

## OA241 Discrete Operational Amplifier

The OA241 is a very low noise discrete operational amplifier tailored for microphone preamplifiers and mid-stage gain blocks.

The OA241 has a musical sound that gradually transitions from lightly colored, semi-transparent, to compression dominated by 2<sup>nd</sup> order distortion as it is pushed hard. Rather than use an abrupt “hockey-stick” transition into high levels of distortion like other discrete op amps and integrated amps, the OA241 is designed to have a gradual increase in primarily 2nd order distortion starting 20 dB below clipping up to the onset of hard clipping. This allows it to add color to taste when pushed towards the upper end of the dynamic range.

The design uses a FET input stage and a heat spreading output stage topology that realizes excellent thermal performance. The potted module contains an integrated heat sink for further heat reduction and longest life. Both input and output are protected against surges, power supply pins have internal RF filtering, and the amplifier is internally compensated for good stability.

The OA241 is an audio building block that combines excellent technical performance with the ability to impart character on music. It is available in the industry standard 6-pin discrete op amp footprint utilized in classic and modern audio equipment. Whether the OA241 is used as a better sounding substitute for gear that uses the modular op amp footprint or is used as a basis for new designs, it is an excellent choice that provides numerous advantages.

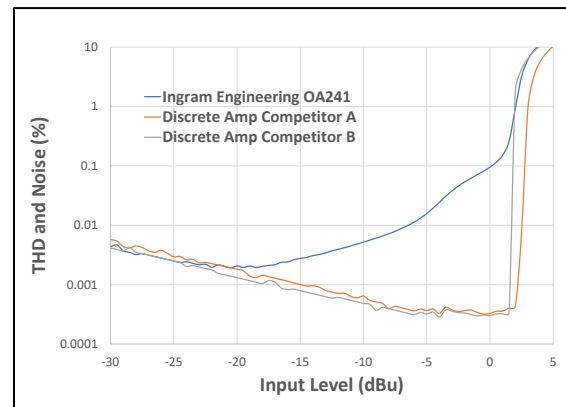


Figure 1: THD vs Input Level, +/-16V

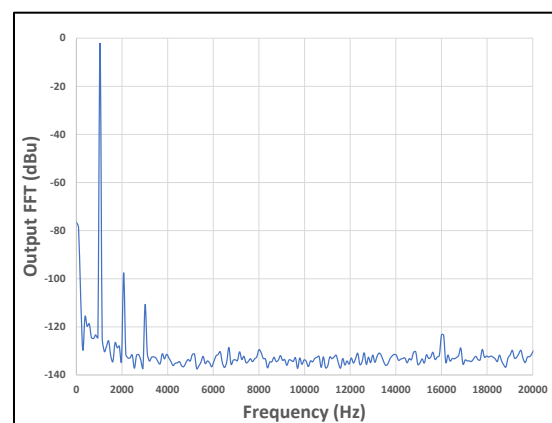


Figure 2: 0 dBu Output FFT

### Electrical Specifications

Parameter	Specification	Notes
Voltage Supply	+/- 24 V	Max
Current	8 mA 22 mA	+/-16 V +/-24 V
Noise	-128 dBu	IRN, Rsource = 150 Ohms, A-wt
THD	0.002 %	0 dBu Output, +/-16V
Dynamic Range	133 dB	+/-24 V, A-weighted
Input Impedance	>10 MΩ    20 pF	
Output Impedance	<10 Ω	
Slew Rate	35 V/uSec	
-3 dB Bandwidth	150 kHz	60 dB Gain
Load Impedance	600 Ohms >2k Ohms	Minimum Recommended
Max Output Level, 100k Ohms Load	22 dBu 25 dBu	+/-16 V +/-24 V

### Mechanical Specifications

Parameter	Specification	Notes
Pin Spacing	0.10"	
Height Above PCB	0.919" 0.802"	Socket Mounted Soldered on PCB
XY Dimensions	1.18" x 1.18"	
Pin Diameter	0.040"	
Pin Length Beyond Module	0.101"	

The OA241 is suitable for soldering directly onto the PCB or plugging into compatible sockets.

OA241 module pins are designed to mate with Mill-Max socket 0344-2-19-XX-34-YY-10-0 or equivalent.

When soldered directly onto the PCB, the module pins extend 0.039" through a 0.062" thick PCB, so no lead trimming is required.

The module is potted with epoxy to protect the unit from mechanical stresses.

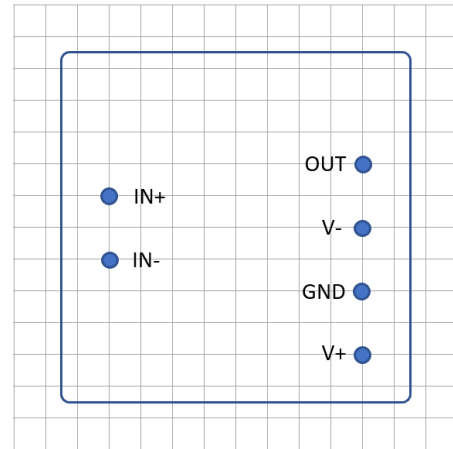


Figure 3: OA241 Pinout, Top View

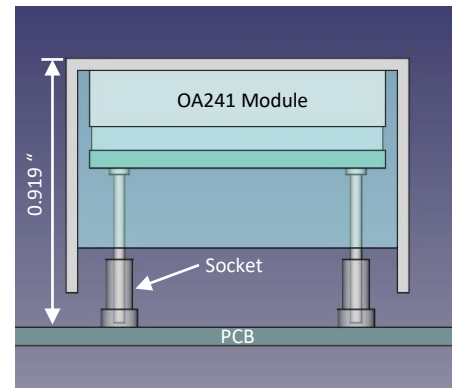


Figure 4: OA241 Mounted on Sockets

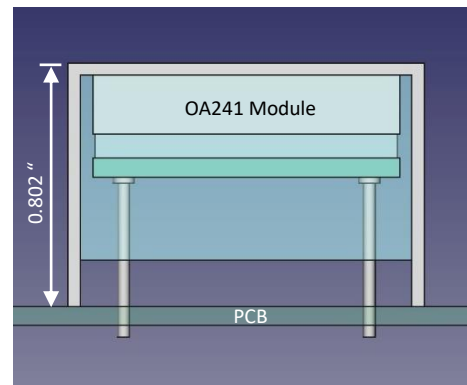


Figure 5: OA241 Soldered to PCB