

Dragonfly™ – Full Range

Piezo Actuator

(Patent pending)



Product data sheet (Oct 2023)

Dragonfly™ is a cutting-edge piezoelectric actuator that enables any thin panel to function as a full-range speaker. With a focus on optimizing high output pressure levels and flat frequency responses, Dragonfly™ is the ideal solution for a variety of audio applications, including automotive, aerospace, OLED display devices, medical device, consumer and industrial.

Advantages

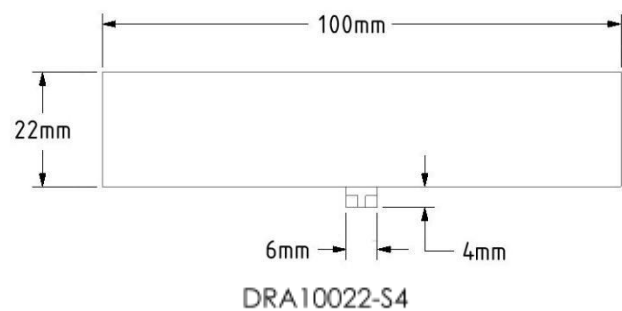
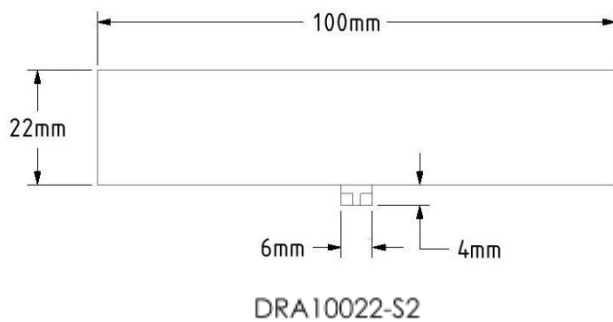
- Full range frequency response from 60 to 20kHz. SLP as high as 110 dB
- Immersive and transparent sound directly from the panel
- Super reliable
- Low power consumption
- Less than 3mm thick
- Easy integration
- Lightweight
- Highly customizable (15-120 mm in length)
- No electromagnetic field
- Lead-free piezo material option available upon request

Applications

- Automotive (hidden speakers for EVs)
- Display (OLED, microLED TV, tablet, monitor...)
- Medical device (that requires no EMI, IP65 certification)
- Consumer (smart speakers, home appliances, stereo systems...)
- Aerospace (hidden speakers for aircraft cabins)
- Others (conference room, retail space, church...)

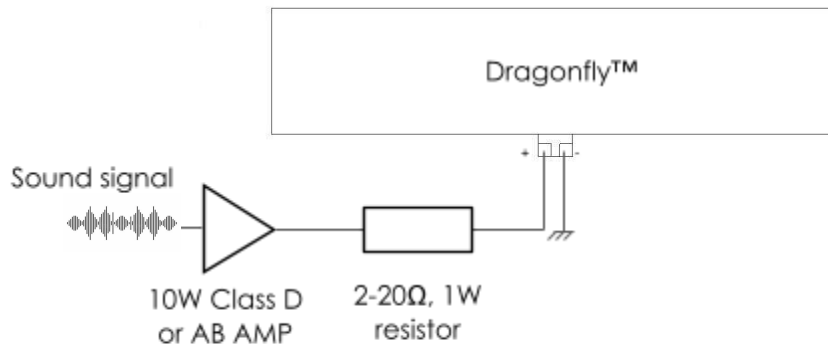
Mechanical dimensions

The following dimensions are for the standard models of Dragonfly™. However, it's important to note that the design of Dragonfly™ should be customized to meet the specific requirements of each application, which means that its dimensions may differ accordingly.



Electrical connections

Dragonfly™ can be connected to a regular class D, A or AB audio amplifier. A customized audio amplifier is recommended as Dragonfly™ requires a low power (low current) but high voltage amplifier. To avoid risk of overcurrent, it is advisable to incorporate a small power resistor between the speaker and the amplifier. Examples of ICs that can be used for a custom AMP: [IRS2092](#), [TPA3116](#), [Inventm's IVM6303](#).



Specifications

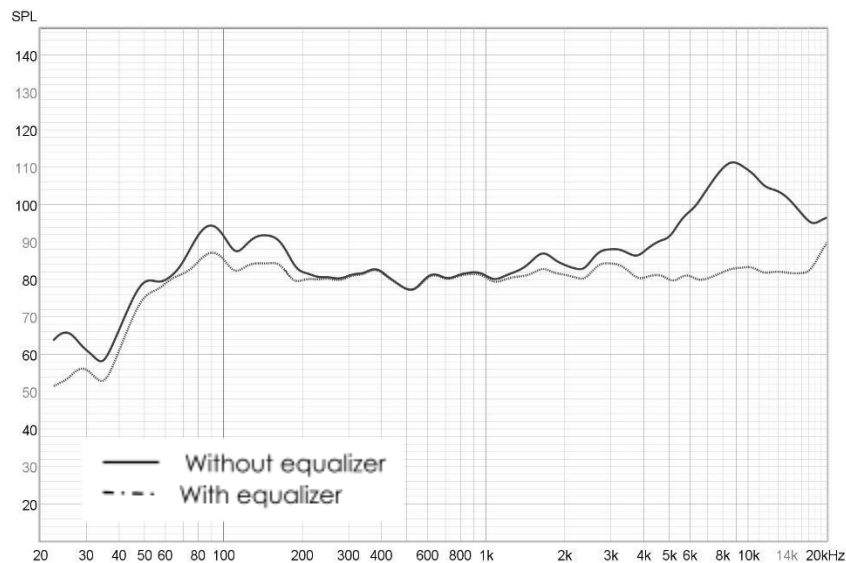
	Unit	Tolerance	DRA10022-S2M	DRA10022-S4H
Capacitance	nF	±15%	310	620
Max voltage	V	-	-80 to +80	-80 to +80
Power consumption*	W	±10%	0.3W	0.6W
Frequency range	Hz	±10%	80-20 kHz	60-20 kHz
Sensitivity**	dB	±2	88	88
Thickness	mm	±0.1	2.5	2.5
Mass	g	±0.2	15	45
Operating T	C	-	-20 to 85	-20 to 85

*Measured at 100Vp-p, 1 kHz sine signal.

** The panel speaker includes one Dragonfly™ unit attached to a 24" x 12" x 0.1" ABS panel. The measurement was performed in a normal listening room and a listening distance of 1m. Using a different panel could change the sensitivity significantly.

Frequency response

The chart below shows the frequency response curve of a 24" x 12" x 0.1" ABS panel with a single Dragonfly™ unit attached onto its rear surface. It is noted that the frequency response characteristics may differ depending on size, shape, and material of the panel. Our application engineers are available to provide support and guidance on optimizing the frequency response.



Mounting instructions

Dragonfly™ comes with pre-applied 3M VHB double-sided tape for convenient integration. It is important to follow the installation instructions provided by 3M to guarantee a robust adhesion bond. Other mounting methods such as screws, rivets, or epoxy can also be implemented if necessary.

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For more information, please visit <https://flora.tech/dragonfly/>