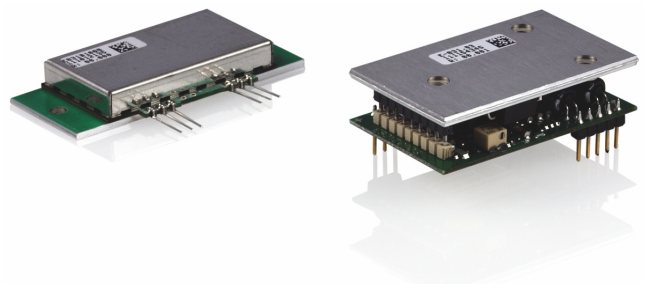
Piezo Amplifier Module

Low-Cost Module with Separate Power Adapter



E-831

- Compact piezo power amplifier
- Peak current up to 250 mA
- Inexpensive
- Low noise, high stability
- Easy integration
- Short-circuit proof, full overcurrent and overtemperature protection

Single channel piezo amplifier module
Compact OEM module. Various models for different dynamic requirements. Power supply using external power adapter, also customer's own

Functions
Low-noise power amplifier. Gain value 10. Output voltage range -30 to 130 V, depending on the power adapter used. Monitor output 1 : 100. Overtemperature protection. Solder pins for PCB mounting

Optional power adapter modules
E-841 and E-842 power adapter modules with varied performance ranges. Suitable for supplying up to three E-831 piezo amplifiers. Custom power adapters on request

Specifications

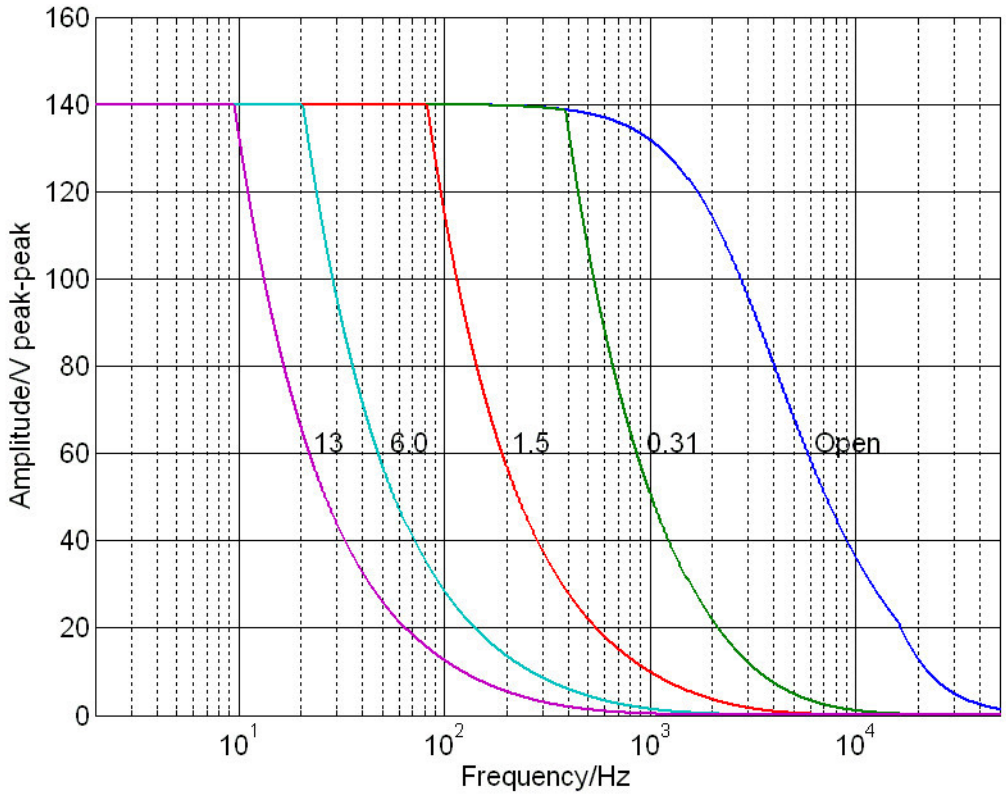
Amplifier	E-831.03	E-831.05
Function	Piezo amplifier module, 1 channel	Miniature piezo amplifier module, 1 channel
Input voltage range	-2 to 12 V	-2 to 12 V
Output voltage*	-30 to 130 V	-30 to 130 V
Peak current (<8 ms)	100 mA	250 mA
Continuous Current	50 mA (up to 2 minutes without cooling)	100 mA (up to 1 minute without cooling)
Current limitation	Short-circuit proof	Short-circuit proof
Voltage gain	10±0.1	10±0.1
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 adapter; <5 mV_{pp} at <10 kHz bandwidth) <1 mV_{pp} (with linear power adapter, 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	E-831.03	E-831.05
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
Overtemperature Protection	Deactivation at a housing temperature of 70 °C	Deactivation at a housing temperature of 75 °C
Dimensions	50 mm × 30 mm × 14 mm	60 mm × 28 mm × 6 mm
Material	Metal shielded housing	Metal shielded housing
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

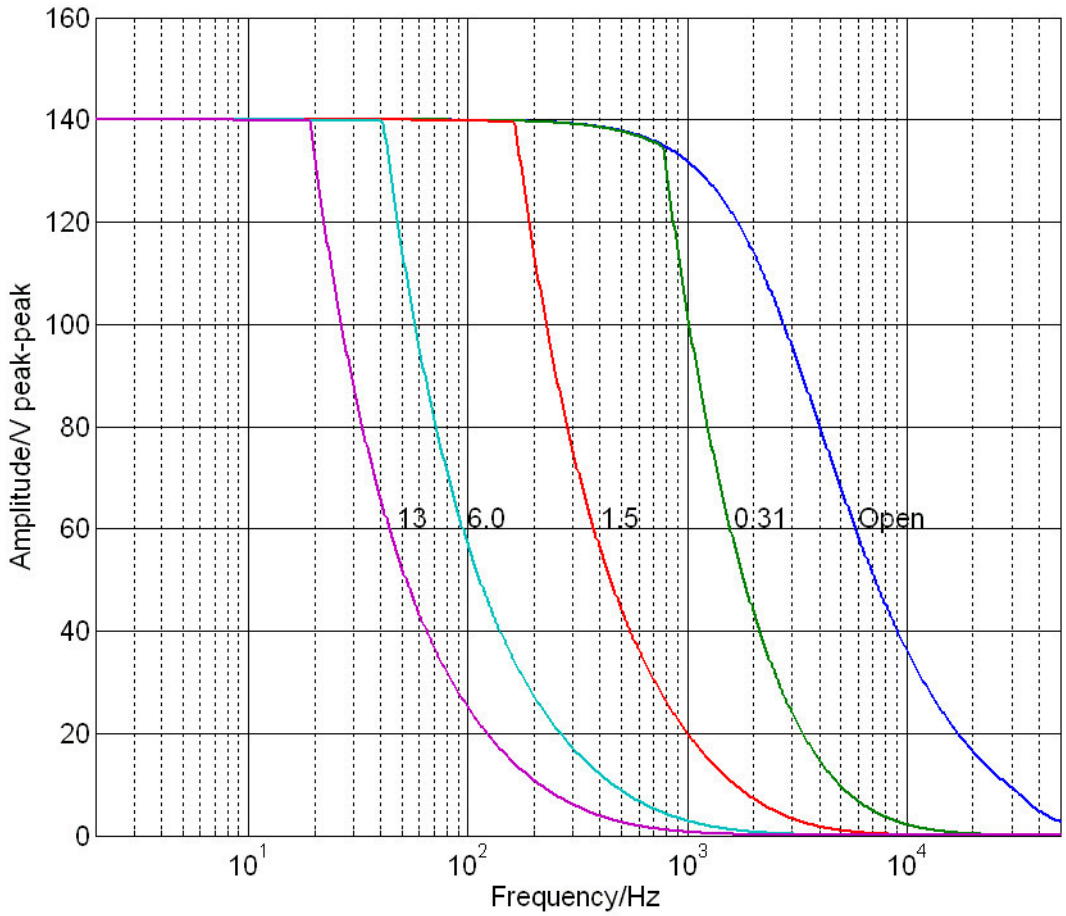
Power supply modules	E-841.05 / E-842.05	E-841.55
Function	Power supply module (8 W) for up to 3 × E-831	Power supply module (20 W) for up to 3 × E-831
Output voltages and currents	127 V / 30 mA -26 V / 30 mA 15 V / 60 mA -15 V / 20 mA	137 V / 60 mA -37 V / 60 mA 15 V / 0.3 A -15 V / 0.3 A
Max. output 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
Current consumption (without load)	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. current consumption	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)
Housing	Metal shielded housing, 50 ×mm 44 mm × 14 mm	Metal shielded housing, 75 mm × 62 mm × 28 mm
Contacting	Soldering pins, Ø 1 mm, 7 mm	Soldering pins, Ø 1 mm, 4 mm

* Depending on the power adapter. 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. Ask about customized versions.

Drawings / Images



E-831.03: Operating limits (open loop) with various piezo loads, capacitance values in µF



E-831.05: Operating limits (open loop) with various piezo loads, capacitance values in µF

Ordering Information

E-831.03
Piezo amplifier, OEM module, 1 channel, -30 to 130 V

E-831.05
Piezo amplifier, miniature OEM module, 1 channel, -30 to 130 V

Power adapters

E-841.05
Power adapter module, 8 W, operating voltage 10 to 30 V

E-842.05
Power adapter module, 8W, operating voltage 30 to 72 V

E-841.55
Power adapter module, 20W, operating voltage 12 to 30 V