GC8100 Low Voltage Low Power Operational Amplifier

PRELIMINARY DATA SHEET

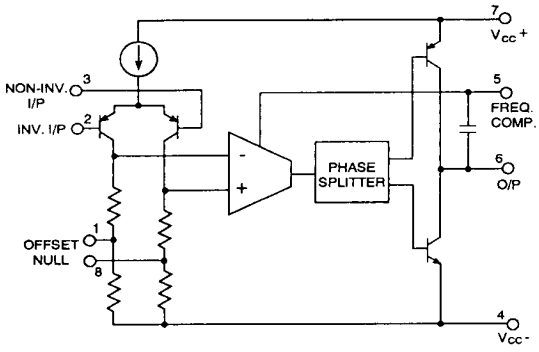
FEATURES

- low voltage design - operates on 1.0 V supplies
- low power consumption - 200 µA typ. supply current
- wide range of supply voltage: 1.0 to 24 V
- single or dual supply operation
- low input offset voltage: 1 mV typ.
- class AB output stage swings virtually rail-to-rail

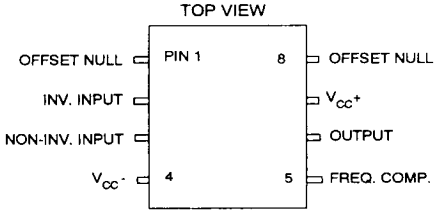
DESCRIPTION

The GC8100 is a low voltage, low power operational amplifier employing specialized circuit design techniques to achieve operation on supply voltages as low as 1.0 volt. The class AB output stage swings to within a single transistor saturation voltage of either supply rail, and the PNP input stage provides negative supply rail sensing capability.

FUNCTIONAL SCHEMATIC



PIN CONNECTIONS



ORDERING INFORMATION

Part Number	Package Type	Temperature Range
GC8100-CDA	8 Pin PDIP	0 - 70°C
GC8100-CKA	8 Pin SOIC	0 - 70°C

ELECTRICAL CHARACTERISTICS

(V_{CC}+) - (V_{CC}-) = 1.2 V , T_A = 25°C, unless otherwise noted.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{IO} Input Offset Voltage		-	1	2.5	mV
I_{IO} Input Offset Current I_{IB} Input Bias Current	$V_{ID} = V_{IO}$ $V_{ID} = V_{IO}$	- -	±3 -70	±20 -160	nA nA
R_I Input Resistance	$V_{ID} = V_{IO}$	300	750	-	kΩ
A_{VD} Diff. Voltage Gain	R_L = 20 kΩ	40	100	-	V/mV
I_{O+} O/P Source Current I_{O-} O/P Sink Current		5 8	12 16	- -	mA mA
GBW Gain-bandwidth Product		500	750	-	kHz
SR Slew Rate		0.16	0.25	-	V/µs
CMRR Common Mode Rejection PSRR Power Supply Rejection		86 70	105 90	- -	dB dB
I_{CC} Total Supply current	No Load, no signal	-	200	270	µA

Document No. 510 - 82 - 1

GENNUM CORPORATION P.O. Box 489, Stn A, Burlington, Ontario, Canada L7R 3Y3 tel. (416) 632-2996 fax: (416) 632-2055 telex: 061-8525
Japan Branch: B-201 Miyamae Village, 2-10-42 Miyamae, Suginami-ku, Tokyo 168, Japan tel. (03) 3247-8838 fax (03) 3247-8839

OPERATING CONDITIONS

PARAMETERS	VALUES/UNITS
Supply Voltage Range (V_{CC}+) - (V_{CC}-)	1.0 - 24 V
Max. Diff. Input Signal	±24 V
Max. Com. Mode I/P Signal (V_{CC}-) -0.3 to (V_{CC}+) -0.8 V	
Ambient Temperature (T_A)	0°C - 70°C

ABSOLUTE MAXIMUM RATINGS

PARAMETERS	VALUES/UNITS
Supply Voltage Range (V_{CC})	26 V
Differential Input Voltage	±26 V
Input Voltage Range (either I/P; ref. (V_{CC}-))	-10 to 26 V

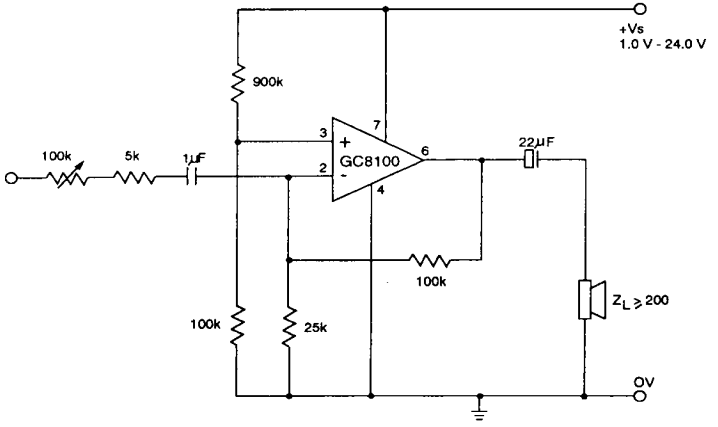


Fig. 1 Typical Application
Headphone Amplifier 0 - 26 dB

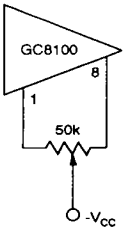


Fig. 2 Offset Null

CAUTION
ELECTROSTATIC
SENSITIVE DEVICES
DO NOT OPEN PACKAGES OR HANDLE
EXCEPT AT A STATIC-FREE WORKSTATION