

SM60-80C12-03A

SOUND MODULE

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1. SPECIFICATIONS

| Parameter | Unit | Conditions / Description | MIN | TYP | MAX |
|-----------------------|------|---------------------------|-----|----------|-----|
| Operating Voltage | V | | 9 | | 16 |
| Current Consumption | mA | | | | 300 |
| SPL | dB | At 10 km/h (12V/1m) | 50 | | 90 |
| | | At 20 km/h (12V/1m) | 50 | | 90 |
| | | At Reverse Drive (12V/1m) | 50 | | 90 |
| Terminal Connection | | +12VDC, GND, CAN_H, CAN_L | | | |
| IP Rating | IP | | | 67 | |
| Housing Colour | | | | BLACK | |
| Contact | | | | TERMINAL | |
| Packaging | | | | BOX | |
| Operating Temperature | °C | | -40 | | +85 |
| Storage Temperature | °C | | -40 | | +85 |
| Weight | g | | 150 | 170 | 190 |

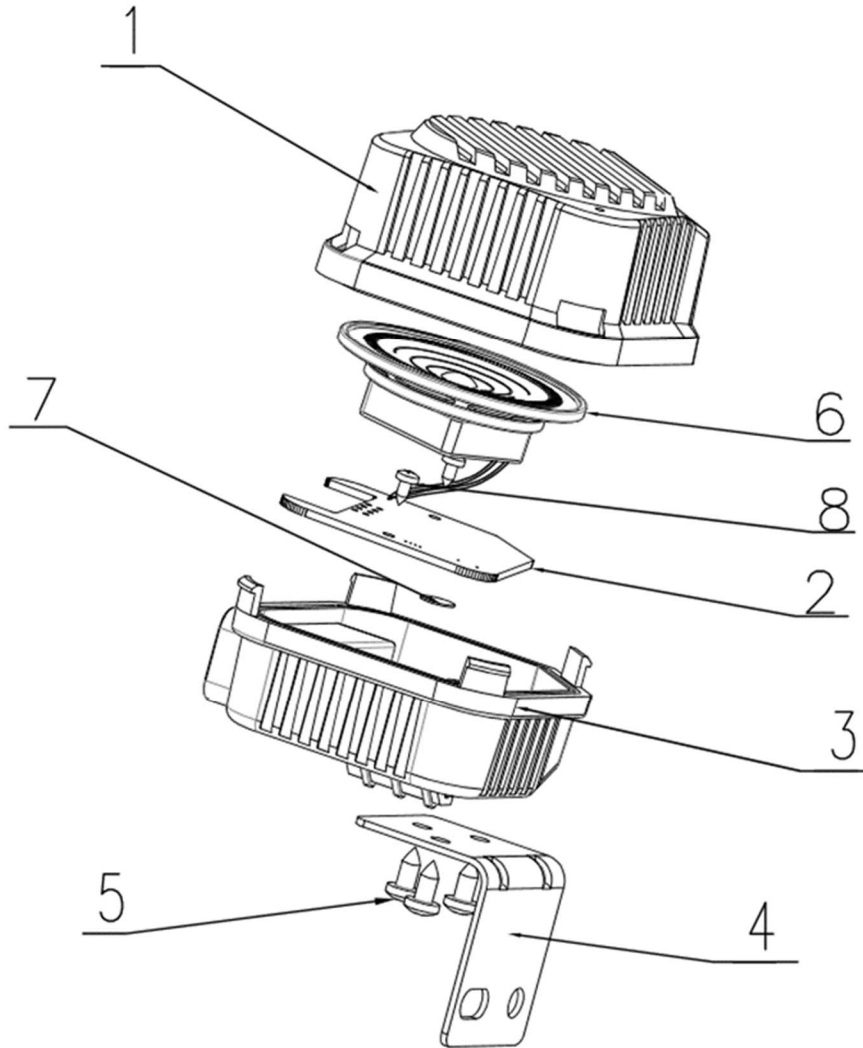
Remark:

Sound pressure is the reference value. The final sound pressure standard of the product shall be subject to the actual calibrated sample on site or the sample confirmed by the customer.

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| DRAWING NO. | 435564885 | | | | | | |

2. DRAWING

2.2 ASSEMBLY DRAWING

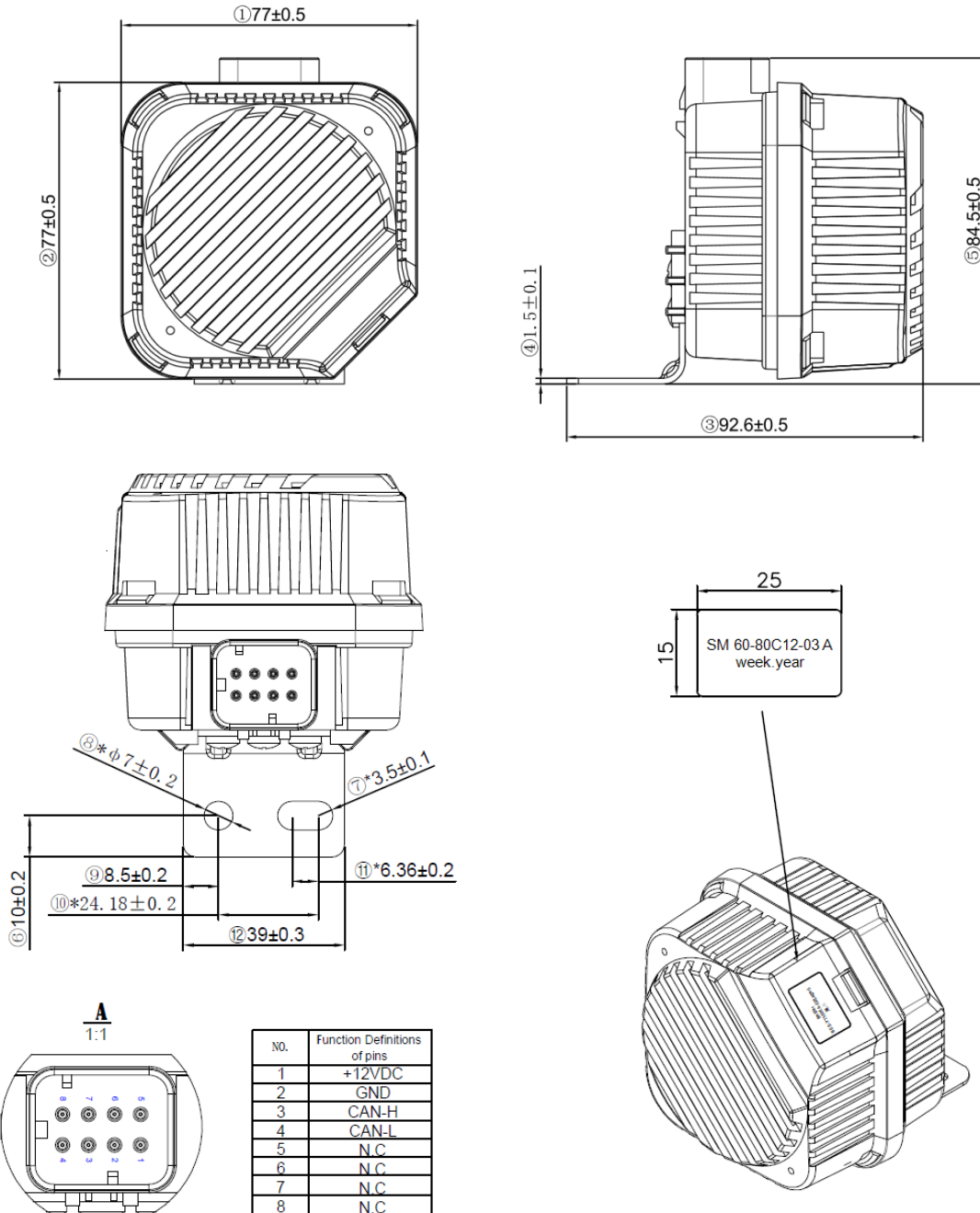


| | | |
|--------|--------------------------------|----------|
| 8 | Self tapping screw | 2 |
| 7 | Waterproof breathable membrane | 1 |
| 6 | Speaker | 1 |
| 5 | Self tapping screw | 3 |
| 4 | Bracket | 1 |
| 3 | lower housing | 1 |
| 2 | PCBA | 1 |
| 1 | Upper housing | 1 |
| number | part name | quantity |

Note: this product is hazardous waste after being scrapped

| | | | | | | | |
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2.3 DIMENSION



Male Terminal Model: AMP776495-1
 Female Terminal Model: AMP776494-1.

Undeclared tolerance: See the table below

| Size Range | 0.5~3 | >3~6 | >6~30 | >30~120 | >120~400 | >400~1000 | >1000~2000 | >2000~4000 |
|------------|-------|------|-------|---------|----------|-----------|------------|------------|
| Tolerance | ±0.1 | ±0.1 | ±0.2 | ±0.3 | ±0.5 | ±0.8 | ±1.2 | ±2 |

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3. FUNCTION DESCRIPTION

Basic Function

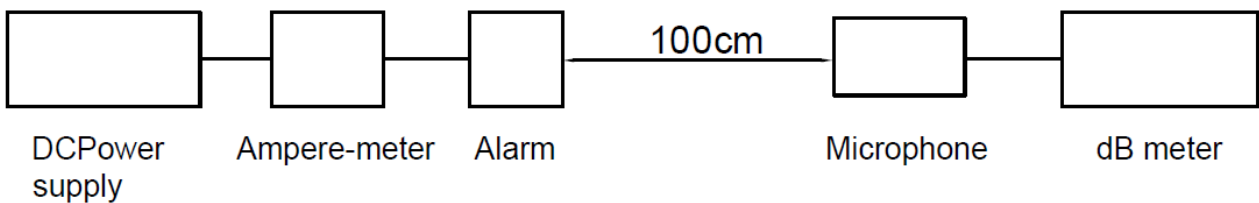
The device will automatically emit the sound of the simulation engine when the vehicle is driving from 0 to 20km/h.

The sound pressure gradually increases when the speed of vehicle is 0-20km/h

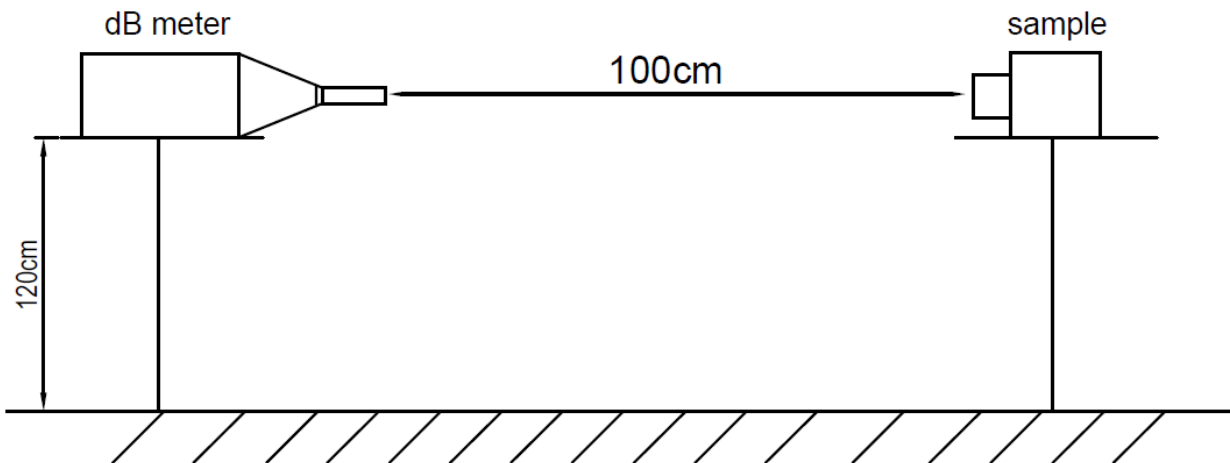
The sound is not emitted when the speed is above 21km/h

The sound pressure increases or decreases when the speed of the vehicle changes.

4. TEST METHOD



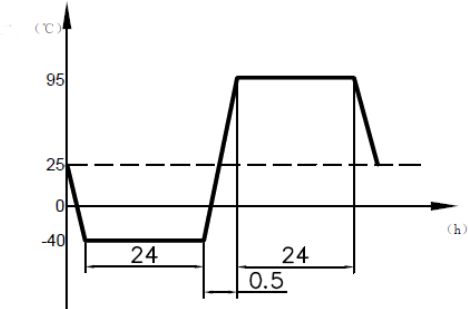
In the measuring test, the alarm are placed as follows:



| | | | | | | |
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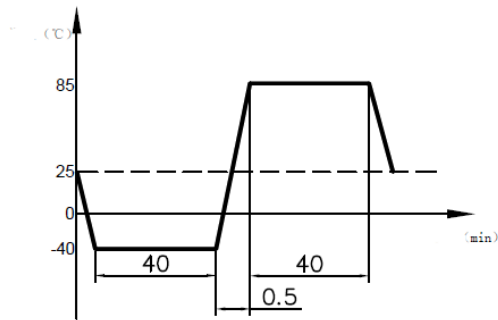
5. RELIABILITY TEST

5.1 High and Low Temperature Storage Test



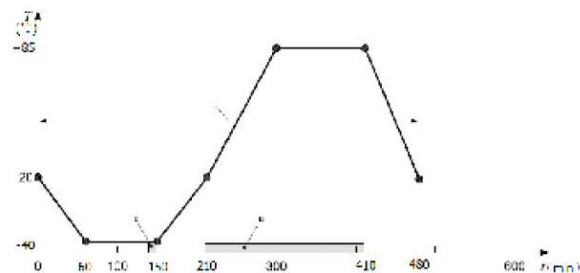
5.2 Rapid Change of Temperature

Cycles 100
One cycle



5.3 Temperature Cycling

Operating Voltage 12VDC
Cycles 30



5.4 High Temperature with Operation

Operating Voltage 12VDC
Temperature +85°C
Duration 96 hours

5.5 Low Temperature with Operation

Operating Voltage 12VDC
Temperature -40°C
Duration 24 hours

5.6 Damp Heat Steady State Test

Test Duration 21 days
Severity (40 ± 2) °C and (93 ± 3) % Humidity
Operating Voltage 12VDC
Operation At the last hour of the test.

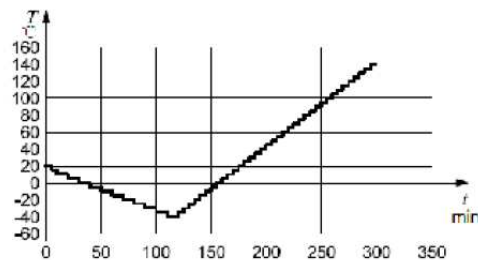
5.7 Temperature Step Test

Install the DUT in a temperature chamber, decrease the temperature in steps of 5°C from 20 °C to -40°C and then increase the temperature in steps of 5°C from -40°C to +85°C

Wait at each step until the DUT has reached the new temperature.

Perform functional tests operating mode 5.2 in accordance with ISO 16750-1 at minimum supply voltage (9VDC) and at maximum supply voltage (16VDC) in accordance with the specified ISO 16750-2 code letter at each new temperature step.

Switch the DUT off during transition to the next temperature.



5.8 High Temperature Life Test

Temperature +85°C
Operating Voltage 16VDC
Duration 1200 hours

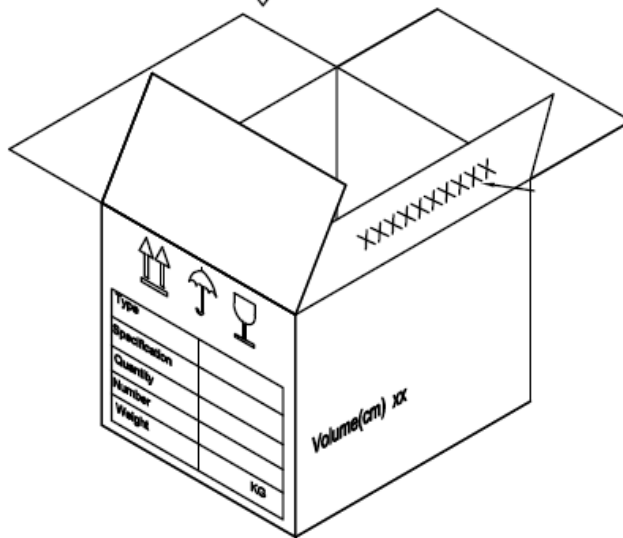
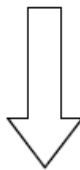
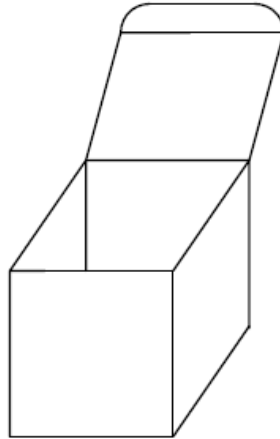
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6. PACKING

6.1 PACKING DRAWING

Size:50x30

SM 60-80C12-03A
XX.XX



6.2 PACKING QUANTITY

1pc per small box
Box size 103x94x110mm
50pcs/carton in total
Carton size 56x24x48cm

| | | | | | |
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7. HISTORY CHANGE RECORD

| REV | CHANGE ITEMS | | DATE |
|-----|----------------|--|------------|
| | BEFORE CHANGE | AFTER CHANGE | |
| 1. | | Update the drawing, add optional functions | 2019.03.01 |
| 2. | SM60-80C12-02A | SM60-80C12-03A | 2019.04.01 |
| 3. | Old Layout | New Layout, delete optional functions | 2019.09.10 |
| | | | |
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