



PiezoHapt™ Actuators

For automotive

PHU series

PHUB8060-35A-33-000

Caution

This product is in development.

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.
- Do not remove the piezoelectric element from the diaphragm.
- 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.
- Check the resonant frequency in the mounting condition, and use the product within the range where the resonant frequency is not affected by the resonance with a reference value of 1/2 or less of the resonant frequency.
- 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 listed in this specification are intended for use in automotive applications under normal operation and usage conditions.
- The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality requires a more stringent level of safety or reliability, or whose failure, malfunction or defect could cause serious damage to society, person or property.
- Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet.
- If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in this specification, please contact us.

- | | |
|--|--|
| (1) Aerospace/aviation equipment | (7) Transportation control equipment |
| (2) Transportation equipment (electric trains, ships, etc.) | (8) Public information-processing equipment |
| (3) Medical equipment (excepting Pharmaceutical Affairs Law classification Class1,2) | (9) Military equipment |
| (4) Power-generation control equipment | (10) Electric heating apparatus, burning equipment |
| (5) Atomic energy-related equipment | (11) Disaster prevention/crime prevention equipment |
| (6) Seabed equipment | (12) Safety equipment |
| | (13) Other applications that are not considered general-purpose applications |

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

In addition, although the products listed in this specification are intended for use in automotive applications as described above, they are not prohibited to use in general electronic equipment, whose performance and/or quality doesn't require a more stringent level of safety or reliability, or whose failure, malfunction or defect could not cause serious damage to society, person or property. Therefore, the description of this caution will be applied, when the products are used in general electronic equipment under a normal operation and usage conditions.

PiezoHapt™ Actuators

Product compatible with RoHS directive

For automotive

Overview of the PHU series

FEATURES

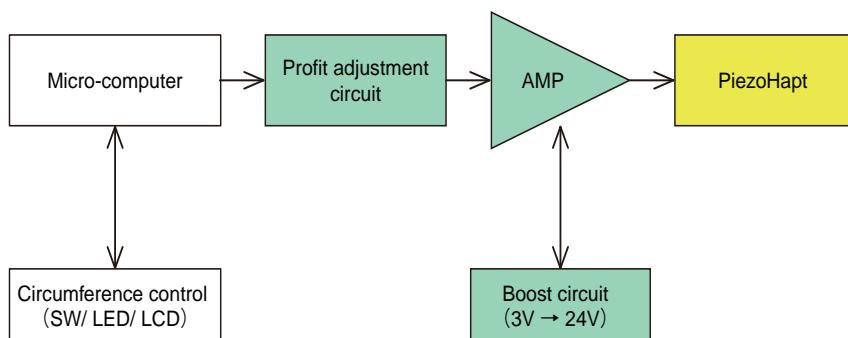
- It is thin and can support various application.
- It is possible to obtain a clear response by low-voltage drive.
- It answers in an instant and can respond to a variegated vibration pattern (vibrational frequency).
- This is a highly reliable type suitable for use in automotive equipment.

APPLICATIONS

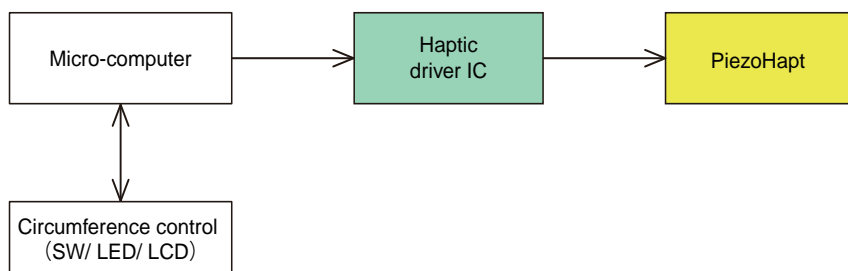
- Touchpad for automotive equipment, displays etc

DRIVE CIRCUIT BLOCK DIAGRAM EXAMPLE

Discrete



Haptic driver IC



○ RoHS Directive Compliant Product: See the following for more details. <https://product.tdk.com/info/en/environment/rohs/index.html>

⚠ 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.

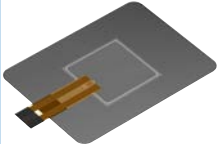
Overview of the PHU series

PART NUMBER CONSTRUCTION

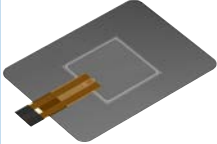
PHU	B	8060	-	35	A	-	33	-	000
Series name	Application	振動板外形 (L×W)		Total thickness	Type		External piezoelectric element dimensions (L×W)		Internal code
	A General use	8060 80x60mm		35 0.35mm	A 42Ni-Fe + FPC		33 30x30mm		
	B For automotive	3015 30x15mm		30 0.30mm			21 20x10mm		

PRODUCT LINEUP

SPECIFICATIONS

Part No.	PHUB8060-35A-33-000		
			
Dimensions	Vibration plate (mm)	80x60x0.25	
	Element (mm)	30x30x0.1	
Vibration plate specifications	42Ni-Fe		
ELECTRODE SPECIFICATION	FPC		

CHARACTERISTICS

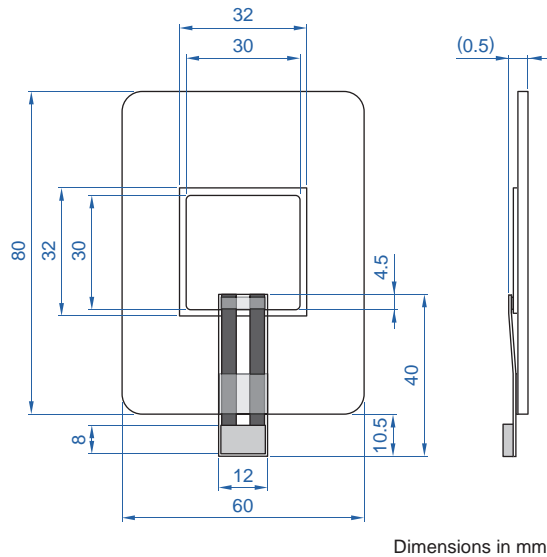
Part No.	PHUB8060-35A-33-000		
			
Application	Touchpad Displays		
Operation voltage	24VP-P(±12V)max.		
Operating temperature range	-40 to +105°C		

PHUB8060-35A-33-000

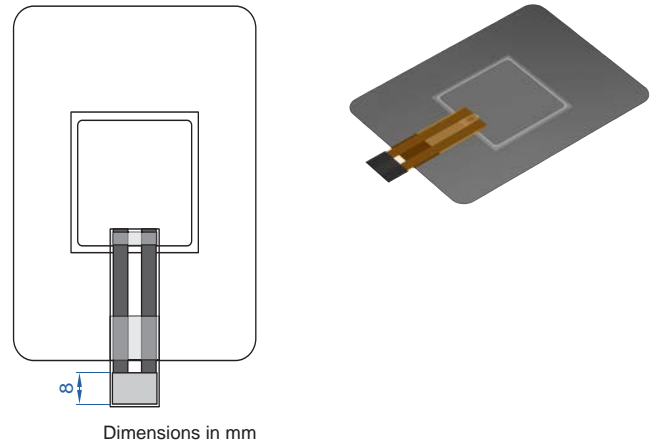
Application

- Suitable for touch panel of automotive equipment and display.

SHAPE & DIMENSIONS



RECOMMENDED WIRING



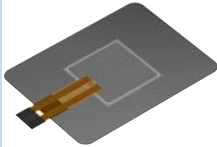
* Product shape are subject to change without notice.

SPECIFICATIONS

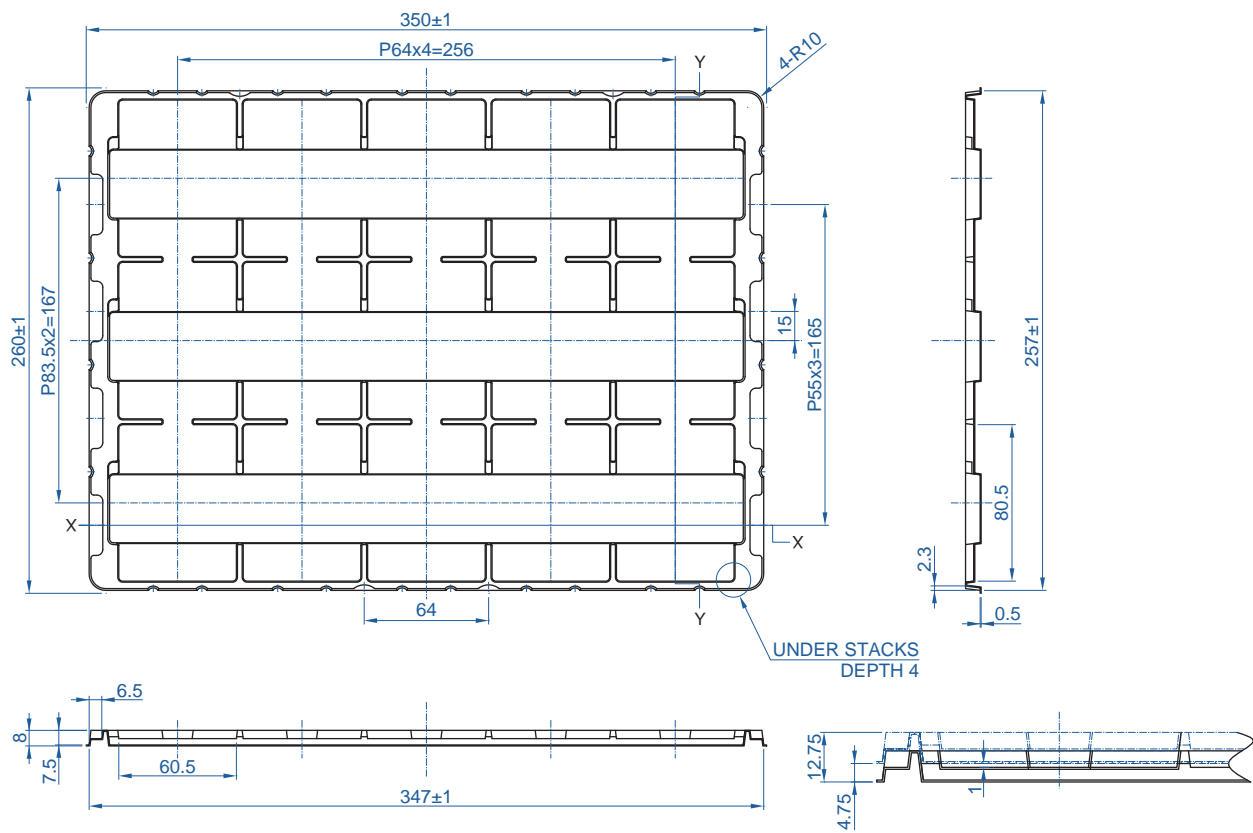
Vibration plate specifications	42Ni-Fe	
ELECTRODE SPECIFICATION	FPC	
	Width	12mm
	Number of cores	2
	Insulation length	30mm
	Lead pitch	7.0mm
	Stripping length	5.0mm
	Reinforcement	8.0mm
Operation voltage	24VP-P(±12V)max.	
Operating temperature range	-40 to +105°C	

PHU series

PACKAGING STYLE/PACKING NUMBER/MINIMUM ORDERING UNIT

 <p>PHUB8060-35A-33-000</p>	
Packaging style	Bulk (Tray)
Package quantity	200 pieces / corrugated cardboard (20 trays containing 10 pieces)
Minimum ordering unit	200 pieces (1 boxes of corrugated cardboard containing 200 piece)

Tray



Dimensions in mm