Electronic Module for Energy Harvesting

USING PIEZO ACTUATORS FOR ENERGY GENERATION

E-821
- Constant output voltage
- Usable energy 8.7 mJ
- Uses pulsed or continuous excitation
- Adaptation to customer application on request

OEM electronic module for energy harvesting
For generating energy from vibration. Use in combination with DuraAct patch transducers. Adjustable output voltage. Processes input currents between 20 µA and 40 mA, voltage peaks are limited to 15 V. Custom version for operation with piezo stack actuators on request

Fields of application
Autonomous power supplies, e.g. for wireless sensor networks

Specifications

<table>
<thead>
<tr>
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<th>E-821.00</th>
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<tbody>
<tr>
<td>Function</td>
<td>Electronic module for energy harvesting</td>
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<tr>
<td>Channels</td>
<td>1</td>
</tr>
<tr>
<td>Min. input current</td>
<td>20 µA</td>
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<tr>
<td>Max. input current</td>
<td>40 mA</td>
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<tr>
<td>Max. continuous input power</td>
<td>500 mW</td>
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<tr>
<td>Output voltage</td>
<td>3.3 V (adjustable from 1.8 to 5.0 V)</td>
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<td>Output power (80 ms)</td>
<td>100 mW</td>
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<td>Usable energy at the output (200 µF)</td>
<td>8.7 mJ</td>
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Interface and operation
- Piezo element (voltage input): 2-pin connector
- Voltage output: 4-pin connector

Miscellaneous
- Operating temperature range: 0 to 50 °C
- Dimensions: 48 mm × 15 mm × 7 mm
- Mass: 3.5 g
- Material: SMD board
- Typ. current consumption: 15 µA (during charging)
- Typ. power consumption: 30 % of the converted power

Ask about custom designs!
Not authorized for use in the USA and not available in the USA.
Order Information
E-821.00
Signal Conditioner Module for Energy Harvesting, 8.7 mJ

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Related Products
P-876 DuraAct Patch Transducer
P-882 – P-888 PICMA® Stack Multilayer Piezo Actuators
In addition to the transducer and storage electronics, the E-821.EHD evaluation kit contains the required cabling and corresponding DuraAct piezo transducers for the integration in an application. The output voltage of between 1.8 and 5 V can be used to operate commercially available electric circuits and systems.

The E-821 energy harvesting electronics is designed to work best with P-876 DuraAct patch transducers.
To dimension an energy harvesting system correctly, all important boundary conditions must be known and taken into account. The principle itself is simple: Ambient vibrations produce a charge separation in the piezoceramic DuraAct transducer. The electronic circuitry in the E-821 module then ensures a sufficiently stable output voltage that can be adjusted to the load.