

# SPECIFICATION FOR AUTOMOTIVE SPEAKER

Customer	
Customer P/N	
BeStar Model Name	FE23100PCW-03 LF
Product No.	060310
Issue No.	BS/TES01.486B
Issue Date	07/01/23

### Approval:

- 1.Characteristics
- 2.Notice
- 3.Dimension
- 4.Bill of Material
- 5.Reliability Test
- 6.Packing
- 7.History change record

Drawn by	Checked by	Approved by	Customer approved
莫丽丽	邵凯	程久生	

For conform to the European Union Directive on the Restriction of Hazardous Substances(RoHS), this type of productions forbid use all the hazardous substances as follow:

Lead  
Cadmium  
Mercury  
Hexavalent chromium  
Polybrominated biphenyls (PBB)  
Polybrominated diphenyl ethers (PBDE)



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# FE23100PCW-03 LF

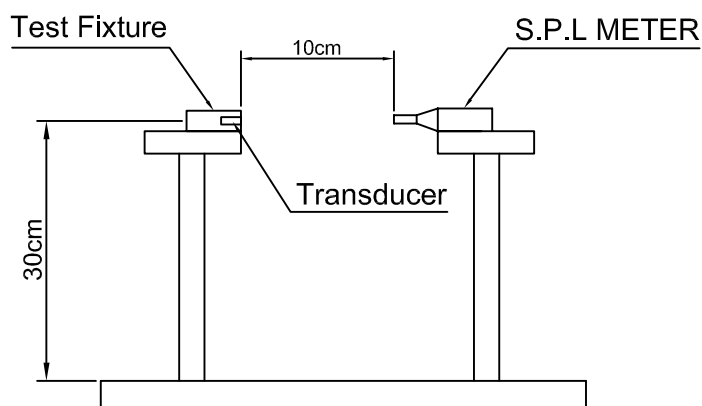


## 1. Characteristics

### 1.1 Electrical and Mechanical Characteristics

No.	Item	Specifications
1-1)	Impedance (1V,*2kHz)	100 ± 10 % Ω
1-2)	Rated input power	0.15W
1-3)	Max Input	0.3W
1-4)	Frequency response	1000...4000Hz
1-5)	Sound pressure level	≥90dB( at 0.25W/10cm/1000Hz square wave)
		≥95dB( at0.25W/10cm/2000Hz square wave)
1-6)	Buzzes and Rattles	Must be normal
		sine wave 3.87V
1-7)	Operating temperature	-40...+85℃
1-8)	Weight	9g

picture 1



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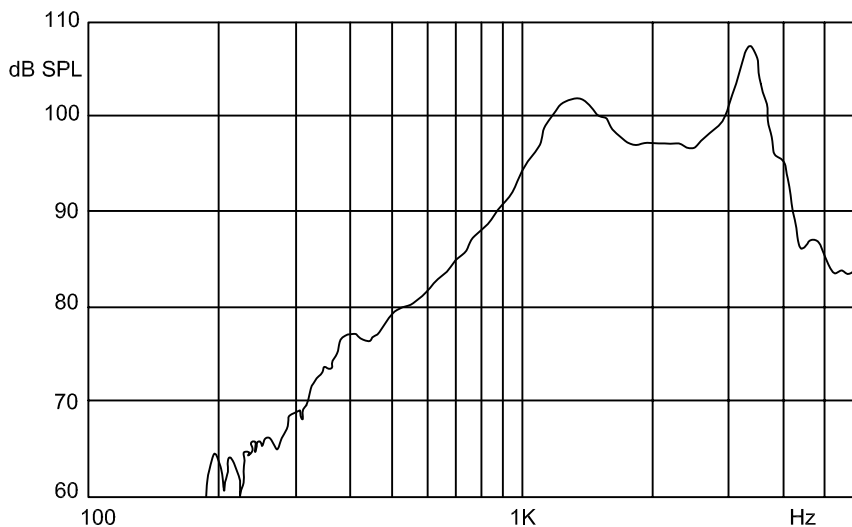
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## Test conditions

The test assembly is in free field or a test room with min 2m×2m ground and 2m high  
 Distance between loudspeaker and SPL meter=10cm  
 Trigger voltage is 10Vp-p, 50% duty square wave signal  
 The trigger signal comes from a function generator FG100. The trigger voltage is adjusted to 10Vp-p constant voltage.(in case of load)

## 1.2 Frequency response curve



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## 2. Notice

### 2.2 Storage Condition

The products should be stored in the room, where the temperature/humidity is stable. And avoid such places where there are large temperature changes. Please store the products at the following conditions:

Temperature: -10 to + 40° C Humidity: 15 to 85% R.H.

### 2.3 Expire Date on Storage

Expire date (Shelf life) of the products is six months after delivered under the conditions of a sealed and an unopened package. Please use the products within six months after delivered.

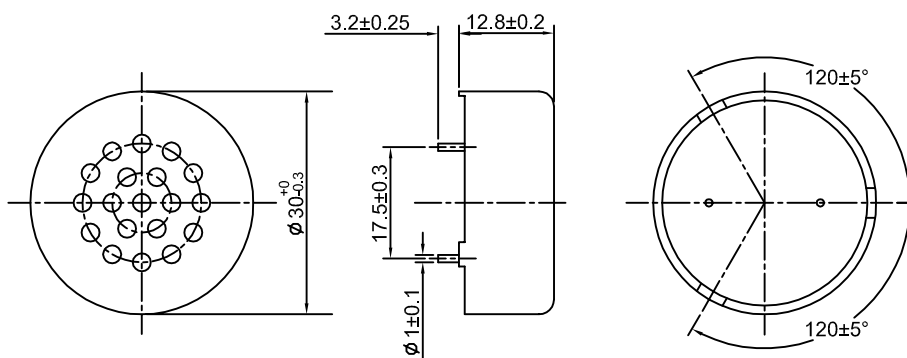
If you store the products for a long time (more than six months), use carefully because the products may be degraded in the solderability and/or rusty. Please confirm solderability and characteristics for the products regularly.

### 2.4 Notice on Product Storage

(1) Please do not store the products in a chemical atmosphere (Acids, Alkali, Bases, Organic gas, Sulfides and so on), because the characteristics may be reduced at quality, and/or be degraded in the solderability due to the storage in a chemical atmosphere.

(2) Please use the products immediately after the package is opened, because the characteristics may be reduced at quality, and/or be degraded in the solderability due to storage under the poor condition.

## 3. Drawing

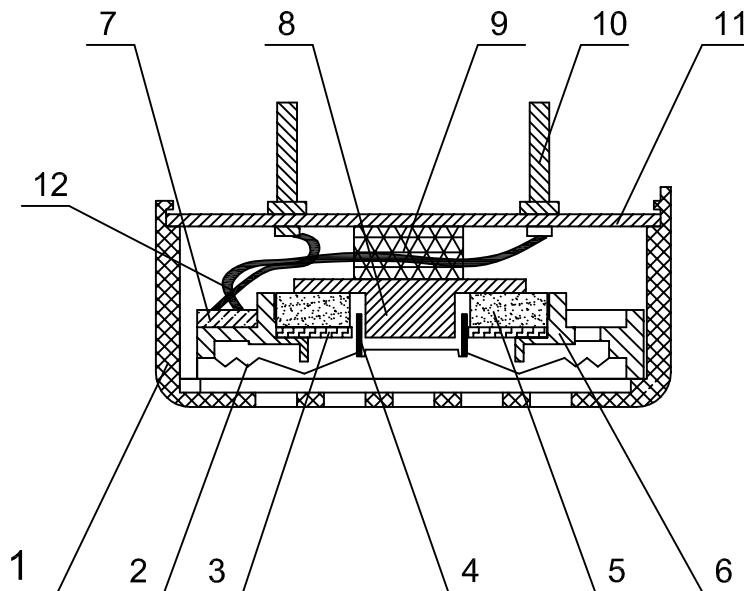


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## 4. Bill of Material



12	Connect wire	Cu and PVC
11	Plugboard	Epoxy and Cu
10	Pin	CuΦ1.0 (plating tin)
9	Mat	Sponge
8	Yoke	SPCC
7	PCB	Epoxy and Cu
6	Frame	Plastic MPPO+20%GF
5	Magnet	Nd-Fe-B N35H
4	Voice Coil	∅ 0.03 Cu
3	Piece	SPCC
2	Diaphragm	PEI
1	Housing	Plastic MPPO+20%GF
No	Parts Name	Material

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## 5. Reliability test

### 1. Endurance test

Duration 240hrs  
 at square wave, duty cycle:50% asymmetric,  $U_n=8.9V_{p-p}$   $f=2048Hz$   
 Temperature cycle  $-40...+85^{\circ}C$  with cycle duration 4h; 10s on/off

### 2. High temperature durability acc. to IEC 60068 part2-2

Temperature  $+85^{\circ}C$   
 Duration 1000h

### 3. Low temperature durability acc. to IEC 60068 part 2-1

Temperature  $-40^{\circ}C$   
 Duration 500h

### 4. Humidity durability acc.to IEC 60068 part2-3

Temperature  $40^{\circ}C$   
 Rel.humidity 93%RH  
 Duration 56days

### 5. Temperature cycle durability acc.to IEC60068 part2-14

Low Temperature  $-40^{\circ}C$   
 Upper Temperature  $+85^{\circ}C$   
 each duration 30minutes  
 Transfer time from lower to upper temperature  $<10s$   
 Number of cycles 100cycles

### 6. Shock test acc. to IEC 60068 part2-27

100g for each free mutually perpendicular directions to each of 3times by sine-wave

### 7. Vibration test acc. to IEC 60068 part 2 -6

sine-wave excitation;  $8...300Hz$ ,  $2g$ , 1 octave/min; test time 16h each axis

#### Additional requirements:

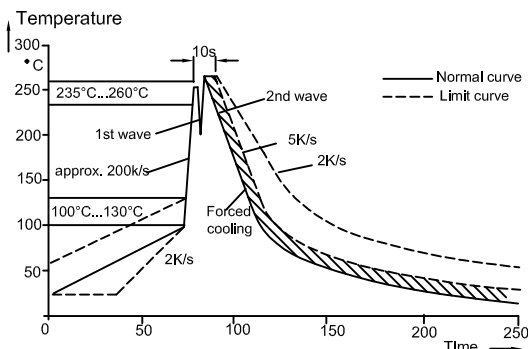
Test of solderability and resistance to soldering heat acc. to VDON4.3643.001

X-ray solderpoint inspection according to VDON 4.4814.001

Washability: not washable

Cadmium prohibited as per DIN 5.5000.1

### 8. Wave soldering



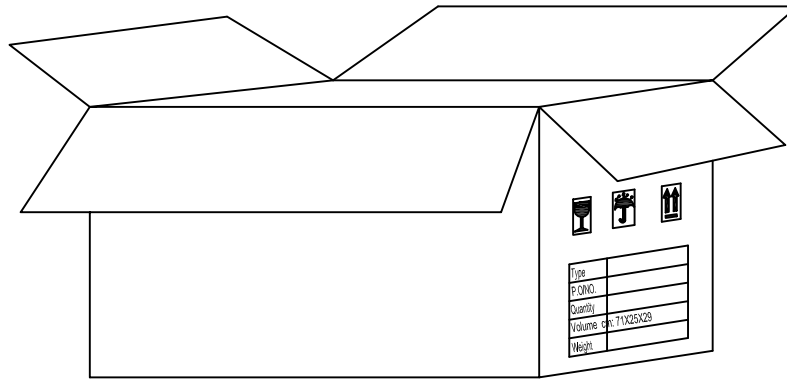
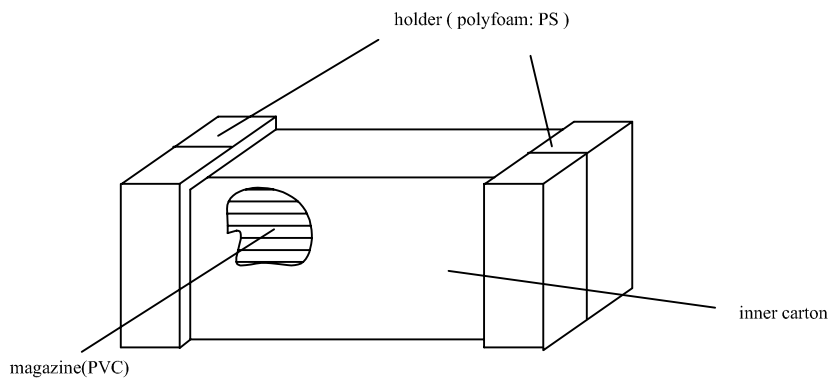
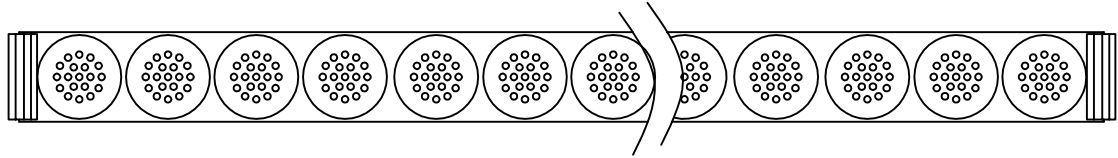
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## 6.Packing

### 6.1 Packing Drawing



### 6.2 packing quantity

- 1) 20pcs per tube,
- 2) 40pcs tube per carton
- 3) 800pcs per carton,
- 4) inner carton size: 64x18x21 cm
- 5) carton size: 71X25X29cm

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