

# DuraAct Power Patch Transducer

## Highly Efficient and Robust



### P-878

- Useable as actuator, sensor or energy generator
- Low voltages to 120 V
- Compact design
- Individual solutions

#### Patch transducer

Functionality as actuator and sensor component. Nominal operating voltages of -20 to 120 V. Power generation for self-sufficient systems possible up to the milliwatt range. Can also be applied to curved surfaces.

In longitudinal direction, the DuraAct Power uses the high-efficiency  $d_{33}$  effect.

#### Robust, inexpensive design

Laminated structure consisting of PICMA® multilayer piezo element, electrodes and polymer materials. Manufactured with bubble-free injection method. The polymer coating simultaneously serves as electrical insulation and as mechanical preload, which makes the DuraAct bendable.

#### Customized versions and other specifications on request

- Flexible choice of size
- Variable design of the electrical connections
- Combined actuator/sensor applications, even with several active piezoceramic layers
- Arrays

#### Application fields

Industry and research. Can also be applied to curved surfaces or used for integration in structures. For adaptive systems, energy harvesting, structural health monitoring.

Motion	Unit		P-878.A1
Minimum axial strain	$\mu\text{m/m}$		1200
Relative axial strain	$\mu\text{m/m/V}$		10
Minimum lateral contraction	$\mu\text{m/m}$		250
Relative lateral contraction	$\mu\text{m/m/V}$		1.2

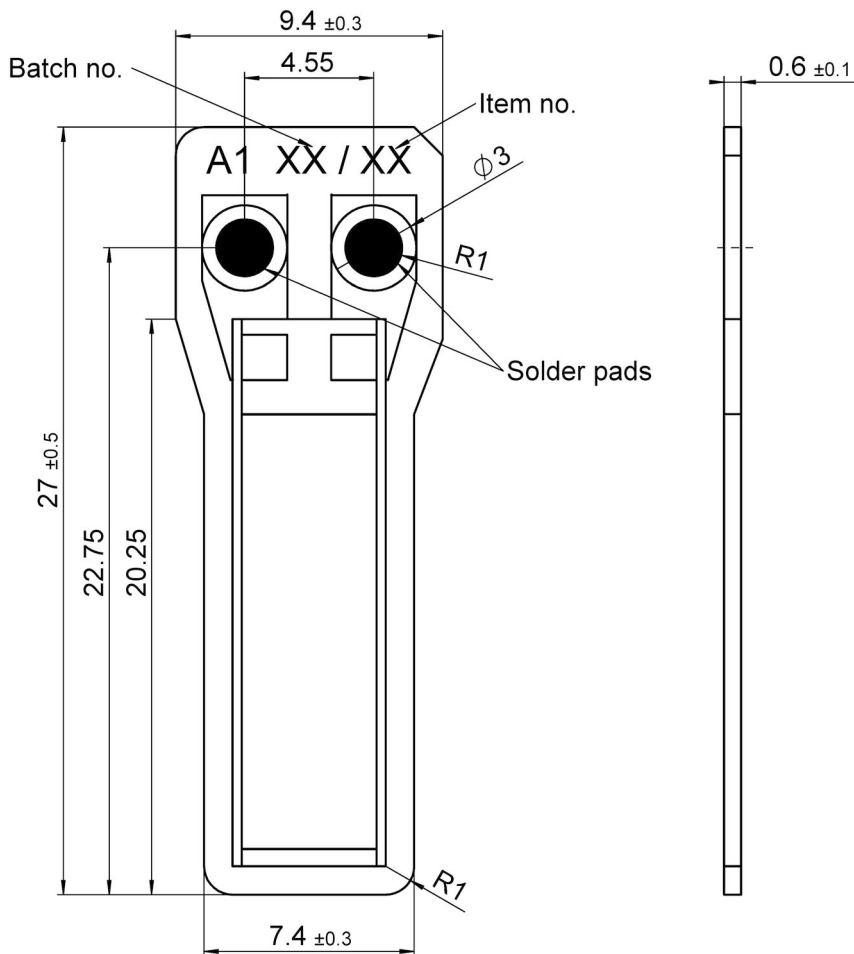
Drive Properties	Unit	Tolerance	P-878.A1
Operating voltage	V		-20 to 120 V
Drive type			DuraAct
Actuator type			Transducer
Piezo material			PIC252
Active element			15 mm × 5.4 mm
Electrical capacitance	nF	±20%	100

Mechanical Properties	Unit		P-878.A1
Minimum bending radius	mm		24
Blocking force	N		44

Miscellaneous	Unit	P-878.A1
Operating temperature range	°C	-20 to 150 °C
Connector		Solderable contacts
Recommended controllers / drivers		E-503, E-504, E-505, E-506, E-610, E-617, E-663, E-821, E-831, E-836

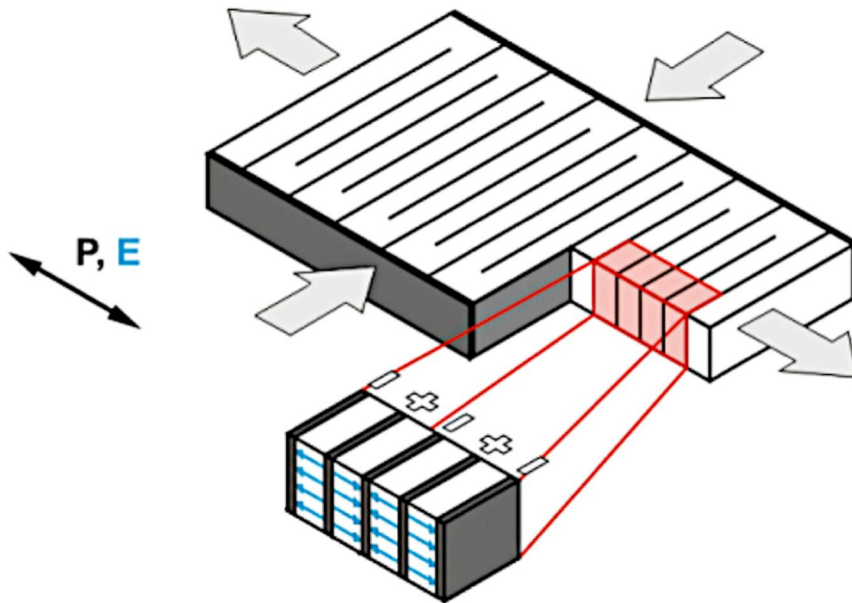
Electrical capacitance: Measured at 1 V<sub>pp</sub>, 1 kHz, RT.  
Custom designs or different specifications on request.

## Drawings / Images



P-878.A1, dimensions in mm

## Drawings / Images



The DuraAct Power multilayer patch transducers use the longitudinal or d33 effect, which describes an elongation parallel to the electric field  $E$  and the polarization direction  $P$  of the piezo actuator. The d33 piezoelectric charge coefficients for longitudinal displacement are considerably higher than the d31 coefficients for transversal displacement, used by all-ceramic patch transducers (Source: Wierach, DLR).

## Order Information

### P-878.A1

DuraAct Power patch transducer; DuraAct piezo actuator drive; 9.4 mm × 27 mm × 0.6 mm (B × L × TH); solderable contacts