

## Receivers

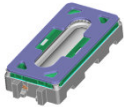

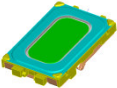
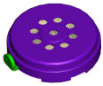

# PRODUCT OVERVIEW

- 4.8 x 10 x 2.2 mm RA
- 6 x 15 x 2.5 mm JULIA **New!**
- 8 x 12 x 2 mm RA **New!**
- 8 x 2.1 mm PICO
- 13 x 2.6 mm MICRO
- 13 x 6.1 mm Wideband



**Portfolio**

Portfolio : NXP receivers

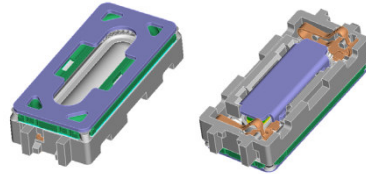
| RECEIVER MODEL                      | Picture   | Contact system | Sensitivity (W/m) | Hi-Leak compatible | Frequency range * | Nominal power ** | Typical applications   |
|-------------------------------------|---|----------------|-------------------|--------------------|-------------------|------------------|--|
| 4.8x10x2.2                          |    | Springs        | 65 dB             | yes                | 450 - 8000 Hz     | 40 mW            | Flat phones  |
| 6x15x2.5                            |   | Springs        | 70 dB             | no                 | n.a.              | 20 mW            | Flip phones, hearing aid compatibles   |
| 8x12x2                              |  | Springs        | 68 dB             | yes                | 300 - 6500 Hz     | 40 mW            | Flat phones, hearing aid compatibles, extended range in hi-leak applications |
| 8 x 2.1 PICO                        |  | Springs, wires | 67 dB             | no                 | 400 - 3500 Hz     | 50 mW            | Basic phones, headsets   |
| 13.3 x 6.1 Wideband Receiver Module |  | Springs, wires | 63 dB             | yes                | 150 - 8000 Hz     | 20 mW            | Wide band phones, headsets   |

\*) in typical application, at -3dB points after resonance peaks, without EQ correction

\*\*\*) using shaped noise signal according to NXP specification sheet

**4.8 x 10 x 2.2 mm RA**

4.8 x 10 x 2.2 mm RA receiver



**Key Features**

- Very small and thin
- Wide frequency range
- Spring contacts for pick&place
- Integrated mounting parts for space saving positioning and/or flexprint connection
- Integrated front resonator improves high frequencies and saves place

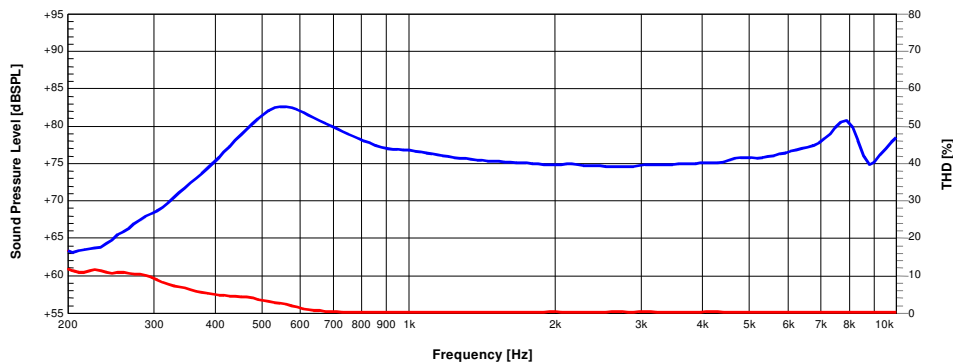
**Variants**

- With open gasket : 2403-260-00032

|                                 |                        |
|---------------------------------|------------------------|
| <b>Type No.: 2403-260-00017</b> |                        |
| Impedance                       | 32 Ω                   |
| Sensitivity                     | 65 dB 1W/1m            |
| Power Ratio **                  | 0,04W Nom./0,075W Max. |
| Resonance Freq.                 | 520Hz                  |
| Sine Sweep                      | 5mW max                |
| Freq. Range *                   | 450-8kHz               |
| Weight                          | 0,2g                   |
| Contact type                    | Spring                 |
| Thickness                       | 2,2mm                  |

\*) in typical application, at -3dB points after resonance peaks, without EQ correction  
 \*\*) using shaped noise signal according to NXP specification sheet

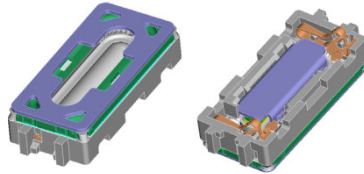
**Frequency Response**



measured in IEC baffle with open back volume (1mW, 1cm)

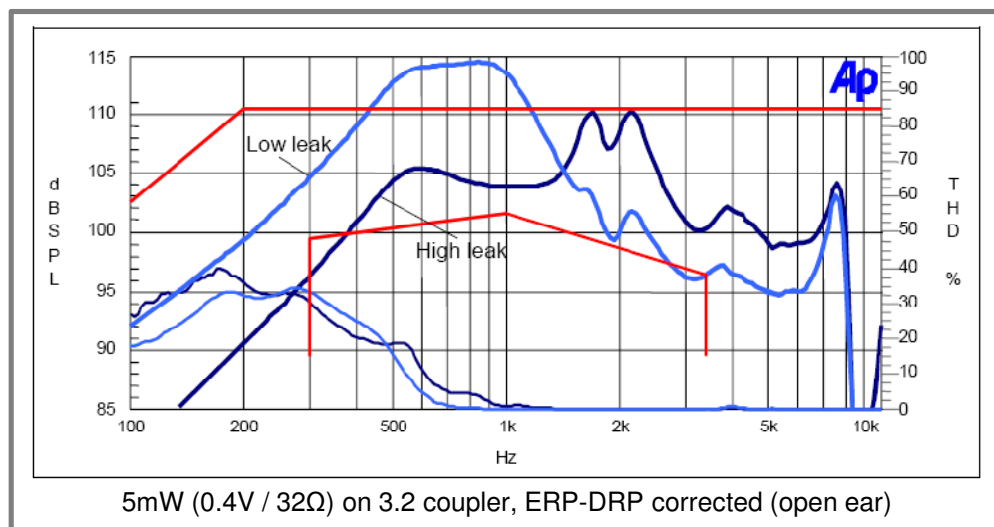
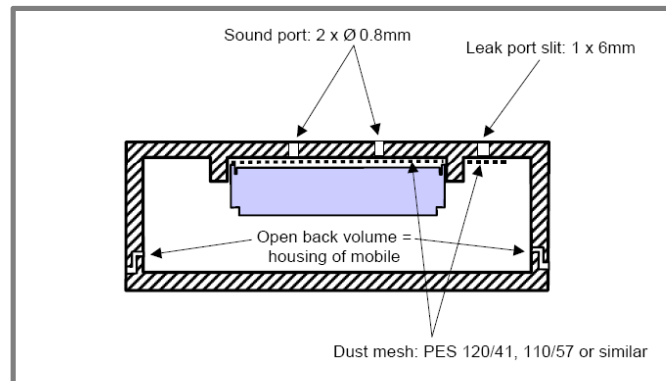
## 4.8 x 10 x 2.2 mm RA

### 4.8 x 10 x 2.2 mm RA receiver



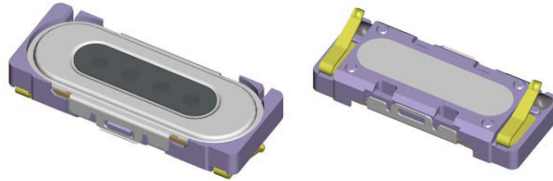
#### Typical applications

- Extremely space saving
- For Hi-leak and Lo-leak applications
- Flexible sound outlets for choice between wideband or narrowband designs
- Fits into narrow spaces due to dimensions and mounting features



## 6 x 15 x 2.5 mm JULIA

### 6 x 15 x 2.5 mm JULIA receiver



#### Key Features

- Standard footprint size for multisourcing strategies
- High SPL
- Flat frequency response
- Spring contacts for pick&place
- HAC version available

#### Variants

- With open gasket : 2403-266-00018
- HAC version : 2403-263-00052
- HAC version with gasket : 2403-266-00021

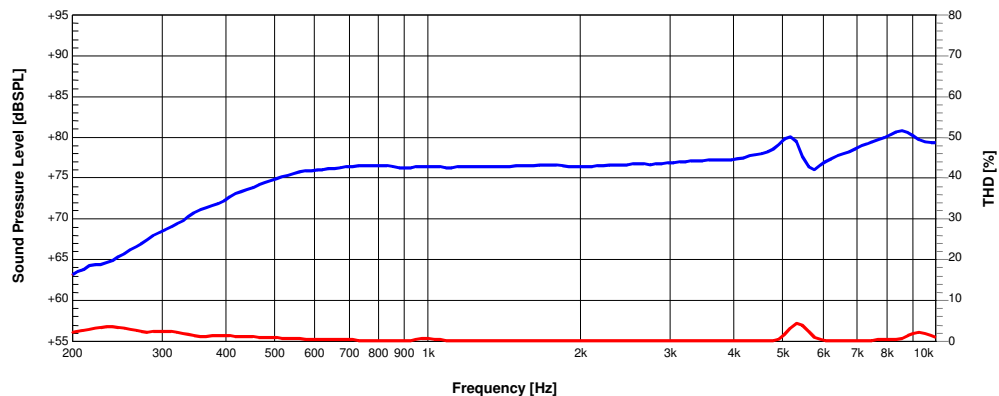
Type No.: **2403-263-00047**

|                 |                         |
|-----------------|-------------------------|
| Impedance       | 32Ω                     |
| Sensitivity     | 70dB 1W/1m              |
| Power Ratio **  | 0,02W Nom. / 0,05W Max. |
| Resonance Freq. | 450Hz                   |
| Sine Sweep      | 10mW max                |
| Freq. Range *   | n.a.                    |
| Weight          | 0.5g                    |
| Contact type    | Spring                  |
| Thickness       | 2,5mm                   |

\*) in typical application, at -3dB points after resonance peaks, without EQ correction

\*\*) using shaped noise signal according to NXP specification sheet

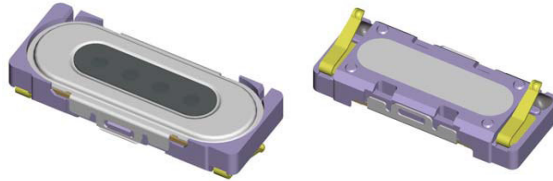
### Frequency Response



measured in IEC baffle with open back volume (1mW, 1cm)

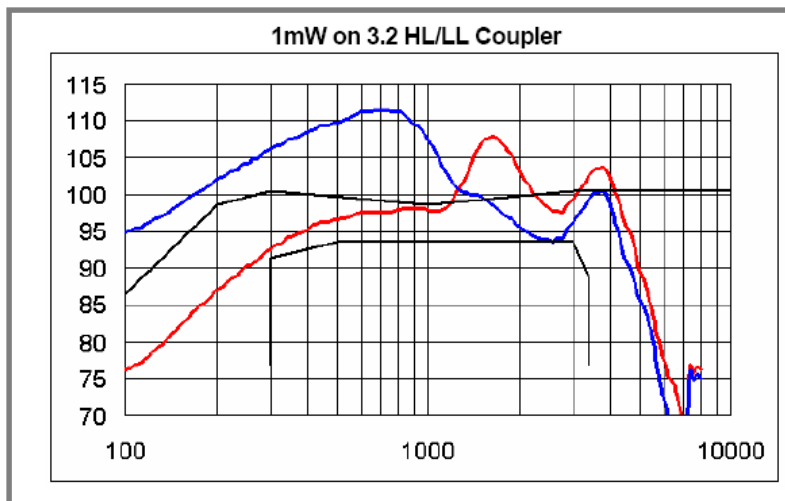
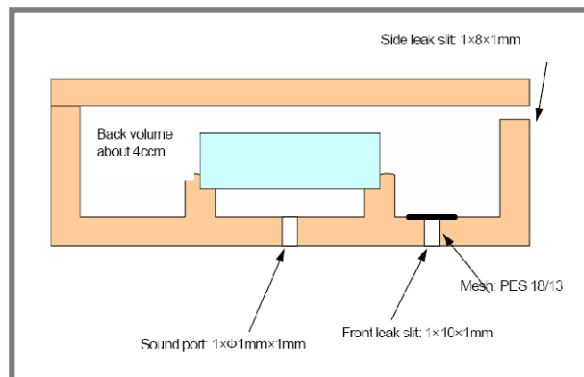
## 6 x 15 x 2.5 mm JULIA

### 6 x 15 x 2.5 mm JULIA receiver



#### Typical applications

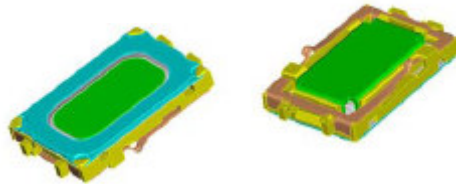
- For Hi-Leak and Lo-Leak designs
- Slider / Clamshell mobile phones
- Flip phones, hearing aid compatibles
- Extended high frequency range



The red curve in above figures represent measurement result in 3.2HL coupler. And the blue one represent the 3.2LL coupler. GSM mask is used.

**8 x 12 x 2 mm RA**

8 x 12 x 2 mm RA receiver



**Key Features**

- 6kHz peak optimised for extended range without additional resonators
- Very high soundflow
- Hearing Aid Compatibility according to ANSI C63.19-2006
- Spring contacts for pick&place with mounting possibility for flex print
- Compound membrane for minimum THD, Q-factor and tumbling

**Variants**

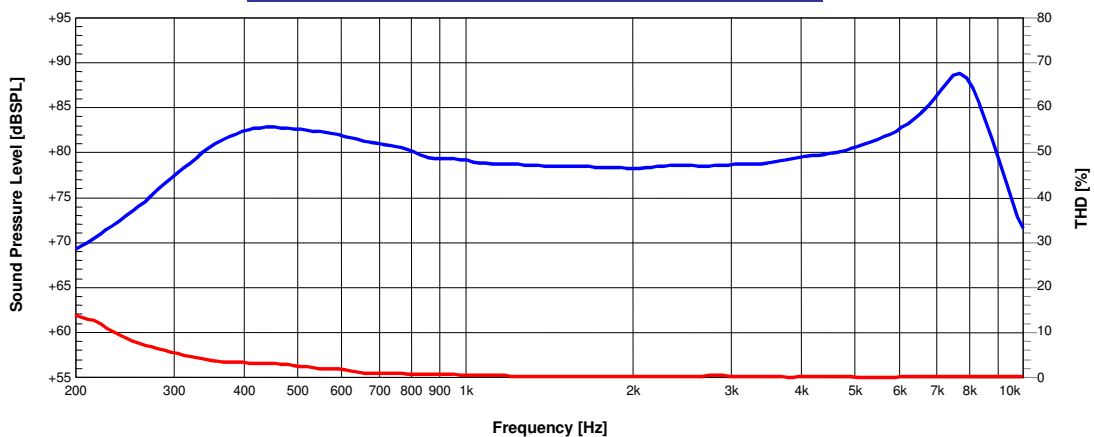
- none

|                                 |                        |
|---------------------------------|------------------------|
| <b>Type No.: 2403-260-00031</b> |                        |
| Impedance                       | 32 Ω                   |
| Sensitivity                     | 68 dB 1W/1m            |
| Power Ratio **                  | 0,04W Nom./0,075W Max. |
| Resonance Freq.                 | 350Hz                  |
| Sine Sweep                      | 5mW max                |
| Freq. Range *                   | 300-6.5kHz             |
| Weight                          | 0,2g                   |
| Contact type                    | Spring                 |
| Thickness                       | 2mm                    |

\*) in typical application, at -3dB points after resonance peaks, without EQ correction

\*\*\*) using shaped noise signal according to NXP specification sheet

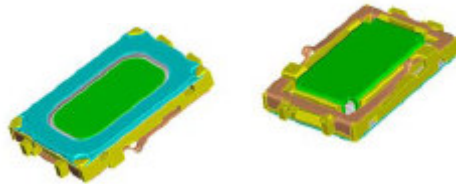
**Frequency Response**



measured in IEC baffle with open back volume (1mW, 1cm)

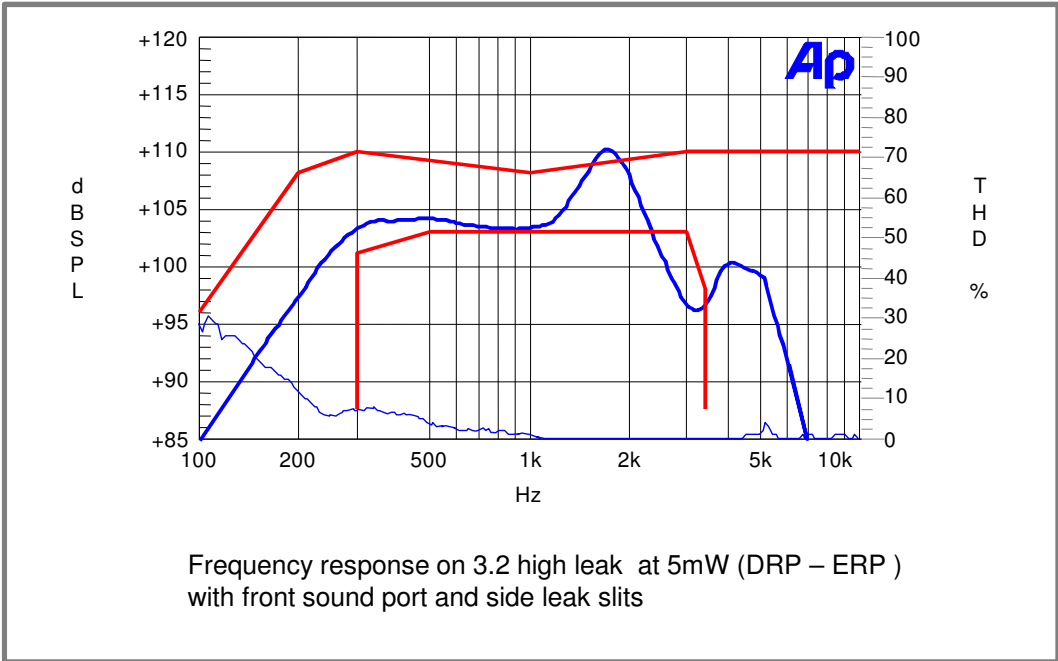
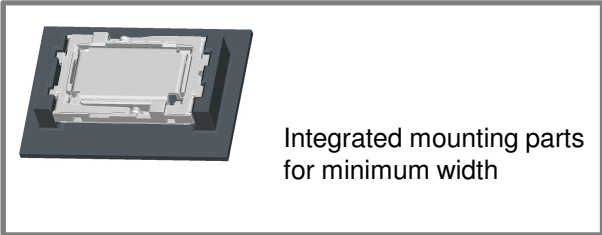
**8 x 12 x 2 mm RA**

8 x 12 x 2 mm RA receiver



**Typical applications**

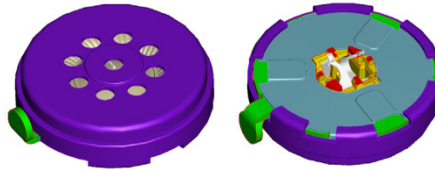
- Extended range 300Hz - 6.5kHz in Hi-leak applications
- Minimized height (1.7mm) possible through PCB integration
- Flexible soundport design possible due to large cover opening
- Space saving positioning with integrated mounting parts





## 8 x 2.1 mm PICO

8 x 2.1 mm PICO receiver : WD 20388/32



### Key Features

- Very mature and reliable product
- Great value/price ration
- Spring contacts and side venting for easy pick&place

### Variants

- Various combinations of gasket, solderpads, springs & contact wires on request

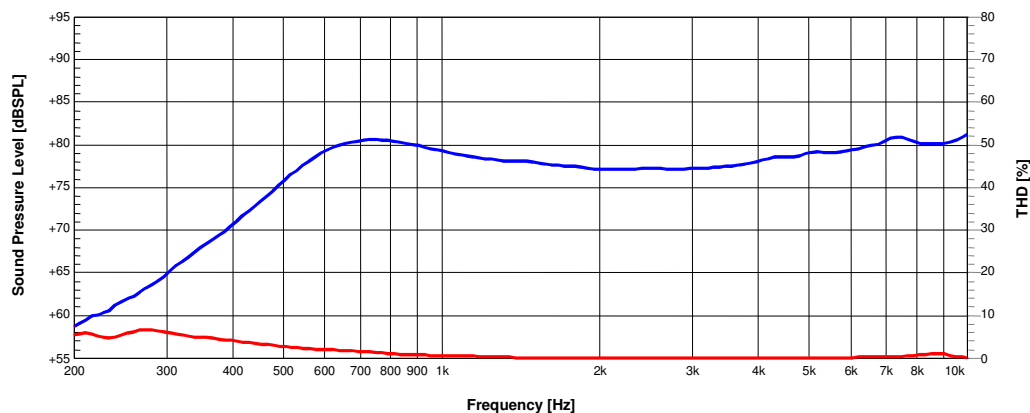
Type No.: **2403-252-28808**

|                 |                     |
|-----------------|---------------------|
| Impedance       | 32 Ω                |
| Sensitivity     | 67dB 1W/1m          |
| Power Ratio **  | 0,5W Nom. / 1W Max. |
| Resonance Freq. | 600Hz               |
| Sine Sweep      | 10mW max            |
| Freq. Range *   | 400-3.5kHz          |
| Weight          | 0.3g                |
| Contact type    | Spring              |
| Thickness       | 2,1mm               |

\*) in typical application, at -3dB points after resonance peaks, without EQ correction

\*\*\*) using shaped noise signal according to NXP specification sheet

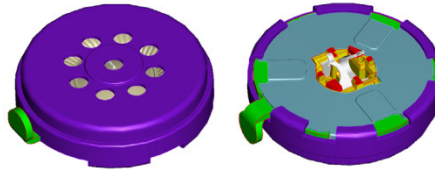
## Frequency Response



measured in IEC baffle with open back volume (1mW, 1cm)

8 x 2.1 mm PICO

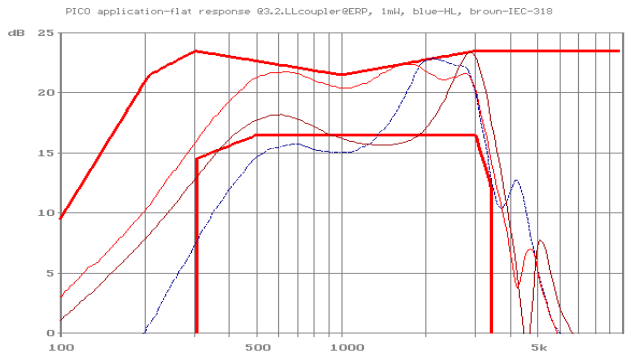
8 x 2.1 mm PICO receiver : WD 20388/32



Typical applications

- Designed for Lo-leak applications in GSM phones
- Also ideal for headphones and headsets

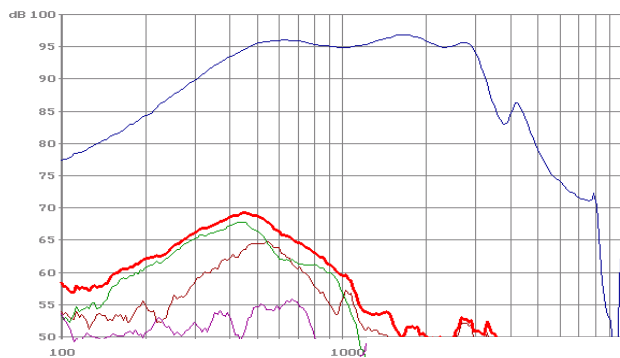
Open back volume:



Relative measurement on IEC and 3.2 HL/LL coupler in GSM mask

Red graph: IEC 318, Blue graph: P57-3.2 high leak, Brown graph: P57-3.2 low leak

THD



Absolute measurement on IEC coupler at 1mW

## 13 mm MICRO

### 13 mm MICRO receiver

- 2403 252 08108 : WD 00518/32U (ex WD 00538/32U - 2403 252 08308 )

- 2403 252 08608 : WD 00563/32U



### Key Features

- Most used receiver worldwide
- Low acoustic impedance version available
- High sensitivity
- Variable contact solutions

### Typical applications

- Clamshell mobile phones
- Slider mobile phones

| Type No.: 2403-252-08308 |                           |
|--------------------------|---------------------------|
| Impedance                | 32 Ω                      |
| Sensitivity              | 105dB 1mW/1kHz            |
| Power Ratio              | 0,002W Nom. / 0,005W Max. |
| Resonance Freq.          |                           |
| Sine Sweep               | n.a.                      |
| Freq. Range              | 300-3.4kHz                |
| Weight                   | 1.2g                      |
| Contact type             | Spring                    |
| Thickness                | 2,6mm                     |

| Type No.: 2403-252-08628 |                         |
|--------------------------|-------------------------|
| Impedance                | 32 Ω                    |
| Sensitivity              | 100dB 1mW/1kHz          |
| Power Ratio              | 0,01W Nom. / 0,02W Max. |
| Resonance Freq.          |                         |
| Sine Sweep               | n.a.                    |
| Freq. Range              | 300-3.4kHz              |
| Weight                   | 1.2g                    |
| Contact type             | Spring                  |
| Thickness                | 2,6mm                   |

## 13 x 6.1 mm Wideband

### 13 x 6.1 mm Wideband receiver module



#### Key Features

- 13mm component inside
- Module housing has integrated acoustic tuning
- Wide frequency response

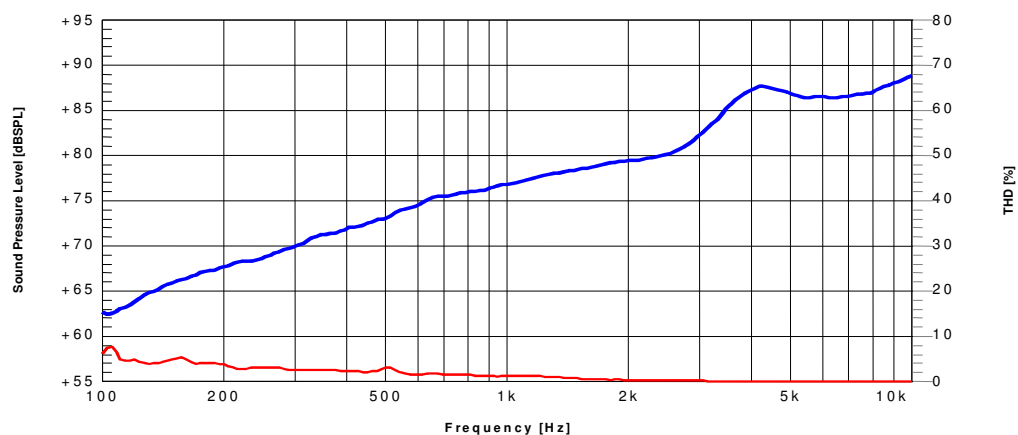
#### Variants

- With wires : 2403-262-00021

Type No.: **2403-262-00019**

|                 |                         |
|-----------------|-------------------------|
| Impedance       | 32 Ω                    |
| Sensitivity     | 63dB 1W/1m              |
| Power Ratio     | 0,02W Nom. / 0,05W Max. |
| Resonance Freq. | 130Hz                   |
| Sine Sweep      | 150mW max               |
| Freq. Range     | 130-8kHz                |
| Weight          | 1.5g                    |
| Contact type    | Spring                  |
| Thickness       | 6,1mm                   |

### Frequency Response



measured in IEC baffle with open back volume (1mW, 1cm)

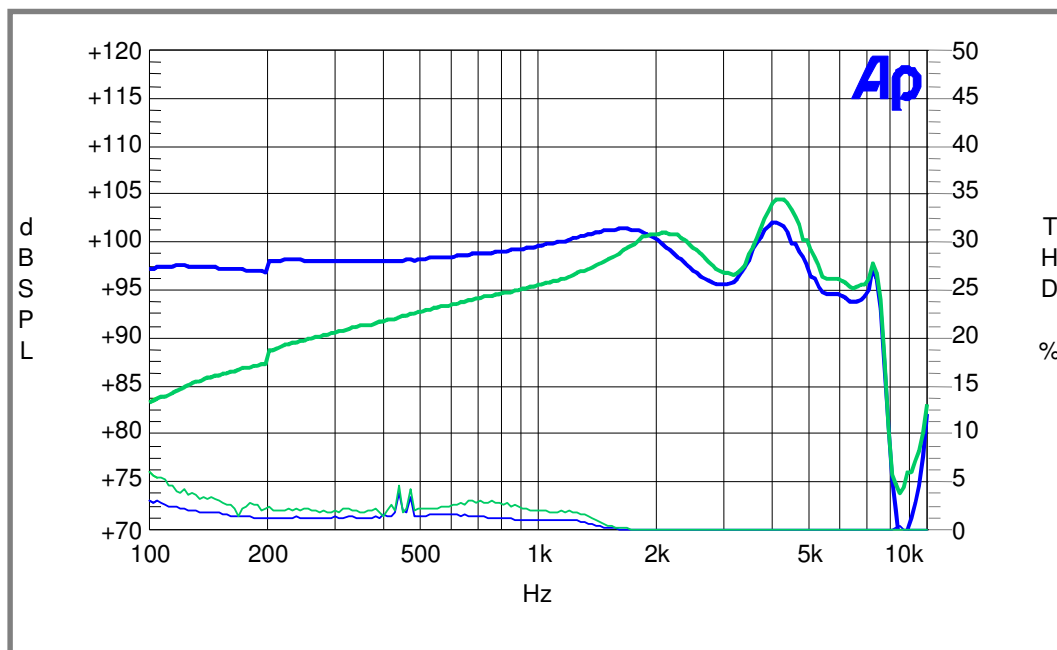
## 13 x 6.1 mm Wideband

### 13 x 6.1 mm Wideband receiver module



#### Typical applications

- Plug & Play module, nor or little external tuning necessary
- Ideal for headphones and headsets
- Mobile phone wideband receiver (in low-leak applications)



TYPICAL FREQUENCY RESPONSE of SPL [rel 20uPa] and THD on 3.2. low-leak (blue) and high-leak (green) ear at ERP at 1mW