Data Sheet	ASE02506MS-LW90-DSM-R

PUI Audio's **ASE02506MS-LW90-DSM-R** is a Dynamic Speaker Management **(DSM)-Ready** micro speaker that has been pre-characterized for use with Maxim's DSM smart amplifier solution. This DSM-Ready micro speaker comes prepackaged in a compact enclosure enabling easy system integration. This turnkey solution vastly increases the loudness (SPL) and bass response safely and reliably within our strict speaker specifications.

Simply load the provided Vdrx, defined as the voltage required to reach maximum excursion, into Maxim's DSM Sound Studio GUI when setting the excursion limit in the "Characterize" section of the GUI. You are now ready to start tuning! The DSM Sound Studio GUI allows you to develop a complete register map to customize DSM for your design.

DSM-Ready speaker + DSM Smart Amplifier delivers the easiest and fastest path for designing a high-performance speaker system in the shortest amount of time.

Specifications

Parameters	Values	Units
Rated Power Handling	1	Watts
Max Power Handling	1.2	Watts
Impedance @ 2 kHz	6 ± 15%	Ohms
Sensitivity (SPL @ 2.45V/10cm) At 2 kHz in 1cc enclosure	93 ± 3	dB
Resonant Frequency (free air / in 1.5cc enclosure)	550±10% / 750±10%	Hz
Frequency Range (-10 dB, without DSM)	650 ~ 20,000	Hz
Xmax (where BL product drops by 20%)	0.3	mm
Tmax (max voice coil temperature)	90	°C
Vdrx (based on Xmax set to 0.3mm)	3.65	V
Housing Material	ABS	-
Magnet Material	NdFeB	-
Polarity	With positive voltage applied to the positive terminal, the diaphragm will move outward	-
Storage Temperature	-40 ~ +85	°C
Operating Temperature	-20 ~ +70	°C
Weight	15	Grams
Ingress Protection Rating	IP67	-

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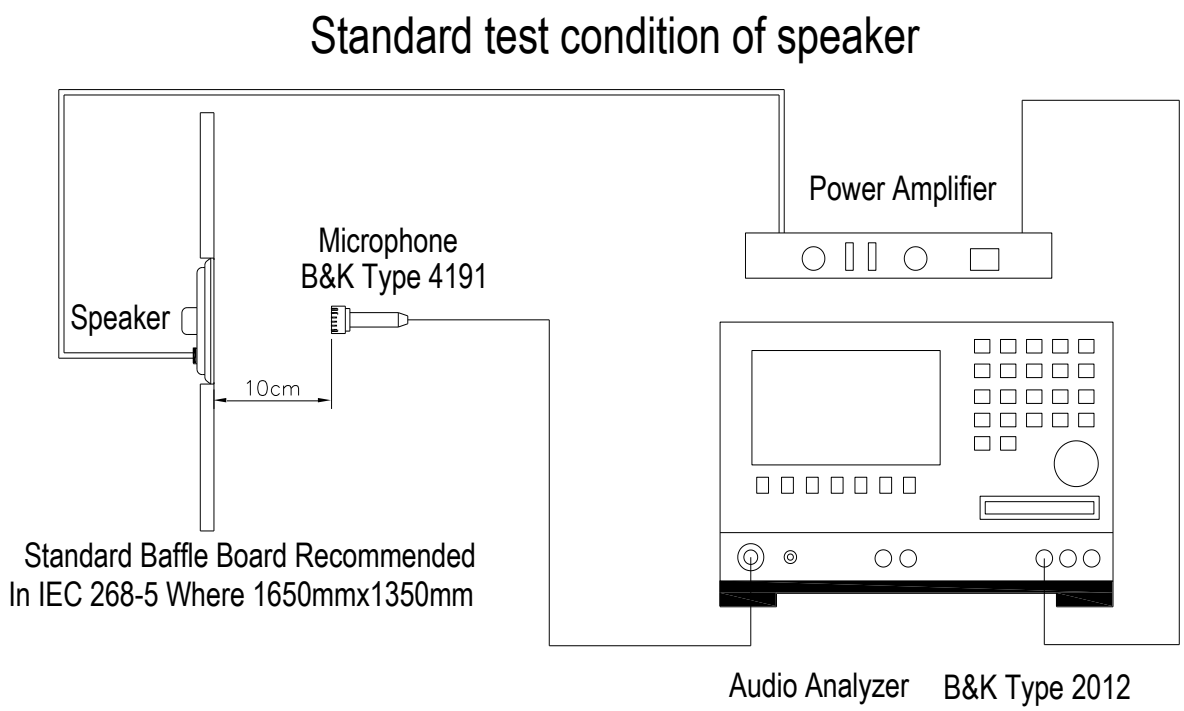
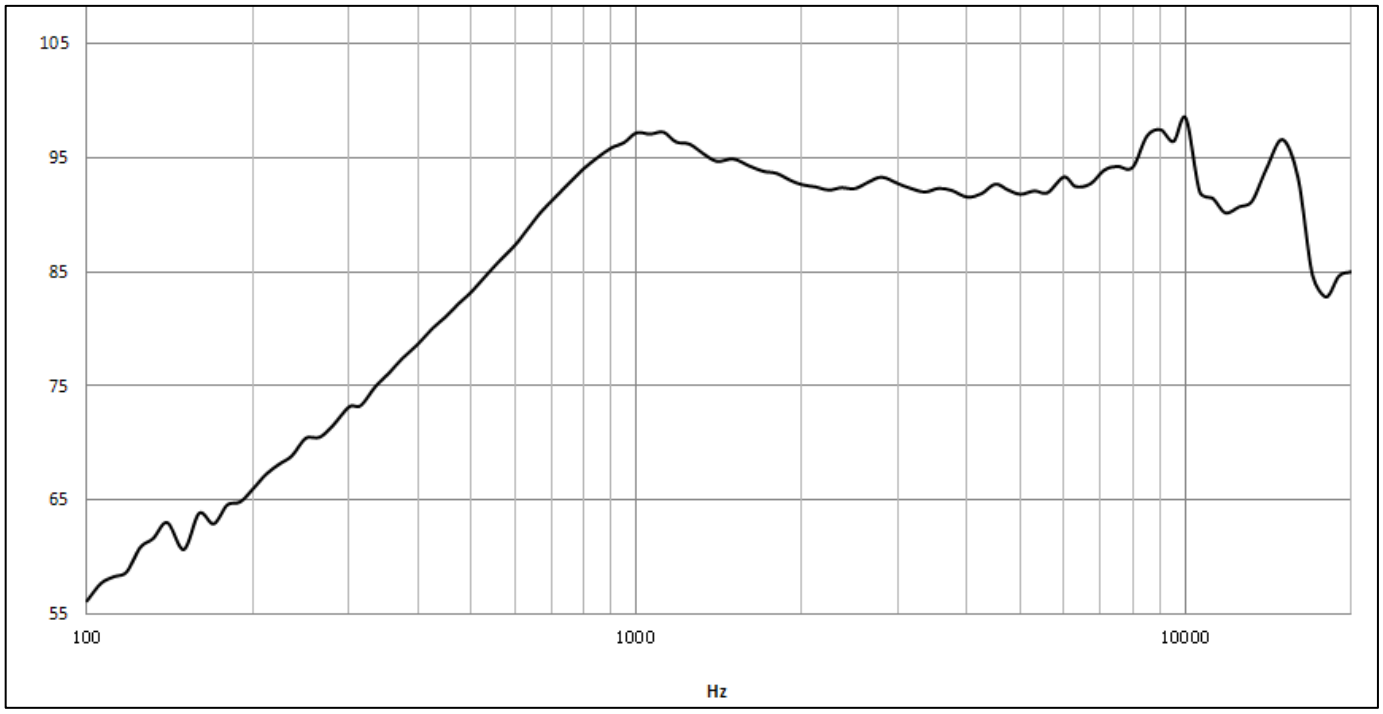
Measurement Method (measured with 2.45V, Temperature: 15 ~ 35°C, Relative Humidity: 25%~70%)



Frequency Response without DSM (measured with 2.45V @ 10cm in 1.5cc enclosure)



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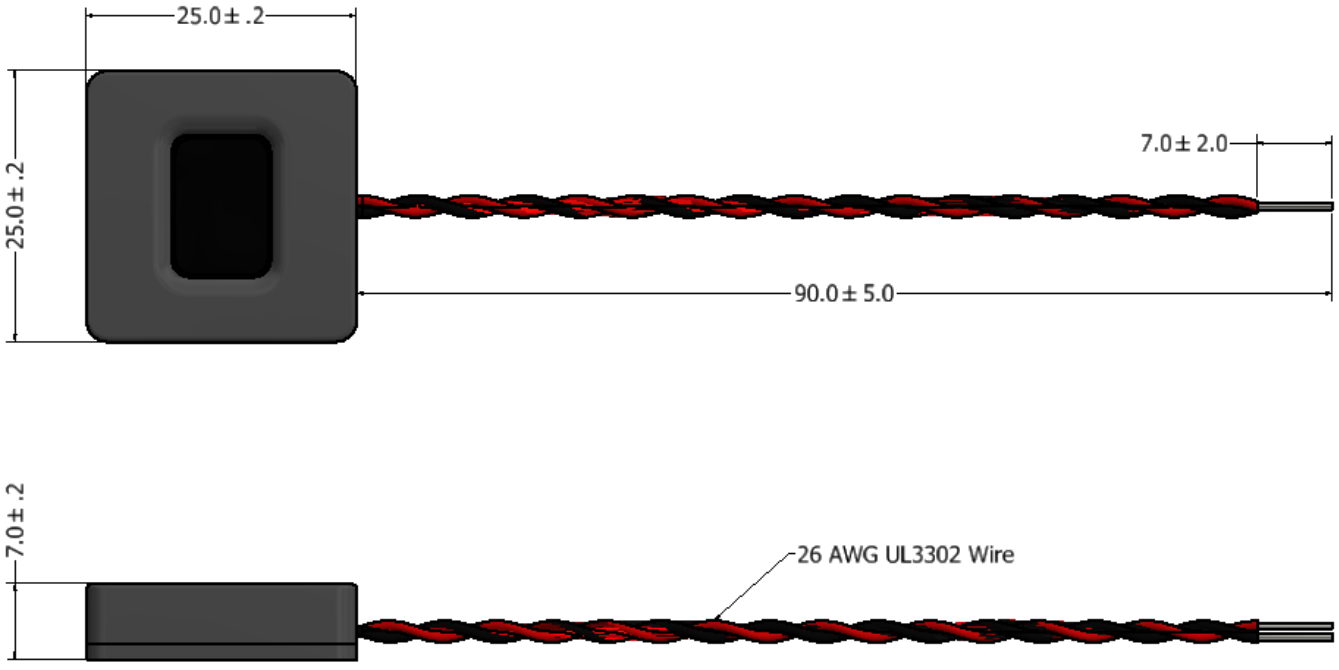
Reliability Testing

Type of Test	Test Specifications
High Temperature Test	96 hours at +85°C ± 3°C followed by three hours in normal room temperature
Low Temperature Test	96 hours at -40°C ± 3°C followed by three hours in normal room temperature
Humidity Test	96 hours at +40°C ± 3°C with relative humidity at 90%~95% followed by 6 hours in normal room temperature
Temperature Cycle Testing	The part shall be subjected to 12 cycles using the following procedure: Low temperature: -40℃±3℃ High temperature:+80℃±3℃ Cycle: 2 hours at High, 5 minutes High to Low, 2 hours at Low, 5 minutes Low to High
Vibration Test	10 to 55 to 10 Hz sine sweep, per minute @ 1.5mm amplitude 2 hours in each axis X, Y, and Z.
Drop Test	Mount speaker to 100g fixture, drop fixture 1.5 meters, twice per side and twice for each corner
Load Test	White noise is applied at the speakers rated power for 96 hours at room temperature with speaker in 1cc enclosure.

After each test, the speaker's SPL shall be ±3 dB of the original SPL

Dimensions



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Specifications Revisions

Revision	Description	Date
-	Released from Engineering	6/3/2019

Note:

1. Unless otherwise specified:
   A. All dimensions are in millimeters.
   B. Default tolerances are ±0.5mm and angles are ±3°.
2. Specifications subject to change or withdrawal without notice.
3. This part is RoHS 2011/65/EU Compliant.

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