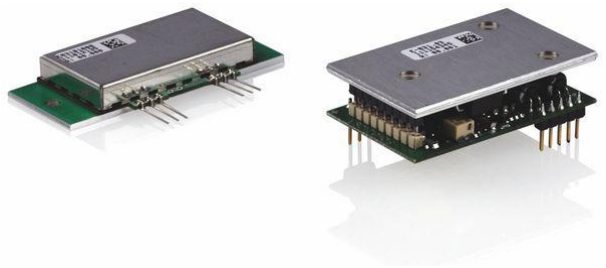
OEM Piezo Driver

LOW- COST MODULE WITH SEPARATE POWER SUPPLY



E-831

- Compact piezo power amplifier
- Peak current up to 250 mA
- Cost- efficient
- Low noise, high stability
- Easy integration
- Short- circuit- proof, full overcurrent and temperature protection
- Output voltage range up to -30 to 130 V
- Power- up / down without voltage spikes

Single- channel piezo amplifier module

Compact OEM module. Various models for different dynamic requirements. Runs on external power, e.g. the E-841 power supply series

Functions

Low- noise power amplifier. Voltage gain factor 10. Output voltage range up to -30 to 130 V, depending on the power supply used. Monitor output 1-100. Overtemperature protection. Soldering pins for easy mount on PCB boards

Optional power supply modules

Various power ranges. Suitable for supplying up to three E-831 piezo amplifiers. Custom power supplies on request

Specifications

	E-831.03	E-831.05
Function	Piezo amplifier module, 1 channel	Miniature piezo amplifier module, 1 channel
Amplifier		
Control input voltage	-2 to 12 V	-2 to 12 V
Output voltage*	-30 to 130 V	-30 to 130 V
Peak current (<8 ms)	100 mA	250 mA
Average current	50 mA (up to 2 minutes without cooling)	100 mA (up to 1 minute without cooling)
Current limitation	Short- circuit- proof	Short- circuit- proof
Voltage gain	10±0.1	10±0.1
Amplifier bandwidth, small signal	3.5 kHz (open)	15 kHz (open) (-3 dB, 5 V_{pp})
Ripple, noise, 0 to 100 kHz	0.8 mV_{rms} 20 mV_{pp} (with switching power supply; <5 mV_{pp} at <10 kHz bandwidth) <1 mV_{pp} (with linear power supply, 1.8 µF load at the output)	<0.15 mV_{rms} <1 mV_{pp}
Capacitive base load (internal)	10 nF	10 nF
Output impedance	33 Ω	5 Ω
Input impedance	100 kΩ	1 MΩ
Miscellaneous		
Contacting	Soldering pins, Ø 1 mm, 6 mm	Soldering pins, Ø 0.7 mm, 9 mm
Operating temperature range	5 to 50 °C	5 to 50 °C
Overtemp protection	Deactivation at a case temperature of 70 °C	Deactivation at a case temperature of 75 °C

Dimensions	50 mm × 30 mm × 14 mm	60 mm × 28 mm × 6 mm
Material	Metal shielded case	Metal shielded case
Operating voltages	127 to 137 V / 1.8 mA -28 to -38 V / 1.8 mA 15 V / 20 mA -15 V / 7 mA	127 to 137 V / 6 mA -28 to -38 V / 6 mA
Dynamic current consumption	Depending on load, amplitude and slew rate	Depending on load, amplitude and slew rate
	E-841.05 / E-842.05	**E-841.55**
Function	Power supply module (8 W) for up to 3 × E-831	Power supply module (20 W) for up to 3 × E-831
Output voltages and currents	127 V / 30 mA -26 V / 30 mA 15 V / 60 mA -15 V / 20 mA	137 V / 60 mA -37 V / 60 mA 15 V / 0.3 A -15 V / 0.3 A
Max. output power	8 W	20 W
Average output power	8 W with forced air flow (5 W without)	20 W
Current limitation	Short- circuit- proof (1 minute)	Short- circuit- proof (1 minute)
Operating voltage	10 to 30 V (E-841.05) 30 to 72 V (E-842.05)	12 to 30 V
Quiescent current	100 mA at 15 V 60 mA at 30 V 25 mA at 72 V (E-842.05)	100 mA at 12 V 90 mA at 15 V 60 mA at 24 V 60 mA at 30 V
Max. operating current	1 A (E-841.05 at 10 V) 200 mA (E-842.05 at 72 V)	2.2 A at 12 V 1.1 A at 24 V
Power- on peak current	1.5 A	2.5 A
Typ. switching frequency	100 kHz	180 kHz
External clock frequency	200 kHz (185 to 220 kHz possible)	200 kHz (200 to 225 kHz possible)
Synchronization signal	TTL- level with duty cycle 50 %; operating from 1.8 V_{pp}, and offsets within ±7 V	TTL- level with duty cycle 50 %; operating from 2.5 V_{pp}
Output ripple	<100 mV_{pp}	<20 mV_{pp}
Operating temperature range	5 to 50 °C (above 40 °C, power derated)	5 to 50 °C (above 40 °C, power derated)
Case	Metal shielded case, 50 mm × 44 mm × 14 mm	Metal shielded case, 75 mm x 62 mm x 28 mm
Contacts	Soldering pins, Ø 1 mm, 7 mm	Soldering pins, Ø 1 mm, 4 mm

* Depending on the power supply. Full voltage range with E-841.55. With E-841.05 and E-842.05 max. -20 to 120 V for up to three amplifier modules.

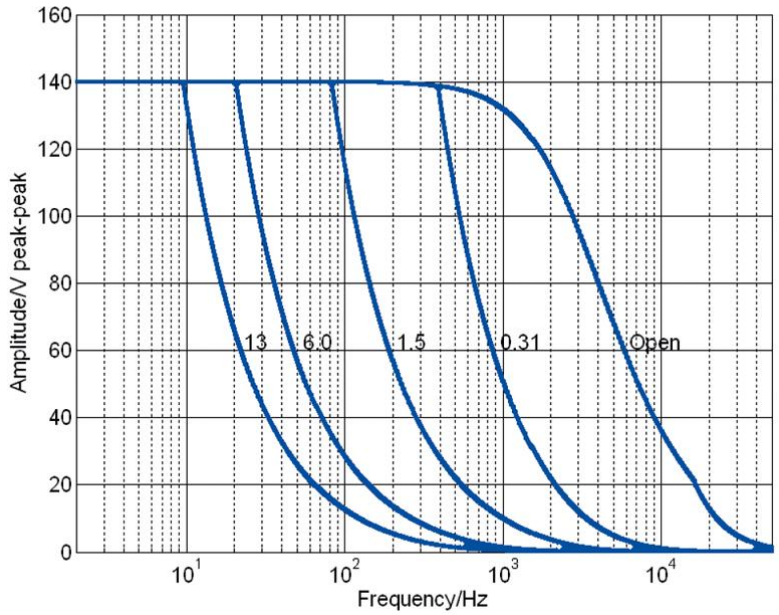
Order Information

E-831.03
Piezo Amplifier, OEM Module, 1 Channel, up to -30 to 130 V
E-831.05
Piezo Amplifier, Miniature OEM Module, 1 Channel, -30 to 130 V

Related Products

PL0xx PICMA® Chip Actuators
P-882 – P-888 PICMA® Stack Multilayer Piezo Actuators
P-840 • P-841 Preloaded Piezo Actuators
P-601 PiezoMove Flexure- Guided Linear Actuator
E-610 Piezo Amplifier / Controller
E-617 High- Power Piezo Amplifier
E-835 DuraAct Piezo Driver Module
E-621 Piezo Servo- Controller & Driver
E-625 Piezo Servo- Controller & Driver
E-663 Three- Channel Piezo Driver

Drawings / Images



E-831.03 with E-841.55: Operating limits with various PZT loads (open- loop), capacitance measured in µF

Successful multi-channel customization: 40 PICMA® multilayer piezo actuators are controlled by a compact amplifier. One single power supply is used to supply the miniature modules with current