

Winchester Servo Preamplifier with Low Current Drain

The CS59201 is a low noise servo preamplifier for use with ferrite heads. It is a differential input, differential output design with fixed gain of approximately 100. Features include low noise, wide bandwidth and low current drain.

Features

- 50 MHz Bandwidth
- Operates From Any of Three Standard Supply Voltages:
 - 8.3 V (IBM Compatible)
 - 10 V
 - 12 V
- Available in SO-8 Package

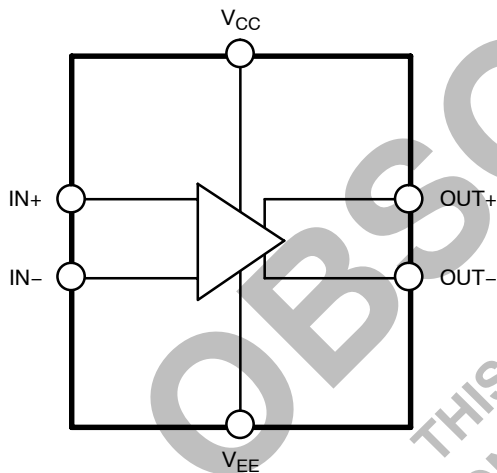


Figure 1. Block Diagram

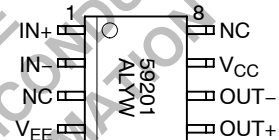


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PIN CONNECTION AND MARKING DIAGRAM



A = Assembly Location
WL, L = Wafer Lot
YY, Y = Year
WW, W = Work Week

ORDERING INFORMATION

| Device | Package | Shipping |
|-------------|---------|------------------|
| CS59201GD8 | SO-8 | 95 Units/Rail |
| CS59201GDR8 | SO-8 | 2500 Tape & Reel |

MAXIMUM RATINGS*
[查询"CS59201GLD8"供应商](#)

| Rating | Value | Unit |
|--|-------------|------|
| Power Supply Voltage ($V_{CC} - V_{EE}$) | 14 | V |
| Differential Input Voltage | 5.0 | V |
| Storage Temperature Range | -65 to +150 | °C |
| Operating Temperature Range | 0 to 70 | °C |
| Thermal Resistance, Junction-to-Case, $R_{\theta JC}$ | 45 | °C/W |
| Thermal Resistance, Junction-to-Ambient, $R_{\theta JA}$ | 165 | °C/W |
| ESD Susceptibility (Human Body Model) | 1.4 | kV |

*The maximum package power dissipation must be observed.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, ($V_{CC} - V_{EE}$) = 7.0 V to 13.2 V; unless otherwise specified.)

| Characteristic | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|--|------|------|-----------|------------------|
| General | | | | | |
| Gain (Differential) | – | 80 | 100 | 120 | V/V |
| Bandwidth (3.0 dB) | $V_{IN} = 2.0\text{ mV}$ | 30 | 50 | – | MHz |
| Input Resistance | – | 1040 | 1300 | 1560 | Ω |
| Input Capacitance | – | – | 20 | 30 | pF |
| Input Dynamic Range | – | 3.0 | – | – | mV |
| Power Supply Current | $(V_{CC} - V_{EE}) = 12\text{ V}$ | – | 20 | 25 | mA |
| Output Offset (Differential) | $R_S = 0$, $R_L = 130\ \Omega$ | – | – | 200 | mV |
| Equivalent Input Noise | $BW = 4.0\text{ MHz}$, Note 1 | – | 0.7 | 1.0 | nV/Hz |
| PSRR, Input Referred | $R_S = 0$, $f \leq 5.0\text{ MHz}$, Note 1 | 55 | 60 | – | dB |
| Gain Sensitivity (Supply) | $(V_{CC} - V_{EE}) = \pm 10\%$ | – | – | ± 0.5 | %/V |
| Gain Sensitivity (Temp.) | $T_A = 25^\circ\text{C}$ to 70°C , $R_L = 130\ \Omega$ | – | -0.1 | – | %/°C |
| CMRR, Input Referred | $f \leq 5.0\text{ MHz}$ | 60 | 70 | – | dB |
| Recommended | | | | | |
| Supply Voltage ($V_{CC} - V_{EE}$) | – | 7.45 | 8.3 | 9.15 | V |
| | | 9.0 | 10 | 11 | V |
| | | 10.8 | 12 | 13.2 | V |
| Input Signal, V_{IN} | – | – | 2.0 | – | mV _{PP} |
| Ambient Temperature, T_A | – | 0 | – | 70 | °C |

1. 1.0 nV/root Hz and a bandwidth of 4.0 MHz equals 2.0 μVRMS .

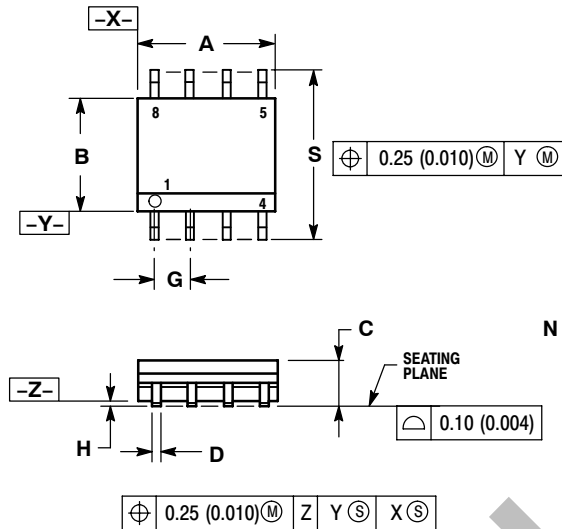
The diagram shows a differential amplifier circuit. The input is connected to the primary of a transformer labeled 'HEAD'. The secondary of the transformer is connected to the bases of two NPN transistors. The emitters of both transistors are connected to a common emitter point, which is connected to ground (V_{EE}). The collectors of the two transistors are connected to a common collector point, which is connected to V_{CC}. The load is connected between the collector and emitter nodes. It consists of two parallel branches, each containing a capacitor C_C in series with a resistor R_{EQ}. The output voltage is taken across R_{EQ}.

Recommended Load Conditions

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PACKAGE DIMENSIONS

SO-8
D SUFFIX
CASE 751-07
ISSUE W



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|-----------|-------|
| | MIN | MAX | MIN | MAX |
| A | 4.80 | 5.00 | 0.189 | 0.197 |
| B | 3.80 | 4.00 | 0.150 | 0.157 |
| C | 1.35 | 1.75 | 0.053 | 0.069 |
| D | 0.33 | 0.51 | 0.013 | 0.020 |
| G | 1.27 BSC | | 0.050 BSC | |
| H | 0.10 | 0.25 | 0.004 | 0.010 |
| J | 0.19 | 0.25 | 0.007 | 0.010 |
| K | 0.40 | 1.27 | 0.016 | 0.050 |
| M | 0° | 8° | 0° | 8° |
| N | 0.25 | 0.50 | 0.010 | 0.020 |
| S | 5.80 | 6.20 | 0.228 | 0.244 |

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