

## FEATURES

- Gennum's LS509 3 stage amplifier
- independent preamp can be used as telecoil preamplifier
- four "must use" capacitors mounted on hybrid
- choice of 3 resistors to set transducer current
- easy assembly and high reliability

## STANDARD PACKAGING

- Hybrid typical dimensions

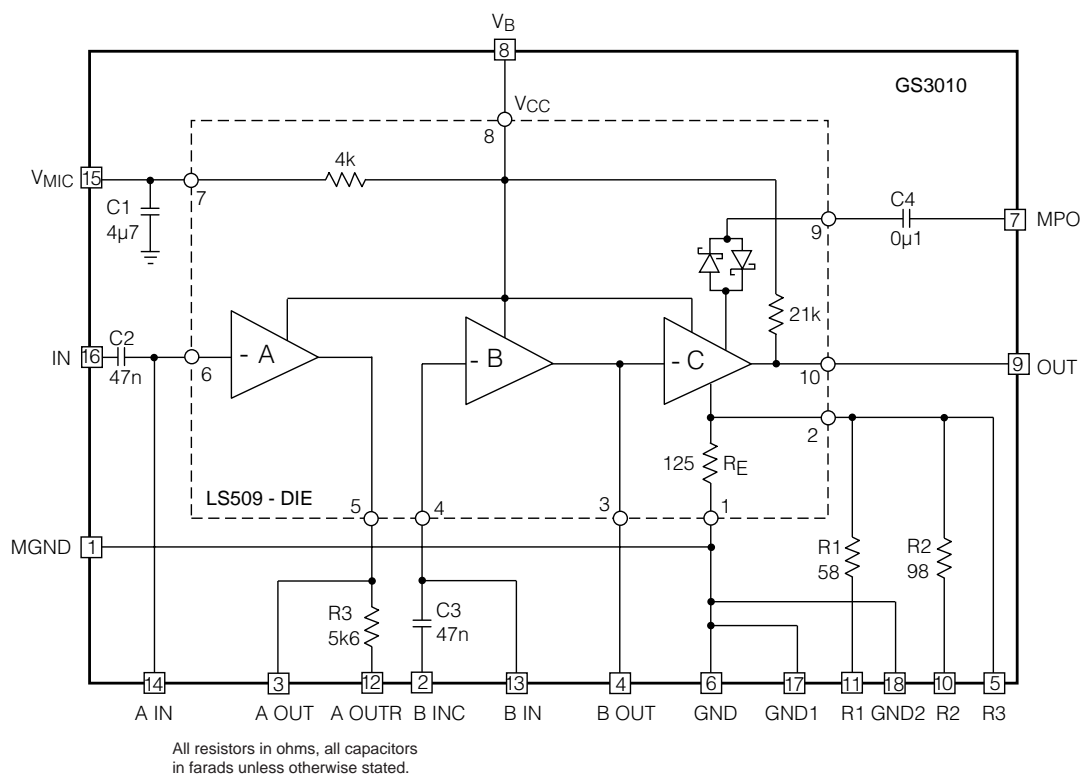
0.276 in x 0.101 in x 0.094in  
(7.01 mm x 2.57 mm x 2.39 mm)

## DESCRIPTION

The hybrid consists of an LS509 amplifier, four capacitors, and two selectable bias resistors. The values of the capacitors assure proper operation of the circuit for the most commonly required frequency responses.

If a different frequency response is required, external components can be easily connected to the additional solder pads connected to various amplifier access points.

The jumper connection of the on-chip  $125 \Omega$  resistor and additional two resistors ( $58 \Omega$  and  $98 \Omega$ ) on the hybrid allow adjustment of the transducer bias current of the receiver.



FUNCTIONAL BLOCK DIAGRAM

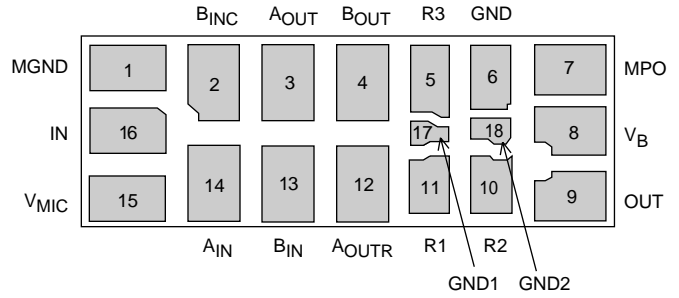
## ABSOLUTE MAXIMUM RATINGS

PARAMETER	VALUE/UNITS
Supply Voltage	3 V DC
Power Dissipation	25 mW
Operating Temperature Range	-10°C to +40°C
Storage Temperature Range	-20°C to +70°C

**CAUTION**  
CLASS 1 ESD SENSITIVITY



## PAD CONNECTION



## ELECTRICAL CHARACTERISTICS

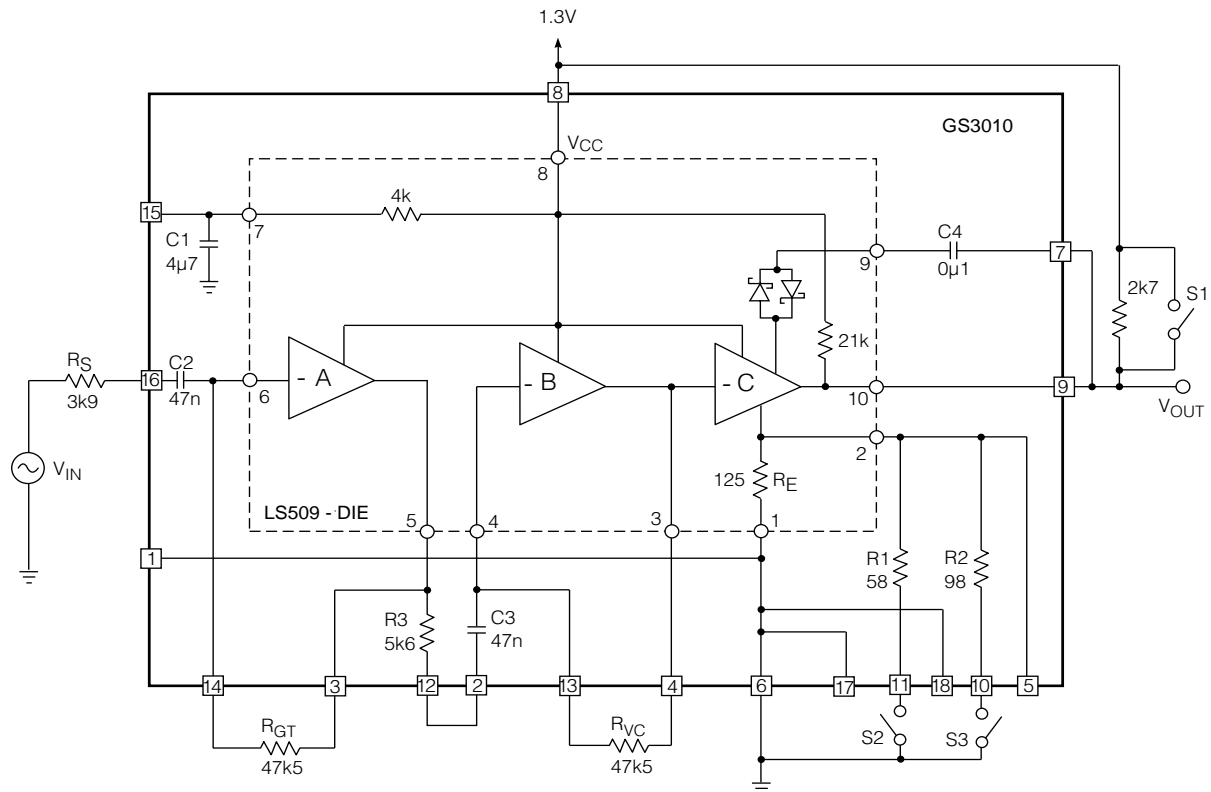
Conditions: Frequency = 3 kHz, Temperature = 25°C, Supply Voltage  $V_B = 1.3$  V

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Amplifier Current	$I_{AMP}$		75	160	245	$\mu$ A
Transducer Current	$I_{TRANS 1}$		175	225	290	$\mu$ A
Transducer Current	$I_{TRANS 2}$	S1 = Closed, S3 = Closed	450	520	600	$\mu$ A
Transducer Current	$I_{TRANS 3}$	S1 = Closed, S2 = Closed	650	725	820	$\mu$ A
Bias Voltage (Pad 15)	$V_{P15}$		1.27	1.3	-	V
Bias Voltage (Pad 5)	$V_{P5}$		21.5	28.5	35.5	mV
System Voltage Gain	Gain	$V_{IN} = -90$ dBV	61.5	64.5	67.5	dB
Maximum Power Output	MPO	$V_{IN} = -60$ dBV	-17	-12	-9	dBV

All conditions and parameters remain as shown in the Test Circuit unless otherwise specified in CONDITIONS Column.

$V_{PX}$  - Actual voltage measured on the pin at given condition (X is pin number).

**Notes:** 1. All capacitors on Hybrid  $\pm 20\%$ , all screened on resistors  $\pm 5\%$ .



All resistors in ohms, all capacitors in farads unless otherwise stated.

Fig. 1 Production Test Circuit

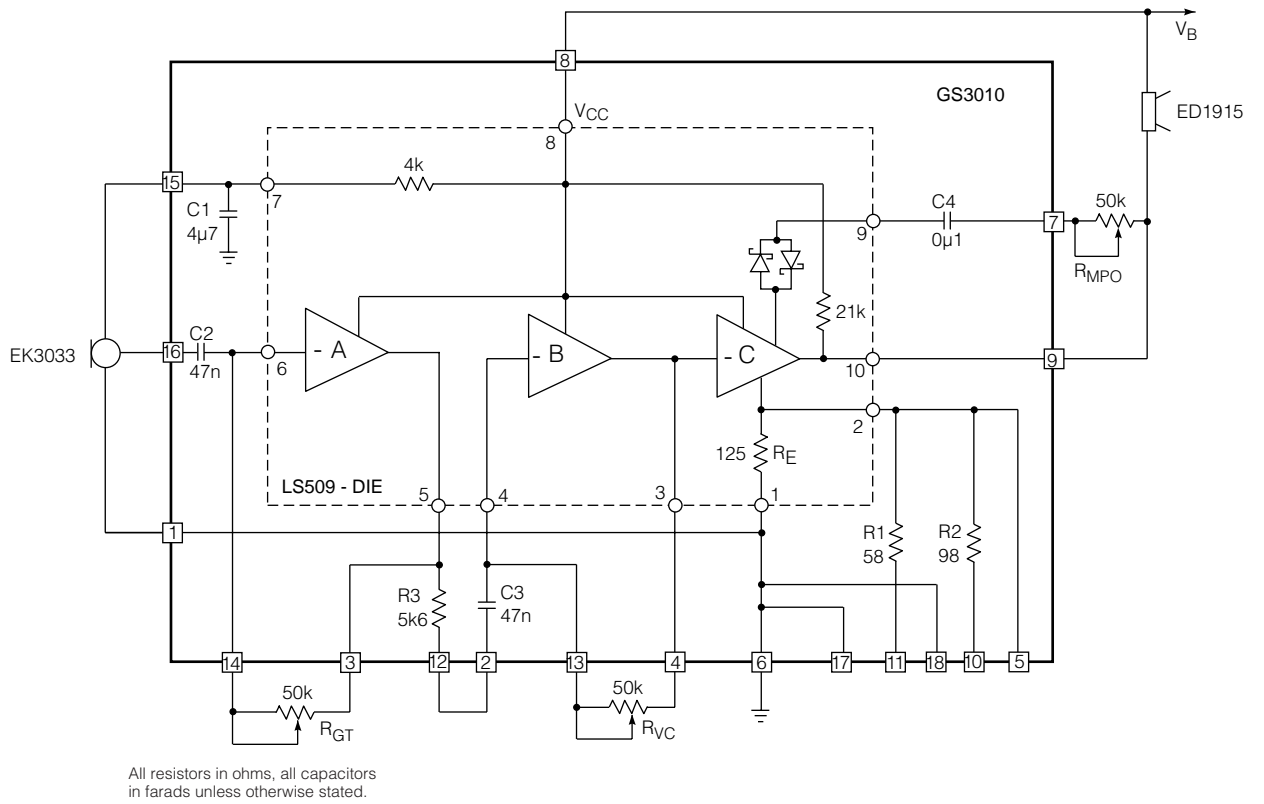


Fig. 2 Typical Hearing Instrument Application

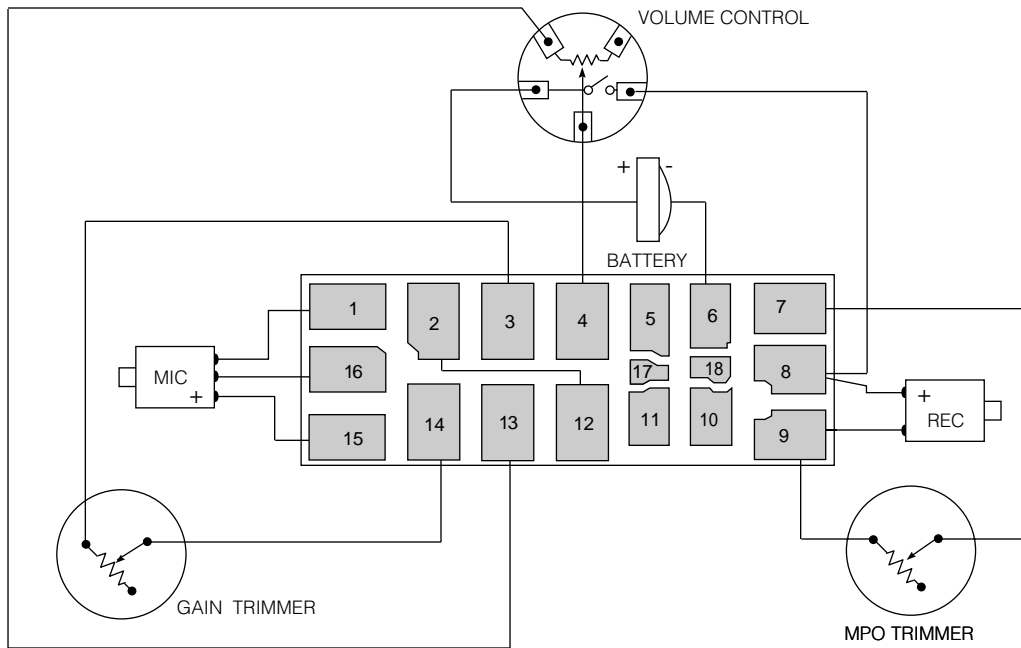
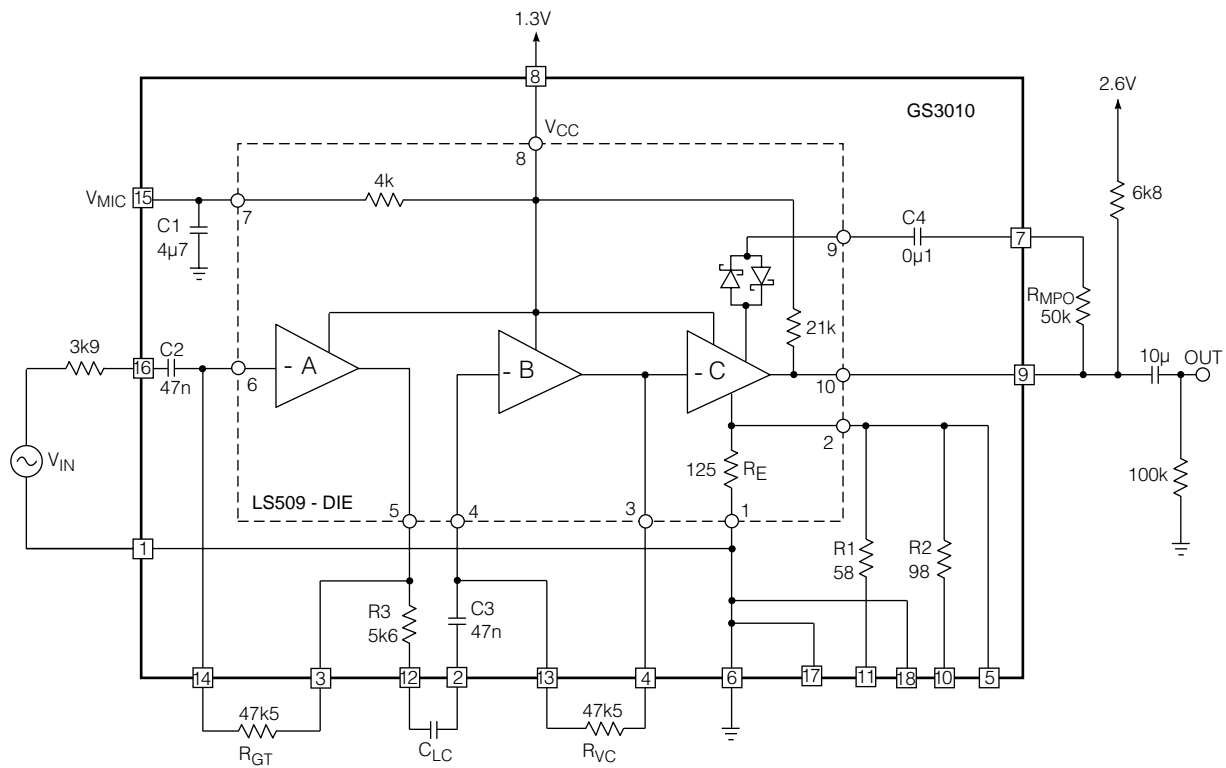


Fig. 3 Typical Assembly Diagram



All resistors in ohms, all capacitors in farads unless otherwise stated.

Fig. 4 Characterization Circuit (used to generate typical curves)

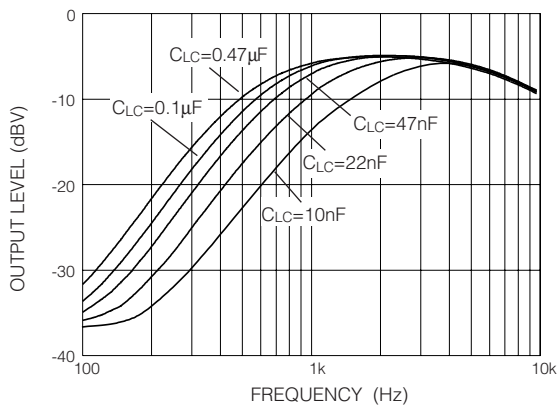


Fig. 5 Frequency Response for Different  $C_{LC}$  Capacitors

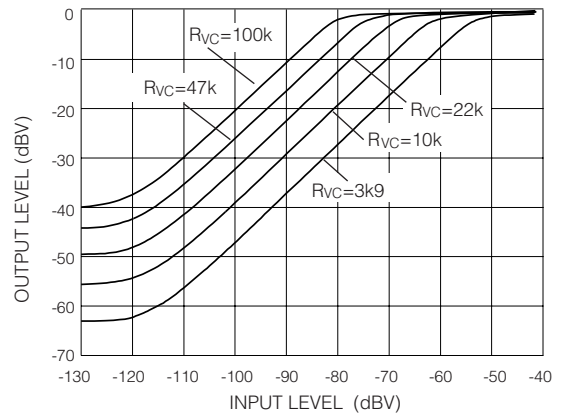
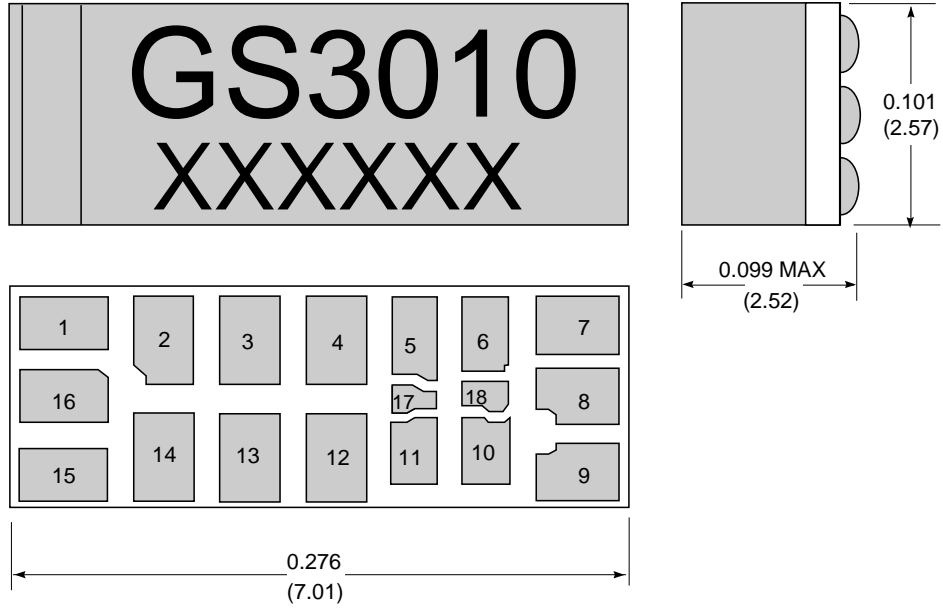


Fig. 6 I/O Curves at Various  $R_{VC}$  Settings



Dimensions are in inches. Dimensions in parenthesis are in millimetres, converted from inches and include minor round off errors.  
 1.0000 inches = 25.400 mm.  
 Dimensions  $\pm 0.005$  ( $\pm 0.13$ ) unless otherwise stated.  
 Pad numbers for illustration purposes only.  
 Smallest pad  $0.023 \times 0.013$  ( $0.58 \times 0.33$ ).  
 Largest pad  $0.036 \times 0.027$  ( $0.92 \times 0.69$ ).  
 XXXXXX - work order number.  
 This hybrid is designed for point to point manual soldering.

**Fig. 7 Hybrid Layout & Dimensions**

**DOCUMENT IDENTIFICATION: DATA SHEET**  
 The product is in production. Gennum reserves the right to make changes at any time to improve reliability, function or design, in order to provide the best product possible.

**REVISION NOTES:**  
 Updated to Data sheet