



PiezoListen™

For general use

Piezo Speakers

PHUA6630-076B-00-000

PHUA3030-049B-00-000

PHUA3015-049B-00-000

PHUA2010-049B-00-000

REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products

REMINDERS

- In use of this product, it should be minded by notes and please perform a safety design, after checking the individual standard for every unit enough.
- Do not apply DC bias to the product. In addition, the insulation resistance may be reduced and the function may not be performed.
- Use piezoelectric devices so that moisture-containing substances and water droplets do not come into contact with each other.
- There is a risk of performance degradation, adhere to the following matters.
 - Store the product in a packaged condition to avoid sudden temperature changes, condensation, direct sunlight, corrosive gas, dust, and dust.
 - Use within six months.
 - Do not apply strong shocks (fall etc.) or pressure by which a crack goes into a product.
 - Do not supply any voltage higher than applicable to the product.
 - Do not use the piezoelectric buzzer outdoors. It is designed for indoor use.
 - Do not apply the temperature more than 150°C.
- Do not wash the product in such a way that solvent or gas can penetrate the product.
- Handle piezoelectric devices with care so that they do not touch them by hand. It can cause corrosion and the charge being charged may be discharged to the hands.
- Discharge the product before connecting it to the measuring instrument.
- When soldering, be careful not to attach flux or other foreign matter to the piezoelectric device.
- When soldering a terminal pin, perform the soldering in clean conditions without contamination or rust in order to avoid poor connections.
- When fixing the product by adhesion, etc., investigate the type, amount, adhesion, etc. of the adhesive, conduct a reliability evaluation test, and confirm that there are no abnormalities.
- Do not use the product on a device that allows consumers to touch the product.
- Do not rework the product.
- The characteristics may vary depending on the shape and location of the mounting part. Check the mounted condition.
- Please take appropriate measures such as acquiring protective circuits and devices that meet the uses, applications, and conditions of the instruments and keeping backup circuits.
- Do not use it in the following environments.
 - Corrosive gases (Cl₂, NH₃, H₂S, SO_x, NO_x, etc.)
 - Environments with highly conductive substances (electrolytes, water, saltwater, etc.)
 - Environments with acid, alkali, or organic solvents.
 - Places to be exposed to dust.

○ The products described in these Specifications are for use in general electronic equipment (audiovisual equipment, communications equipment, home appliances, amusement devices, computer equipment, personal equipment, office equipment, measuring devices, and industrial robots) and are intended to be used in general-purpose, standard applications. It is further intended that such general electronic equipment will be used in normal operation and according to normal methods of use. TDK Corporation does not provide any guarantee of the suitability, performance, or quality of the products when used in the applications described below (referred to as “specific applications”), which require high levels of safety and reliability and in which equipment failure, malfunction, or defects may cause harm to life, person, or property or have a substantial impact on society. Please note that TDK Corporation shall not bear any liability for damage and so on resulting from use beyond the scope of application and conditions set forth in these Specifications or from use in specific applications. If you plan to use the products beyond the scope of application and conditions set forth in these Specifications or to use them in specific applications, please consult with TDK Corporation in advance so that we can discuss specifications different from those set forth in these Specifications according to your specific application

- | | |
|--|---|
| (1) Aerospace equipment | (7) Transportation control equipment |
| (2) Transportation equipment (automobiles, electric trains, ships, etc.) | (8) Processing equipment for highly public information |
| (3) Medical equipment | (9) Military equipment |
| (4) Power generating control equipment | (10) Electric heating products, combustion equipment |
| (5) Nuclear power-related equipment | (11) Disaster prevention and crime prevention equipment |
| (6) Seabed equipment | (12) Safety equipment |
| | (13) Other applications recognized as specific applications |

When designing equipment that uses the products, please be sure to provide protection circuits and devices, create backup circuits, and take other measures according to the application and use modes of the equipment.

PiezoListen™

Piezo Speakers

Summary

FEATURES

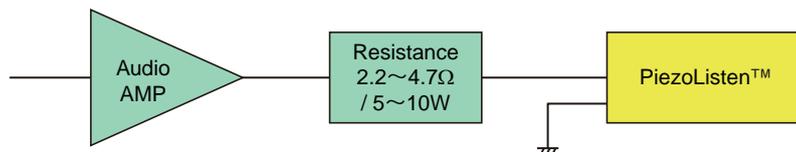
- It is thin and can support various application.
- Immersive onscreen sound.
- Excellent response.
- Wide range of driving voltage.

APPLICATIONS

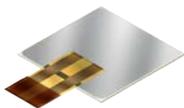
- Television , PC , Smartphone etc

DRIVE CIRCUIT BLOCK DIAGRAM

Discrete



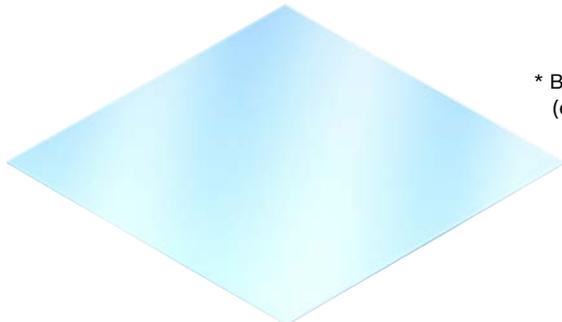
How to install



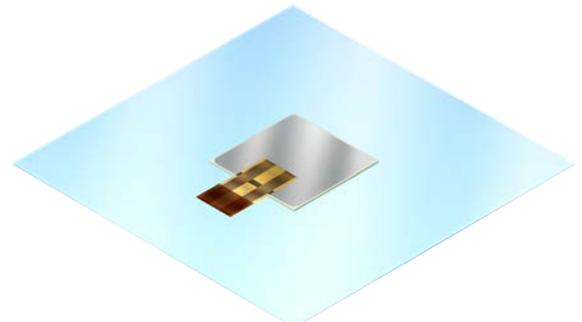
* PiezoListen
Front side
(FPC attached)



* Double side tape
(ex. Nitto 5000 or 510)



* Back side of panel
(ex. Display)

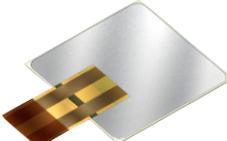
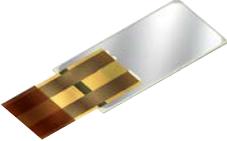
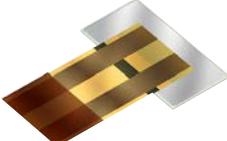


Overview of the Piezo Speaker PHU series

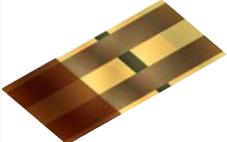
PART NUMBER CONSTRUCTION

PHU	A	3030	-	049	B	-	00-000
Series name	Application	Element dimensions (LxW)		Thickness	Type	Internal code	
	A General use	3030	30x30mm	49 0.49mm	B FPC		
	B Automotive application (UnderDevelopment)						

PRODUCT LINEUP

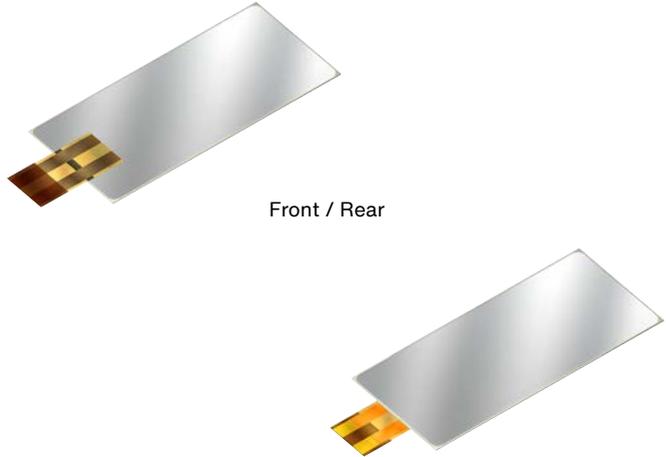
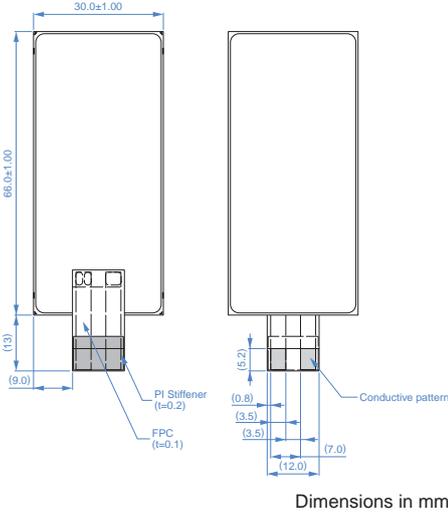
Part No.	PHUA6630-076B-00-000	PHUA3030-049B-00-000	PHUA3015-049B-00-000	PHUA2010-049B-00-000	
					
Dimensions	Product (mm)	79x30x0.96	43x30x0.69	43x15x0.69	20x26.5x0.69
	Element (mm)	66x30x0.76	30x30x0.49	30x15x0.49	20x10x0.49
Electrode	FPC	FPC	FPC	FPC	

ELECTRODE SPECIFICATION

FPC	
Width	12mm
Insulation length	14.5mm
Lead pitch	7.0mm
Stripping length	5.0mm
Reinforcement	8.0mm

PHUA6630-076B-00-000

SHAPE & DIMENSIONS



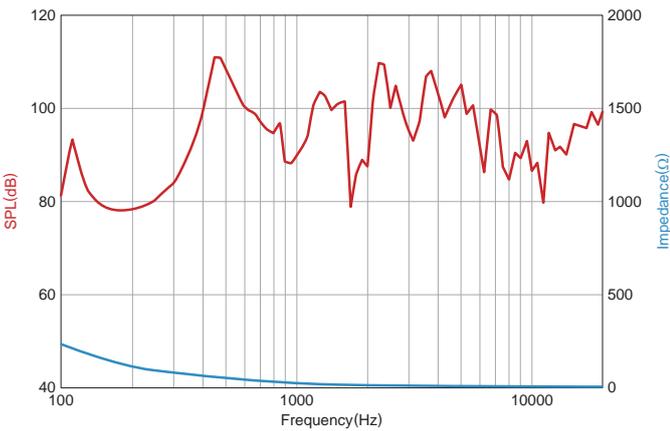
SPECIFICATIONS

Dimensions	Element	66x30x0.76 mm
Electrode		FPC (23.5x12x0.3 mm)
Operating voltage range(max.)		48Vp-p(±24V)max
Operating temperature range		-10 to 60°C

ELECTRICAL CHARACTERISTICS

Capacitance: C	(7.8uF±30%,1kHz,1V)
Current consumption: mA(p-p) / mA(RMS)	2400mA _{p-p} (±1200mA) / 870mA (Drive @48V _{p-p} , 1kHz)

FREQUENCY CHARACTERISTICS (Reference value)



Measurement condition	
Input voltage	12VP-P(±6V)
Distance	10cm to mic
Frequency	400 to 20kHz
Fixed	Glass 220x220x0.7mm (* Refer to The following figure)



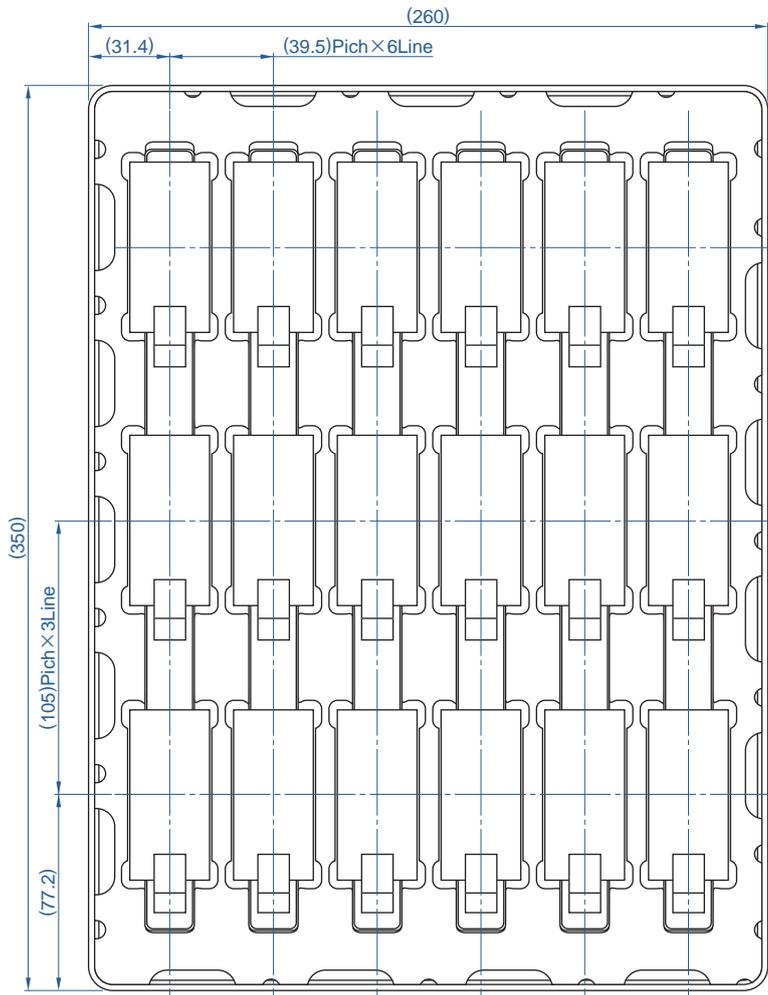
⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

PHUA6630-076B-00-000

PACKAGING STYLE/PACKING NUMBER/MINIMUM ORDERING UNIT

	PHUA6630-076B-00-000
	
Packaging style	Bulk (Tray)
Package quantity	90 pieces / corrugated cardboard (5 trays containing 18 pieces)
Minimum ordering unit	90 pieces (1 boxes of corrugated cardboard containing 90 piece)

Tray

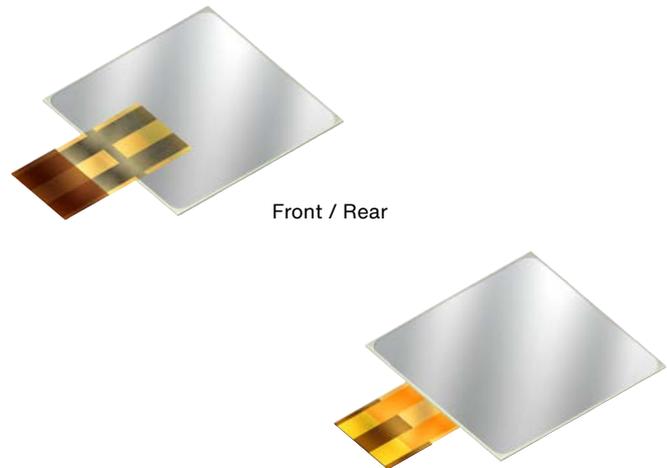
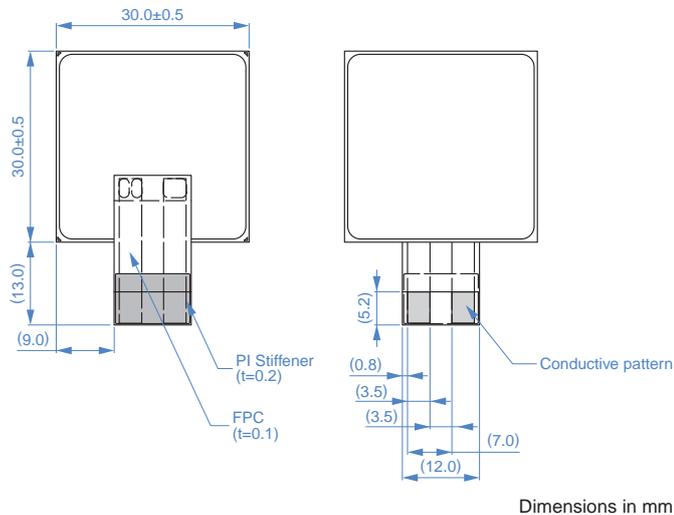


Dimensions in mm

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SHAPE & DIMENSIONS



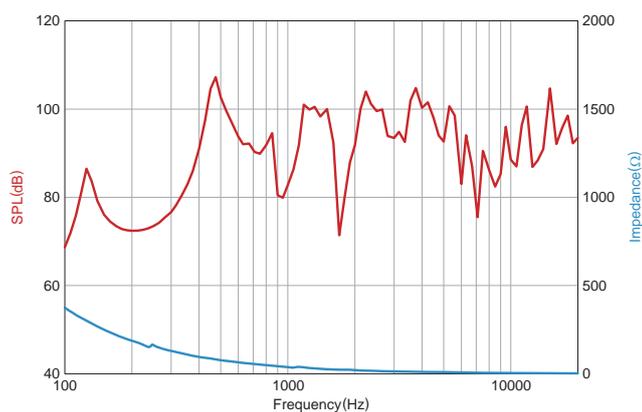
SPECIFICATIONS

Dimensions	Element	30x30x0.49mm
Electrode		FPC (23.5x12x0.3mm)
Operating voltage range(max.)		24Vp-p(±12V)max.
Operating temperature range		-10 to 60°C

ELECTRICAL CHARACTERISTICS

Capacitance: C	(4.8uF±30%)
Current consumption: mA(p-p) / mA(RMS)	900mA _{p-p} (±450mA) / 320mA (Drive @24Vp-p, 1kHz)

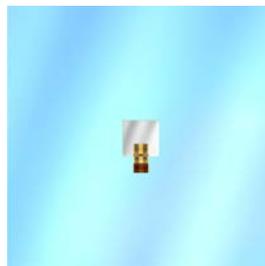
FREQUENCY CHARACTERISTICS (Reference value)



Measurement condition

Input voltage	12Vp-p(±6V)
Distance	10cm to mic
Frequency	400 to 20kHz
Fixed	Glass 220x220x0.7mm (* Refer to The following figure)

* Glass fixing

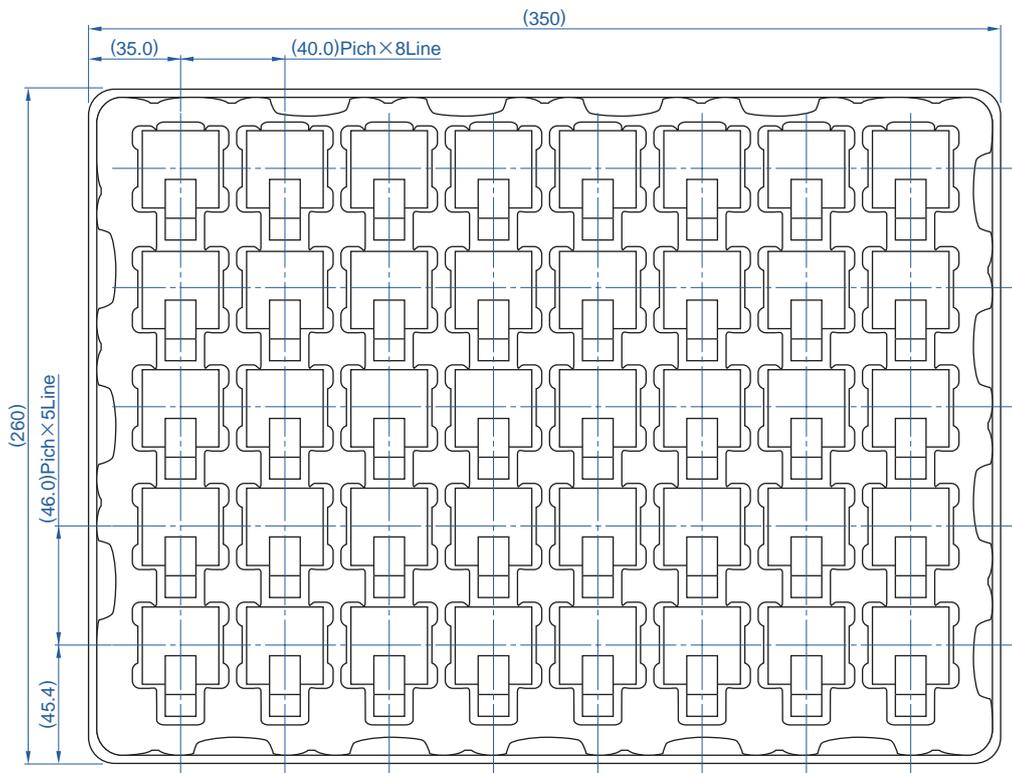


PHUA3030-049B-00-000

PACKAGING STYLE/PACKING NUMBER/MINIMUM ORDERING UNIT

	PHUA3030-049B-00-000 
Packaging style	Bulk (Tray)
Package quantity	200 pieces / corrugated cardboard (5 trays containing 40 pieces)
Minimum ordering unit	200 pieces (1 boxes of corrugated cardboard containing 200 piece)

Tray

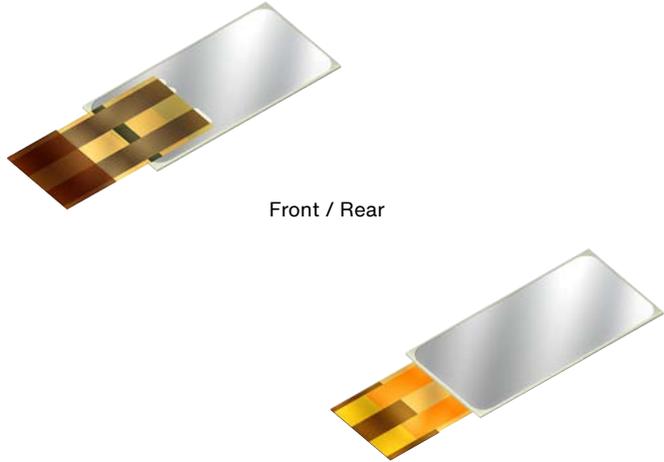
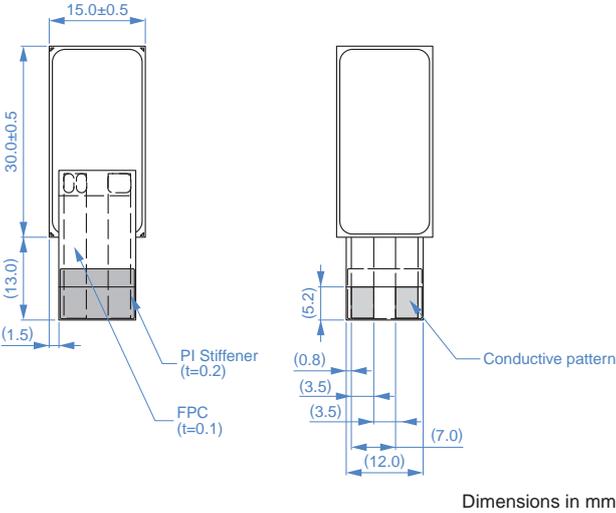


Dimensions in mm

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PHUA3015-049B-00-000

SHAPE & DIMENSIONS



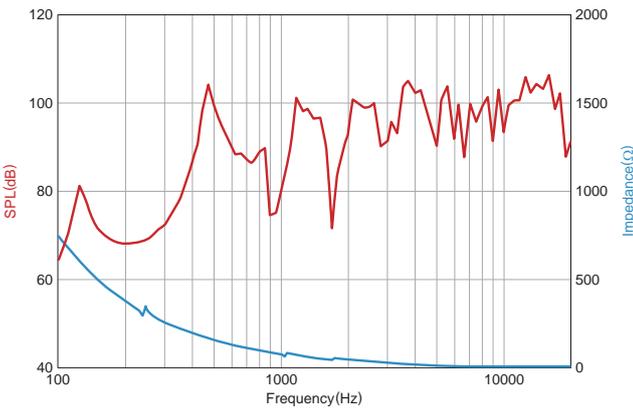
SPECIFICATIONS

Dimensions	Element	30x15x0.49 mm
Electrode		FPC (23.5x12x0.3 mm)
Operating voltage range(max.)		24Vp-p(±12V)max
Operating temperature range		-10 to 60°C

ELECTRICAL CHARACTERISTICS

Capacitance: C	(2.3uF±30%,1kHz,1V)
Current consumption:	450mA _{p-p} (±225mA)
mA(p-p) / mA(RMS)	/ 160mA (Drive @24Vp-p, 1kHz)

FREQUENCY CHARACTERISTICS (Reference value)



Measurement condition	
Input voltage	12Vp-p(±6V)
Distance	10cm to mic
Frequency	1000 to 20kHz
Fixed	Glass 220x220x0.7mm (* Refer to The following figure)

* Glass fixing



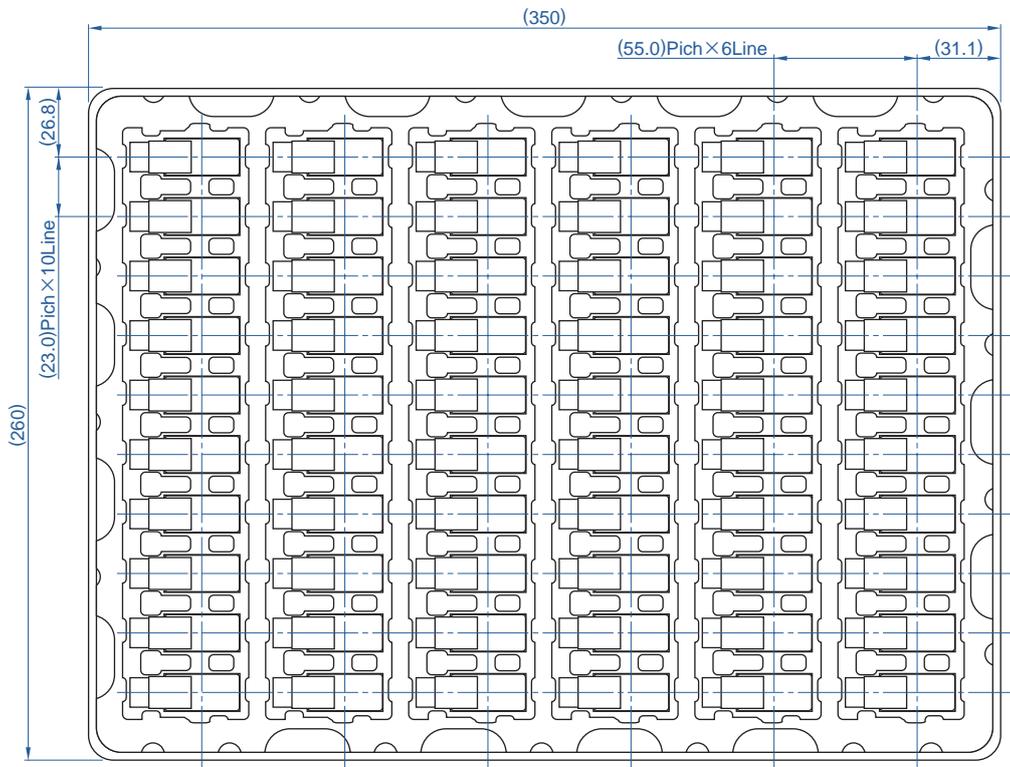
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PHUA3015-049B-00-000

PACKAGING STYLE/PACKING NUMBER/MINIMUM ORDERING UNIT

	PHUA3015-049B-00-000 
Packaging style	Bulk (Tray)
Package quantity	300 pieces / corrugated cardboard (5 trays containing 60 pieces)
Minimum ordering unit	300 pieces (1 boxes of corrugated cardboard containing 300 piece)

Tray

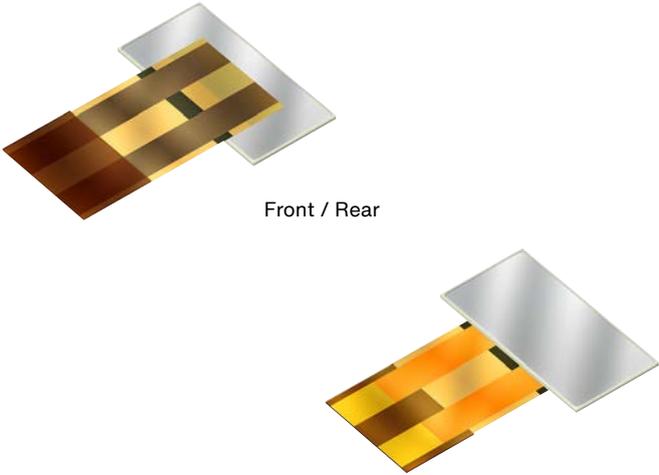
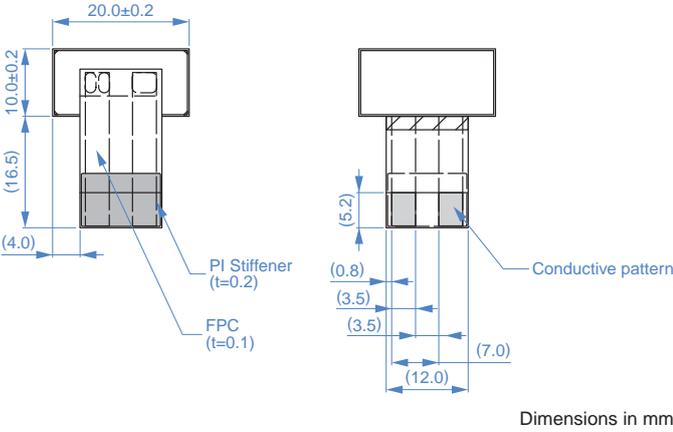


Dimensions in mm

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PHUA2010-049B-00-000

SHAPE & DIMENSIONS



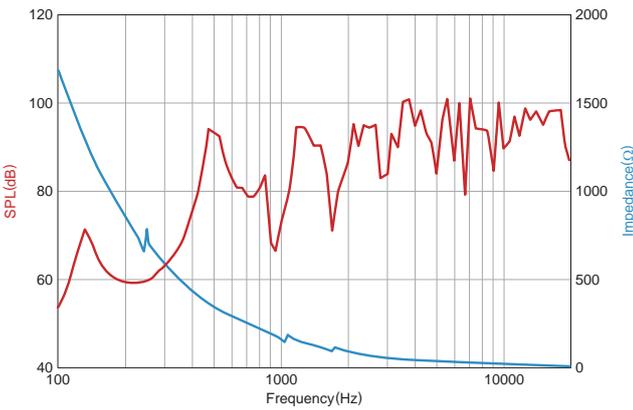
SPECIFICATIONS

Dimensions	Element	20x10x0.49 mm
Electrode		FPC (23.5x12x0.3 mm)
Operating voltage range(max.)		24Vp-p(±12V)max
Operating temperature range		-10 to 60°C

ELECTRICAL CHARACTERISTICS

Capacitance: C	(1.0uF±30%,1kHz,1V)
Current consumption:	200mA _{p-p} (±100mA)
mA(p-p) / mA(RMS)	/ 70mA (Drive @24Vp-p, 1kHz)

FREQUENCY CHARACTERISTICS (Reference value)



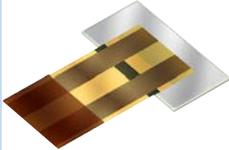
Measurement condition	
Input voltage	12Vp-p(±6V)
Distance	10cm to mic
Frequency	1000 to 20kHz
Fixed	Glass 220x220x0.7mm (* Refer to The following figure)



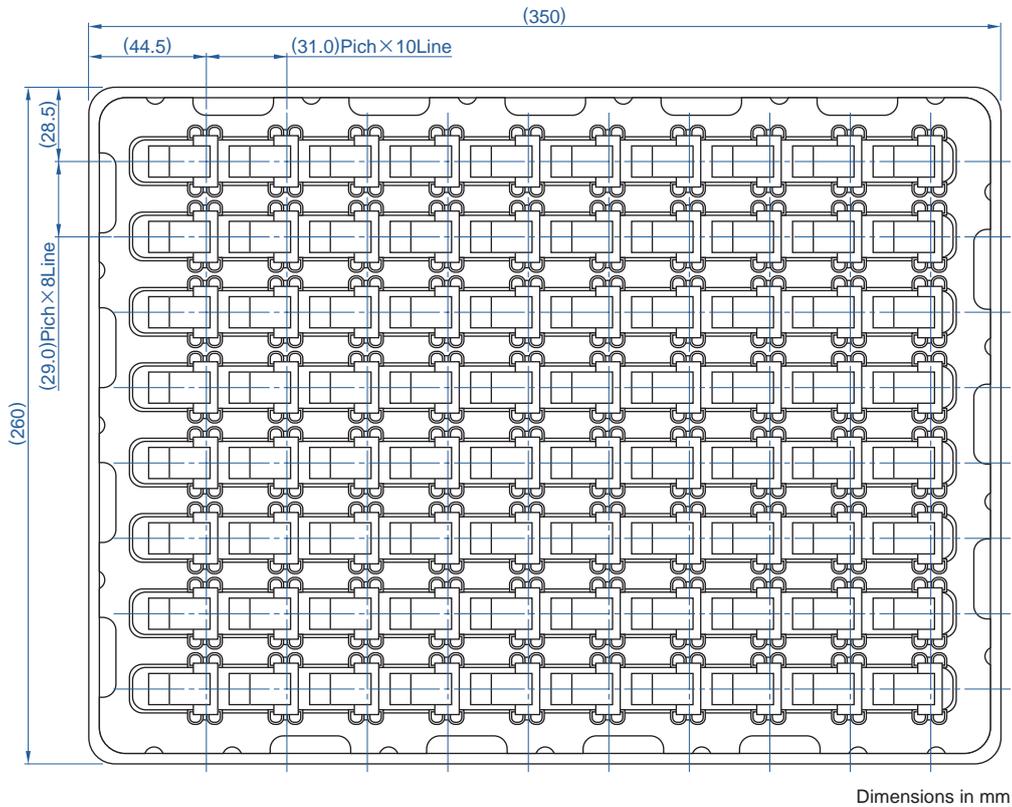
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PHUA2010-049B-00-000

PACKAGING STYLE/PACKING NUMBER/MINIMUM ORDERING UNIT

	PHUA2010-049B-00-000 
Packaging style	Bulk (Tray)
Package quantity	400 pieces / corrugated cardboard (5 trays containing 80 pieces)
Minimum ordering unit	400 pieces (1 boxes of corrugated cardboard containing 400 piece)

Tray



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