

CIC Hybrid

GS3022 - DATA SHEET

FEATURES

- small outline for CIC applications
- · low input referred noise
- low current class A
- copper conductor output pads

STANDARD PACKAGING

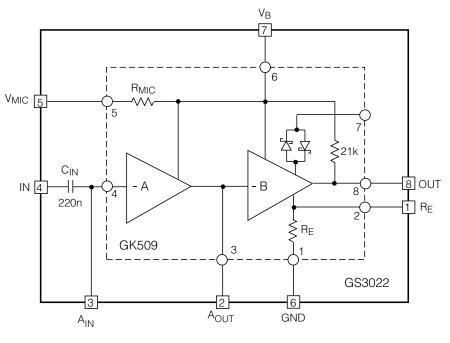
- Hybrid Typical Dimensions:
 - 0.139 in x 0.078 in x 0.075 in (3.53 mm x 1.98 mm x 1.91 mm)

DESCRIPTION

The GS3022 hybrid contains Gennum's GK509 class A amplifier and a single input coupling capacitor. The extremely small size of the hybrid allows it to easily fit into many CIC and ITC applications.

Block A of the GK509 is a low noise inverting amplifier with an open loop voltage gain of typically 56 dB. The closed loop gain is set by the ratio of input resistance to feedback resistance.

The output stage is a class A current drive amplifier. The current that flows in the transducer is the ratio of the 30 mV reference voltage to the resistance to ground at pad 1 on the hybrid. With no external R_E the transducer current is typically 240 μ A, which makes it suitable for high impedance receivers.



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

BLOCK DIAGRAM

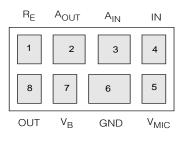
Revision Date: May 1998

Document No. 521 - 10 - 02

ABSOLUTE MAXIMUM RATINGS

PARAMETER	VALUE & UNITS
Supply Voltage	3 V DC
Power Dissipation	25 mW
Operating Temperature	-10 to + 40 °C
Storage Temperature	-20 to +70 °C
CAUTION CLASS 1 ESD SENSITIVITY	

PAD CONNECTION

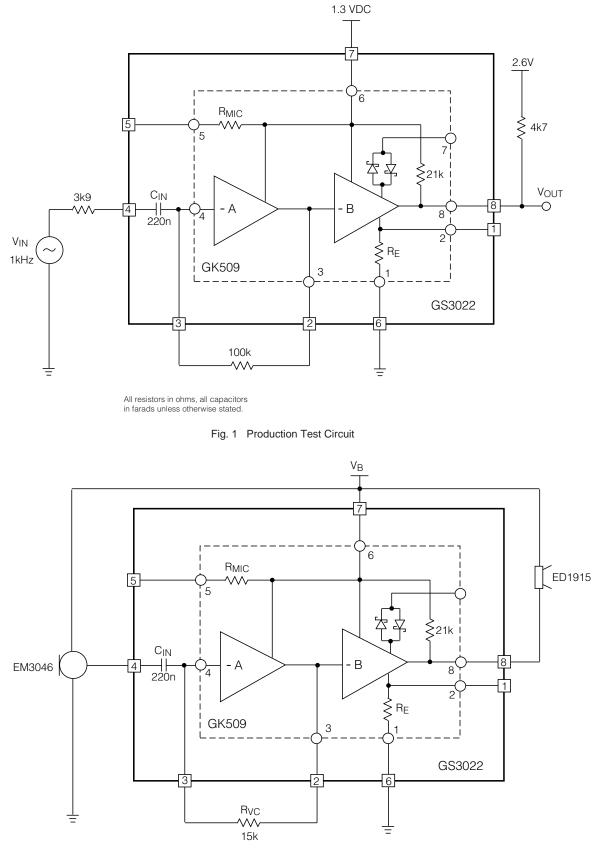


ELECTRICAL CHARACTERISTICS

Conditions: Temperature 25 °C, Frequency = 1 kHz.

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNITS
Amplifier Current	I _{AMP}		55	100	145	μΑ
Transducer Current	I _{TRANS}		170	230	290	μΑ
Microphone Supply Voltage (pad 5)	V _{MIC}		-	1.3	-	V
Emitter Bias Voltage (pad 1)	V _{RE}		21.5	30	35.5	mV
On-chip Microphone Resistor	R _{MIC}		3	4	5	kΩ
On-chip Emitter Resistor	R _E		90	125	160	Ω
Voltage Gain	V _{GAIN}	V _{IN} = -70 dBV	56	58	60	dB

(All conditions and parameters remain as shown in test circuit unless stated in condition column)



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

Fig. 2 Typical CIC Hearing Instrument Application

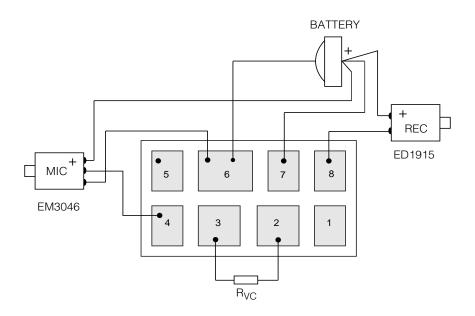
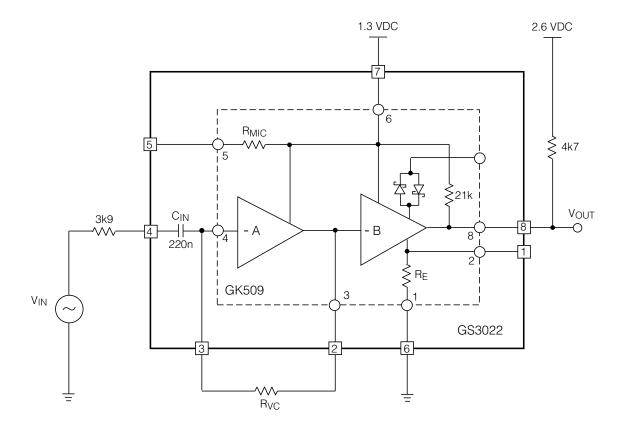


Fig. 3 Typical Hearing Instrument Assembly Diagram



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

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

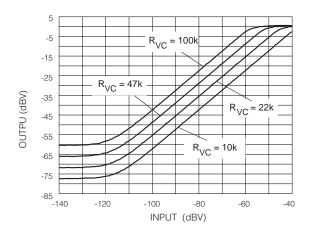
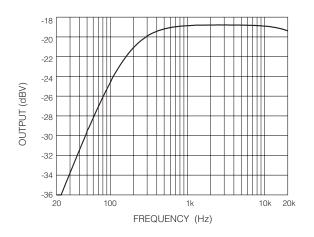
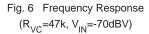
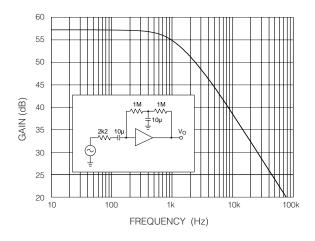


Fig. 5 Input vs Output (at 1kHz)









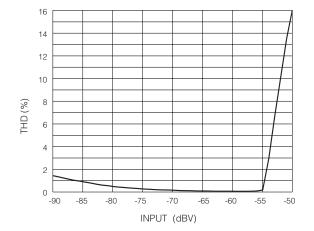
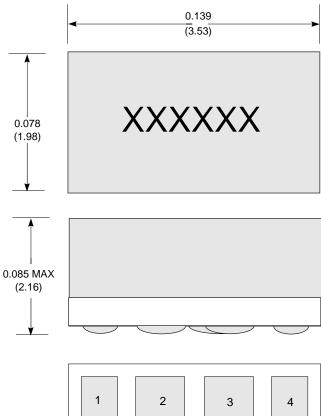


Fig. 7 THD vs Input (R_{VC}=47k)





Dimensioning units are inches.

Dimensions shown in parenthesis are in millimetres, converted from inches and include minor round off errors. 1.0000 inches = 25.400mm.

Dimension ± 0.050 (+0.13) unless otherwise stated. Pad numbers and capacitor numbers for illustration only. Smallest pad 0.020 x 0.027 (pad 4).

Largest pad 0.034 x 0.027 (pad 6).

XXXXXX - work order number.

This hybrid is designed for point to point manual soldering.

Fig. 9 Hybrid Layout and 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

Gennum Corporation assumes no responsibility for the use of any circuits described herein and makes no representations that they are free from patent infringement. © Copyright March 1994 Gennum Corporation. All rights reserved.

Printed in Canada.