~70°C Temperature change rate is 5~10°C/min, 15min at -40°C and 70°C, cycling 50 times. 1) Before testing, Please check appearance and acoustic performance, it must meet the specifications. (2) Put speaker into the middle of the test chamber, the distance between speaker and chamber inner wall is not less than 5cm (3) Check appearance and acoustic performance.
7	Long-term high temperature and high humidity test	Input rated power pink noise to the speaker Temperature 70°C,humidity 90%RH for 72hrs. (1) Before testing, Please check appearance and acoustic performance, it must meet the specifications. (2) Put speaker into the middle of the test chamber, the distance between speaker and chamber inner wall is not less than 5cm (3)Cooling down to room temperature 25 °C, 2hrs, then check the appearance and acoustic performance.
8	High temperature and high humidity test	Input rated power pink noise to the speaker Temperature 85°C, humidity 90%RH for 6hrs. (1) Before testing, Please check appearance and acoustic performance, it must meet the specifications. (2) Put speaker into the middle of the test chamber, the distance between speaker and chamber inner wall is not less than 5cm (3)Cooling down to room temperature 25 °C, 2hrs, then check the appearance and acoustic performance.
9	Salt mist test	Salt mist concentration: 5% NaCl PH: 6.5~7.2 solution, which was continuously sprayed at 35 ° C for 48 hours. (1) Put into salt mist chamber and do not overlap each test speaker, sample shall be supported or suspended between 15 and 30° C from the vertical and preferably parallel to the principal direction of flow of fog through the chamber, based upon the domaint surface being tested (2)Continuously spray NaCl solution into the test chamber for 48 hours. (3)After this test, taken out the sample and washed this sample carefully to remove the residual NaCl solution on the surface.

10	Drop test	Mounted in a special fixture, all the speaker module or drive should be in a small plastic box. Sample size: 5 for Plywood over concrete, 5 for Concrete. Height of the drop: 160cm Surface: 2" Plywood over concrete and Concrete Drop sequence: Six faces Standard: EN 60068-2-31 (1) Before testing, Please check appearance and acoustic performance, it must meet the specifications. (2) Check appearance and acoustic performance.

MEASURING METHOD

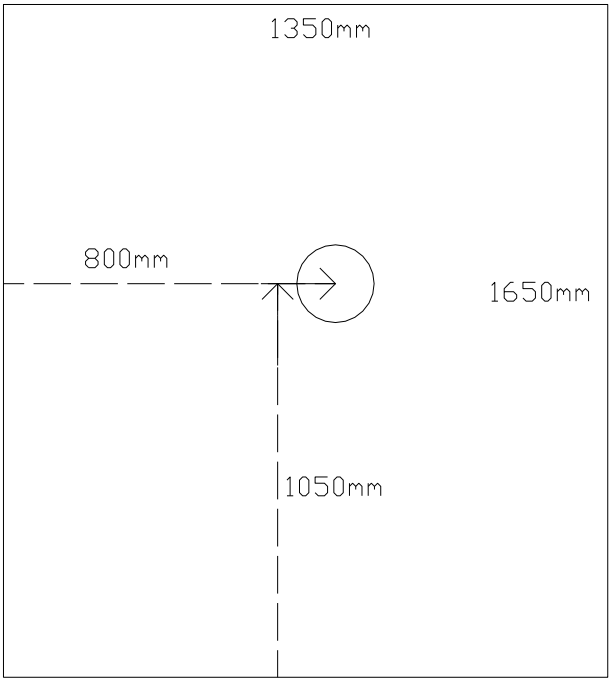
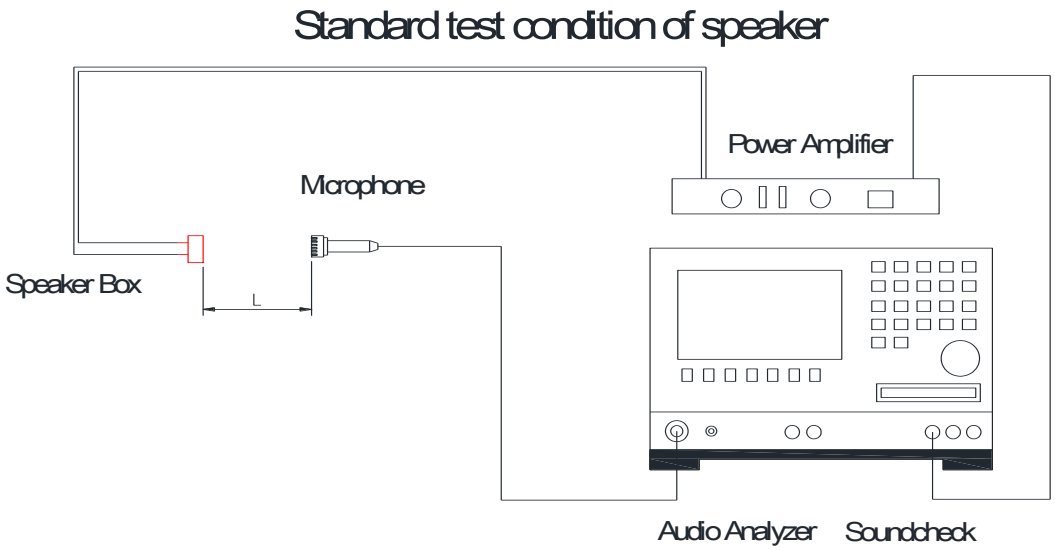


Fig. 1 Block Diagram for Measurement Method



L=10cm

Fig. 2 Speaker Test Condition

PACKAGING

TBD