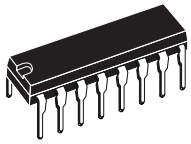
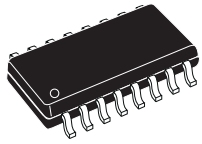
# TDA7334

## LOW NOISE STEREO PREAMPLIFIER

- DUAL CHANNEL PROCESSOR FOR PLAY-BACK APPLICATIONS.
- LOW NOISE HEAD PREAMPLIFIER GROUND COMPATIBLE
- MUTE, AUTOREVERSE METAL/NORMAL FUNCTIONS
- INTERNAL SWITCHES FOR EQUALIZATION
- LOW SUPPLY CURRENT
- MIXED BIPOLAR/CMOS TECHNOLOGY



**DIP16**



**SO16**

**ORDERING NUMBER:** TDA7334 (DIP16)
TDA7334D (SO16)

### DESCRIPTION

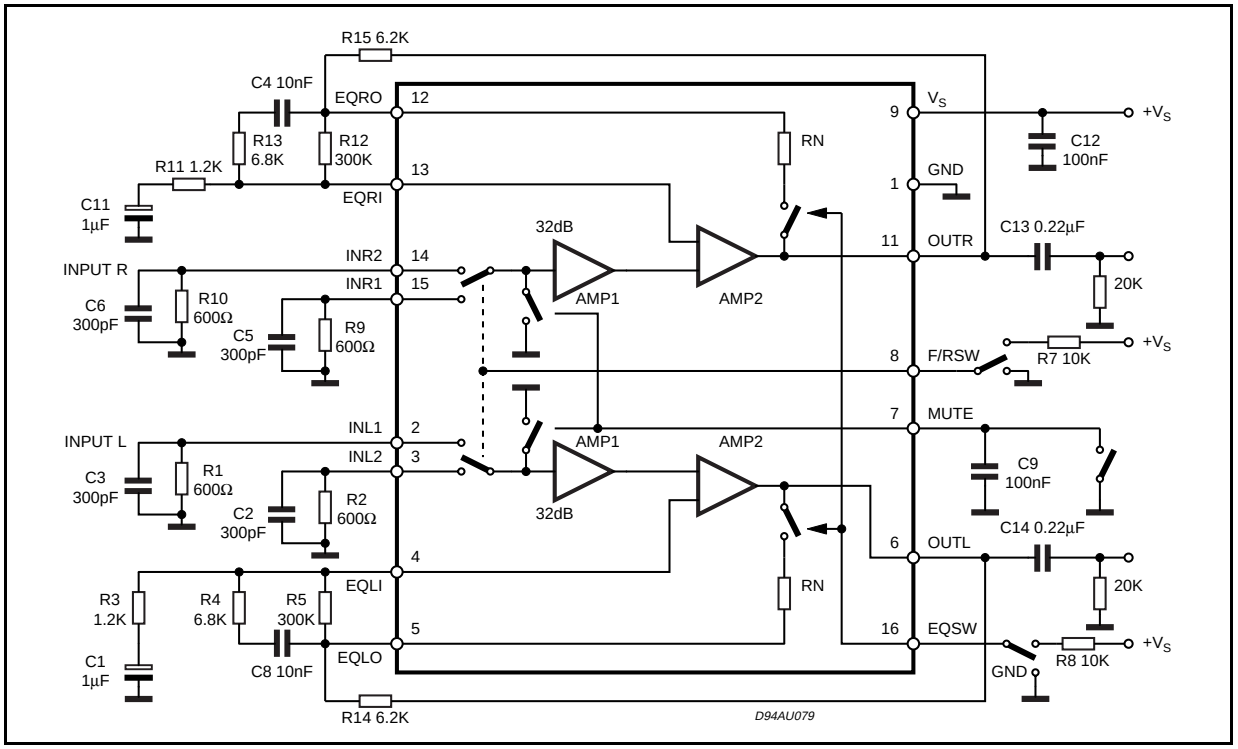
The TDA7334 is a monolithic BICmos IC designed for use in stereo cassette player systems.

The dual preamplifier contains mute, autoreverse, metal/normal facilities for amplification of low level signal in applications requiring very low noise performance.

Each channel consists of two cascaded operational amplifiers.

The first one, AMP1, has a fixed gain of 32dB, low noise forward/reverse switchable input, and allows magnetic heads connection directly to ground. The second one, AMP2, is a standard operational amplifier whose equalizing external components fix the frequency response.

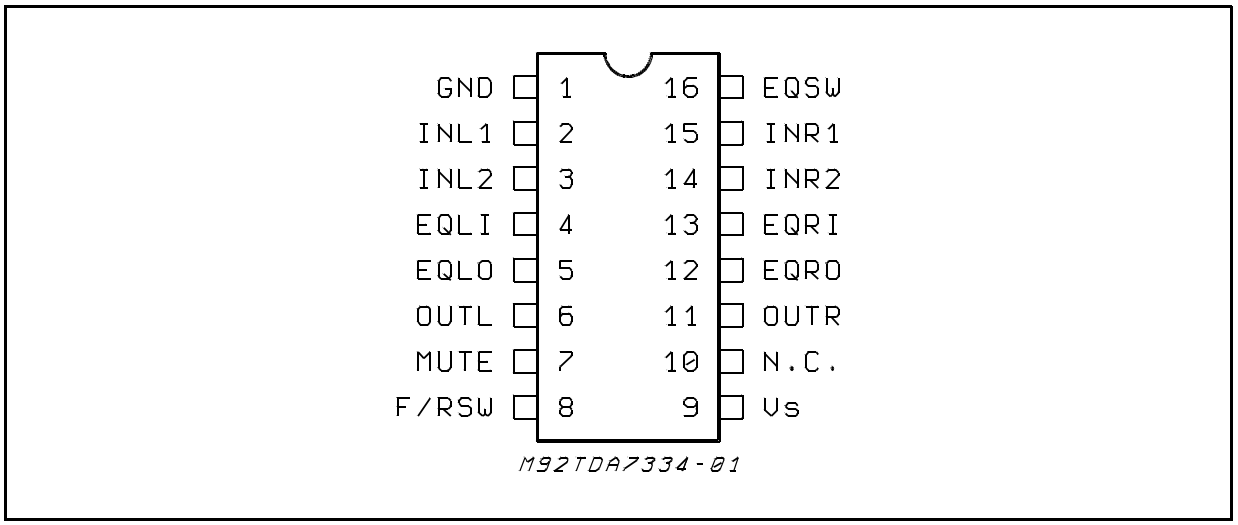
### TEST CIRCUIT



## ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_S$ | Supply Voltage | 12 | V |
| $P_{tot}$ | Total Power Dissipation | 1 | W |
| $T_{op}$ | Operating Temperature Range | -40 to 85 | °C |
| $T_{stg}$ | Storage Temperature Range | -40 to 150 | °C |

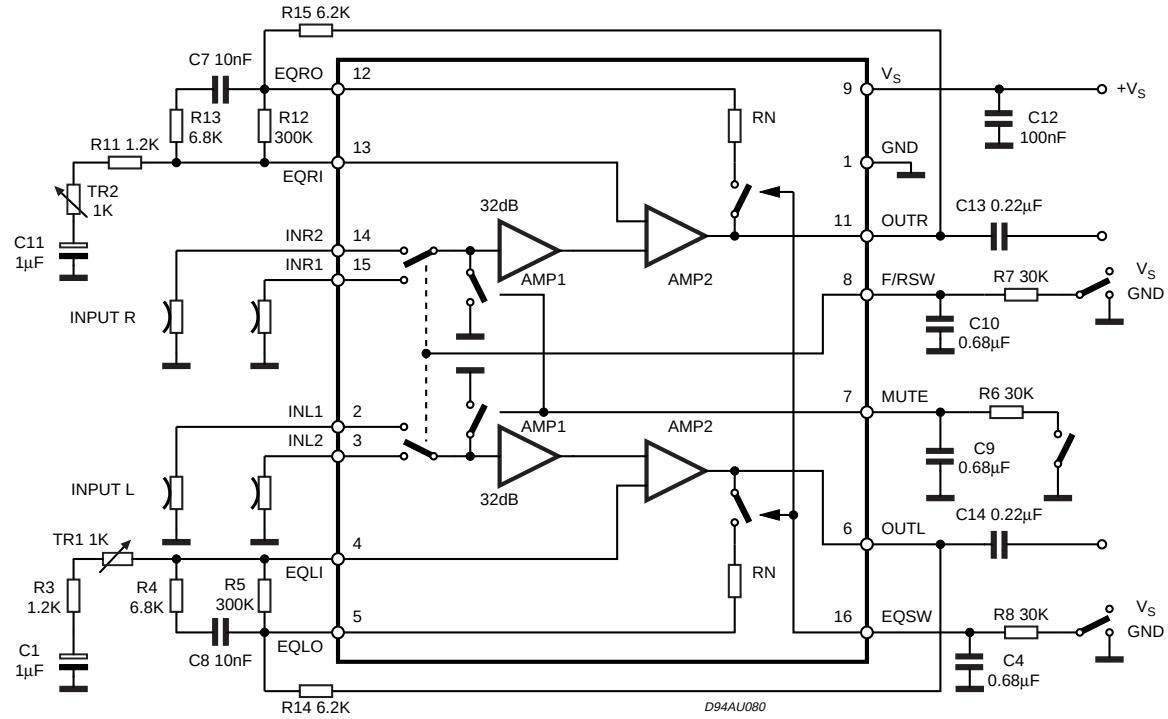
## PIN CONNECTION (Top view)




## THERMAL DATA

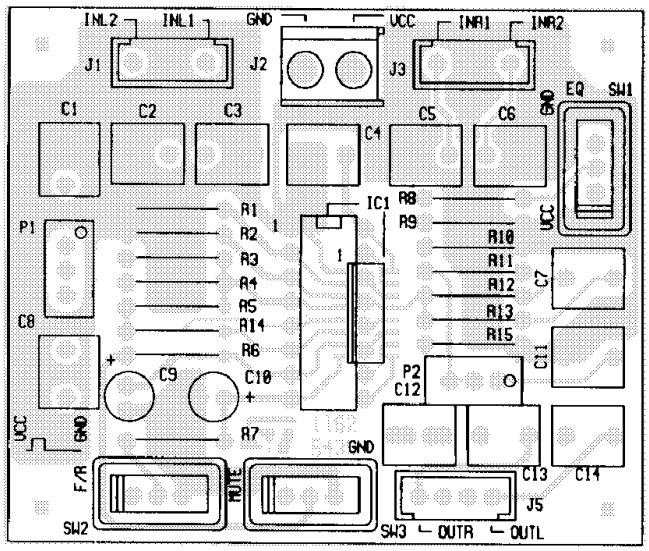
| | | DIP 16 | SO16 | |
|---|---|---|---|---|
| $R_{th\ j\text{-}pins}$ | Thermal resistance junction-pins | 100 | 200 | °C/W |

## Application Circuit




| PIN | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DC (V) | GND | 0 | 0 | 3.6 | 3.6 | 3.6 | | | 8.0 | N.C. | 3.6 | 3.6 | 3.6 | 0 | 0 | |

## P.C. Board and component layout of the Application Circuit (1:1 scale)



**ELECTRICAL CHARACTERISTICS** ($V_S$ = 8V;$R_{IN}$ = 600Ω; f = 1KHz; $T_{amb}$ = 25°C; unless otherwise specified (see figure 2)

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $V_S$ | Supply Voltage | | 6 | 8 | 11 | V |
| $I_S$ | Supply Current | | | 7.5 | 9.0 | mA |
| SVR | Ripple Rejection | Input referred (ripple = 1V) | | 105 | | dB |
| $MUTE_{th}$ | Mute (Pin 7) | OFF<br>ON | 0<br>3.5 | | 0.8<br>$V_S$ | V<br>V |
| $MUTE_A$ | Mute Attenuation | | 60 | 80 | | dB |
| $R_I$ | Input Resistance | | 100 | | | KΩ |
| $V_{out\ DC}$ | Output Voltage DC | | 3.2 | 3.6 | 4.2 | V |
| $I_I$ | Input Bias Current | | | | 10 | µA |
| $G_{VO}$ | Open Loop Gain | f = 400Hz | | 110 | | dB |
| $G_V$ | Closed Loop Gain | NAB short | 30 | 31 | 32.5 | dB |
| $\Delta G_V$ | Closed Loop Gain Match | NAB short | -1 | | 1 | dB |
| $V_{OM}$ | Signal Handling | THD = 1%, $V_{CC}$ = 7.6V | 1.8 | 2.0 | | Vrms |
| $R_N$ | Resistance Normal Position | | | 100 | 300 | Ω |
| $S_R$ | Slew Rate | NAB Short | | 1 | | V/µs |
| $e_N$ | Total Input Noise | $R_{IN}$ = 600Ω; unweighted | | 0.8 | | µV |
| | | $R_{IN}$ = 600Ω; A weighted | | 0.5 | | µV |
| | | $R_{IN}$ = 0; unweighted | | 0.45 | | µV |
| $R_O$ | Output Resistance | | | | 1 | KΩ |
| $F/R_l$ | Rev. Low Level (pin 8) | IN2 = ON; IN1 = OFF | 0 | | 0.8 | V |
| $F/R_h$ | Forward High Level (pin 8) | IN2 = OFF; IN1 = ON | 3.5 | | $V_S$ | V |
| $EQ_l$ | Normal Low Level (pin 16) | | 0 | | 0.8 | V |
| $EQ_h$ | Metal High Level (pin 16) | | 3.5 | | $V_S$ | V |
| THD | Total Harmonic Distortion | $V_O$ = 1V; f = 1KHz metal | | 0.02 | | % |
| | | $V_O$ = 1V; f = 1KHz normal | | 0.02 | 0.1 | % |
| | | $V_O$ = 1V; f = 10KHz metal | | 0.05 | | % |
| | | $V_O$ = 1V; f = 10KHz normal | | 0.04 | | % |
| $SVR_1$ | Ripple Rejection | NAB short | | 75 | | dB |
| $C_S$ | Channel Separation (L to R) | | 45 | 60 | | dB |
| $C_{CT}$ | Channel Cross talk (F to R) | | 60 | 80 | | dB |
| S/N | Signal to Noise | $V_O$ = 388mV; metal | | 63 | | dB |

**Figure 1:** Quiescent Current vs. Supply

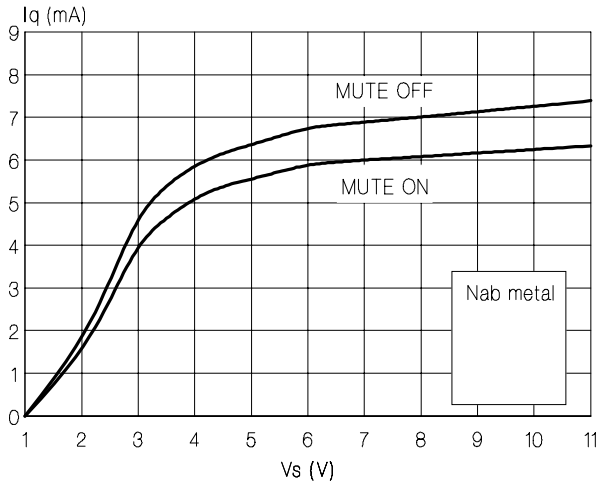



**Figure 2:** D.C. Output vs. Supply Voltage

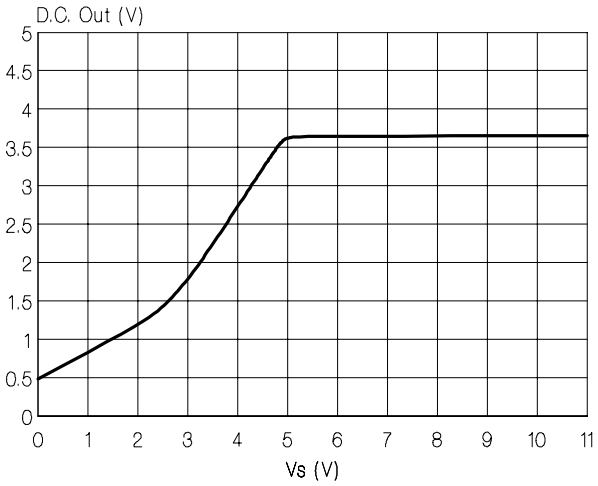



**Figure 3:** Forward/Reverse Threshold

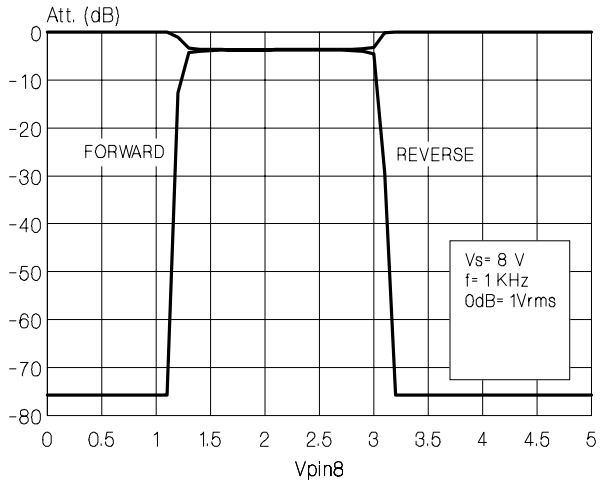



**Figure 4:** Metal/Normal Threshold

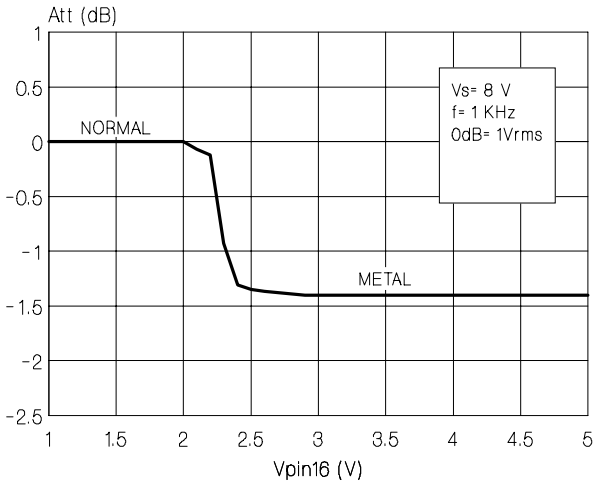



**Figure 5:** Mute Threshold

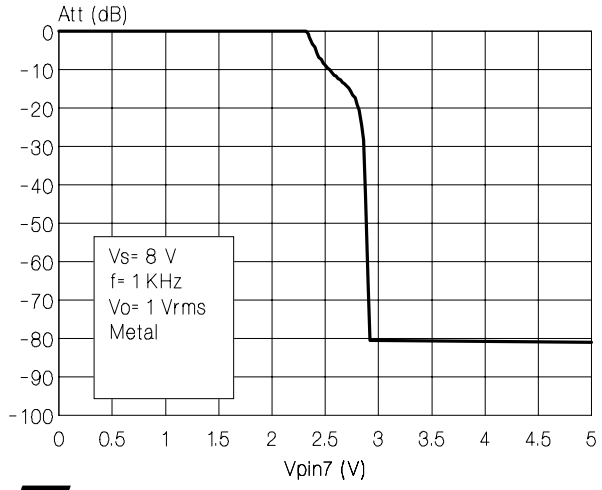



**Figure 6:** Mute Attenuation vs. Frequency

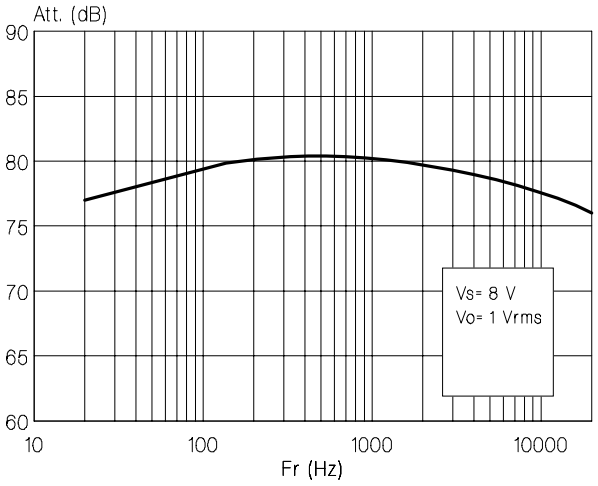


**Figure 7:** Mute Attenuation vs. Output Level

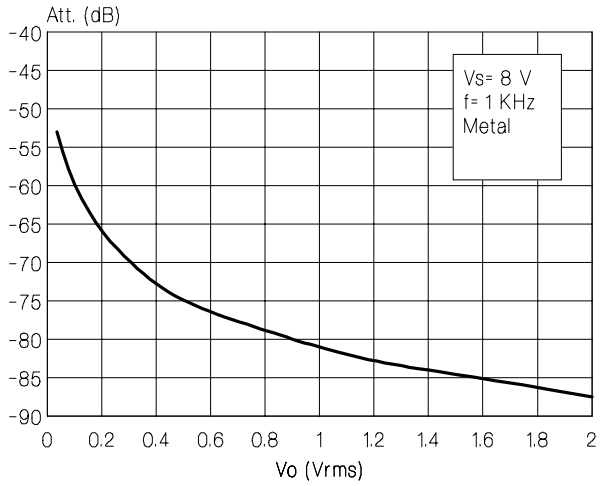



**Figure 8:** THD vs. Frequency

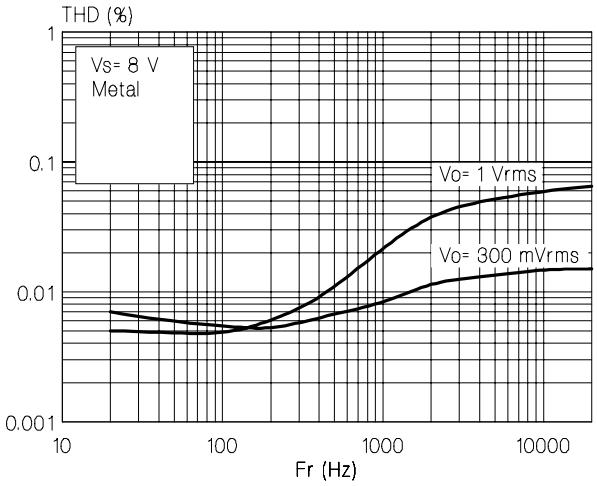



**Figure 9:** THD + N vs. Frequency

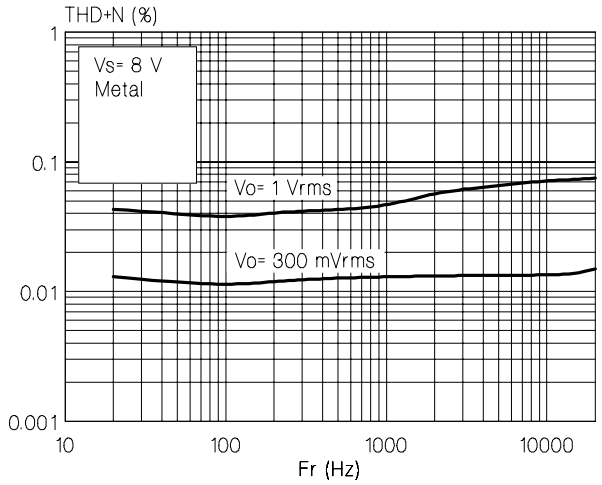



**Figure 10:** THD vs. Supply Voltage

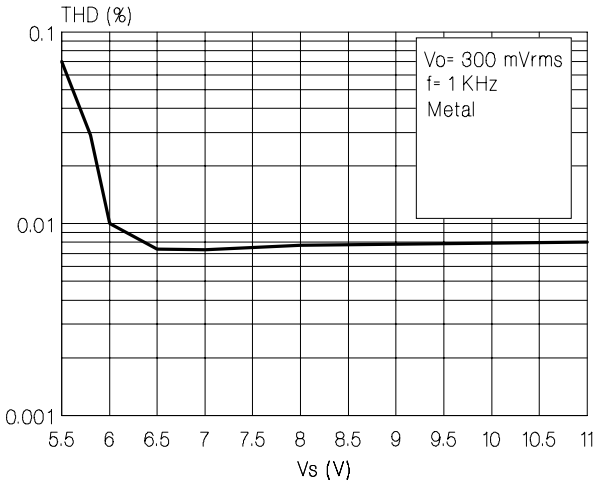



**Figure 11:** Load Characteristic

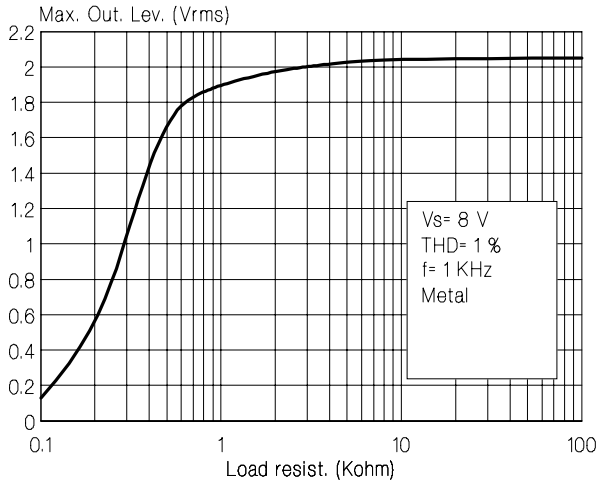



**Figure 12:** Signal Handling vs. Supply Voltage

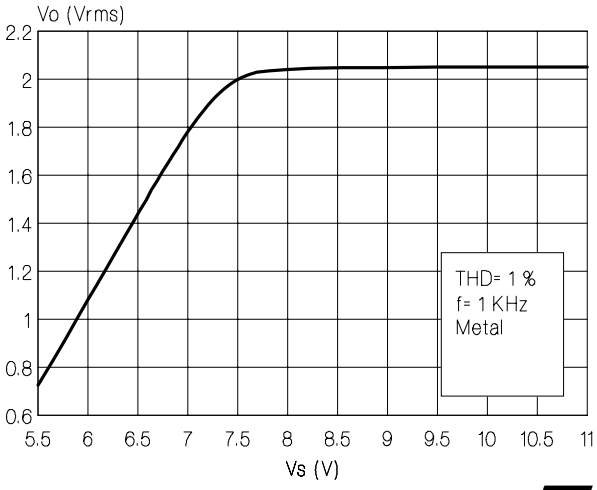


**Figure 13:** Total Input Noise vs. Input Resistance

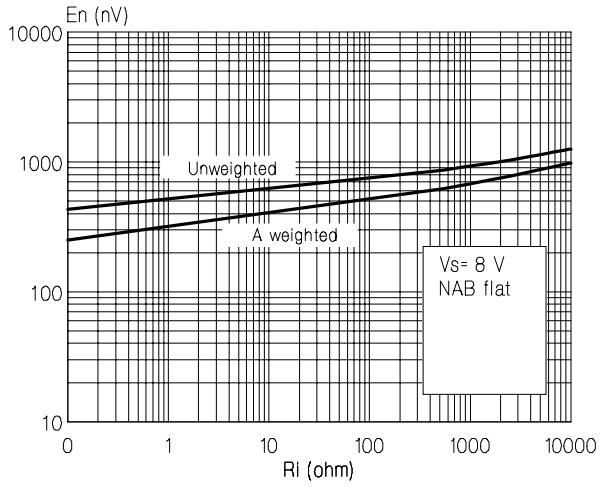



**Figure 14:** Cross Channel vs. Frequency

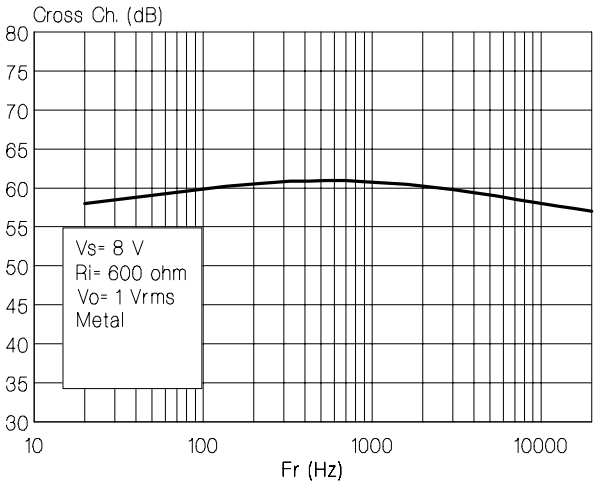



**Figure 15:** Cross Talk vs. Frequency

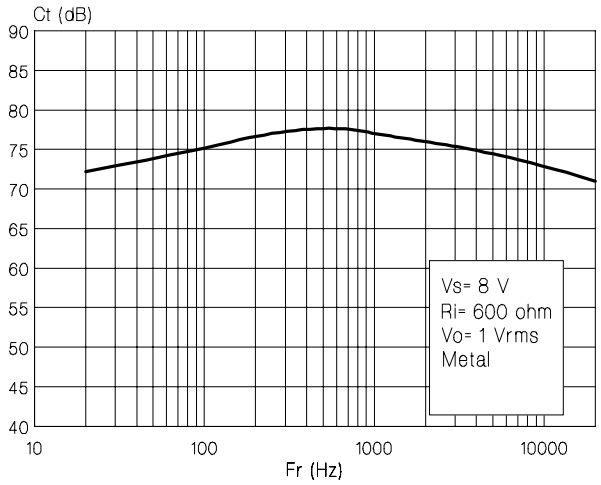



**Figure 16:** SVR vs. Frequency

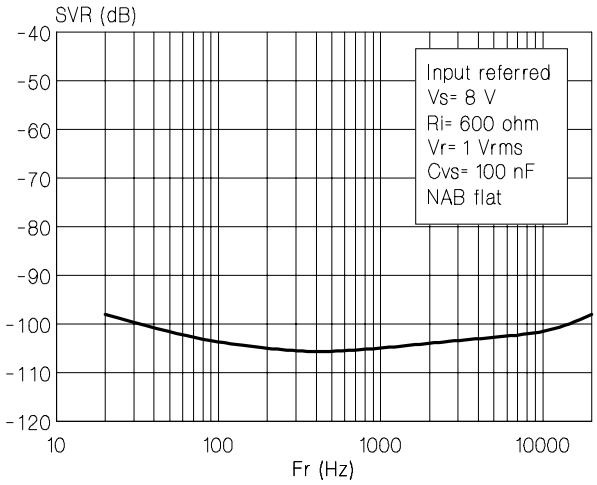



**Figure 17:** SVR vs. Frequency

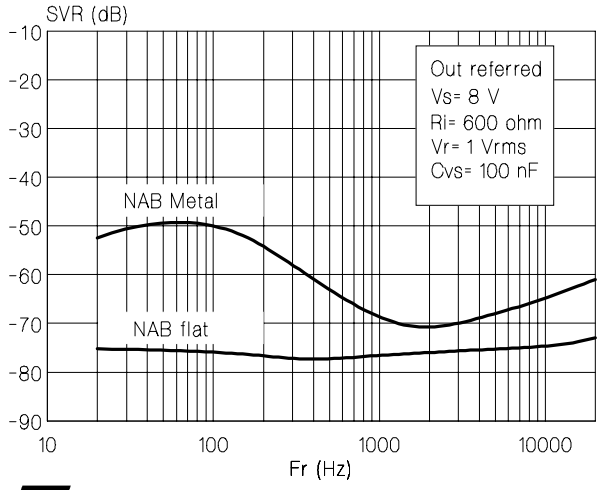



**Figure 18:** Power Bandwidth

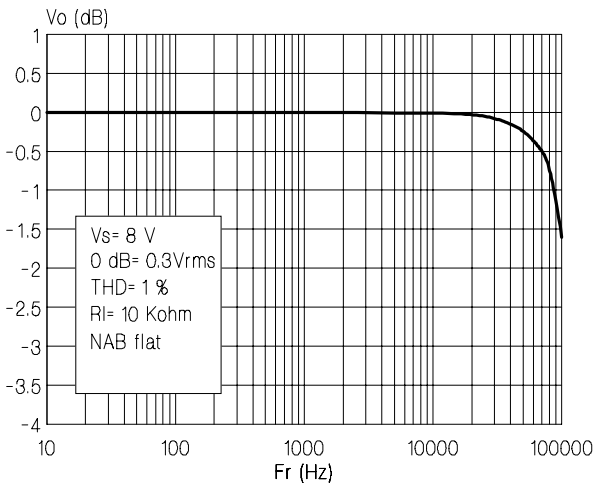


**Figure 19:** Voltage Gain vs. Input Voltage

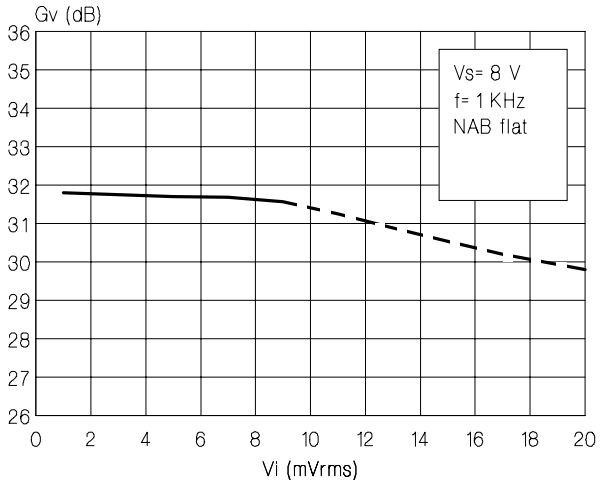
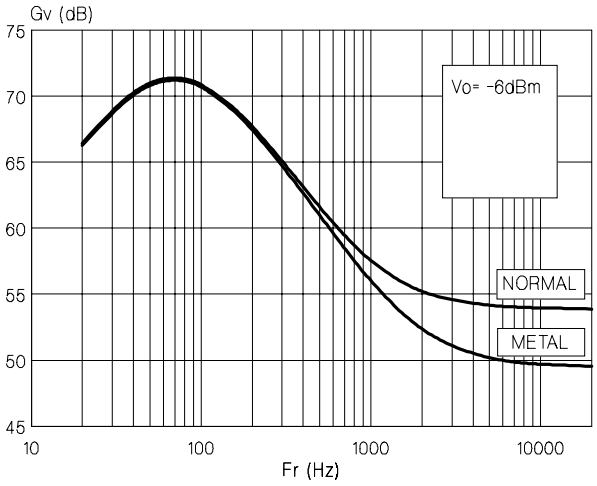
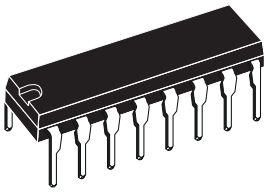



**Figure 20:** NAB Network

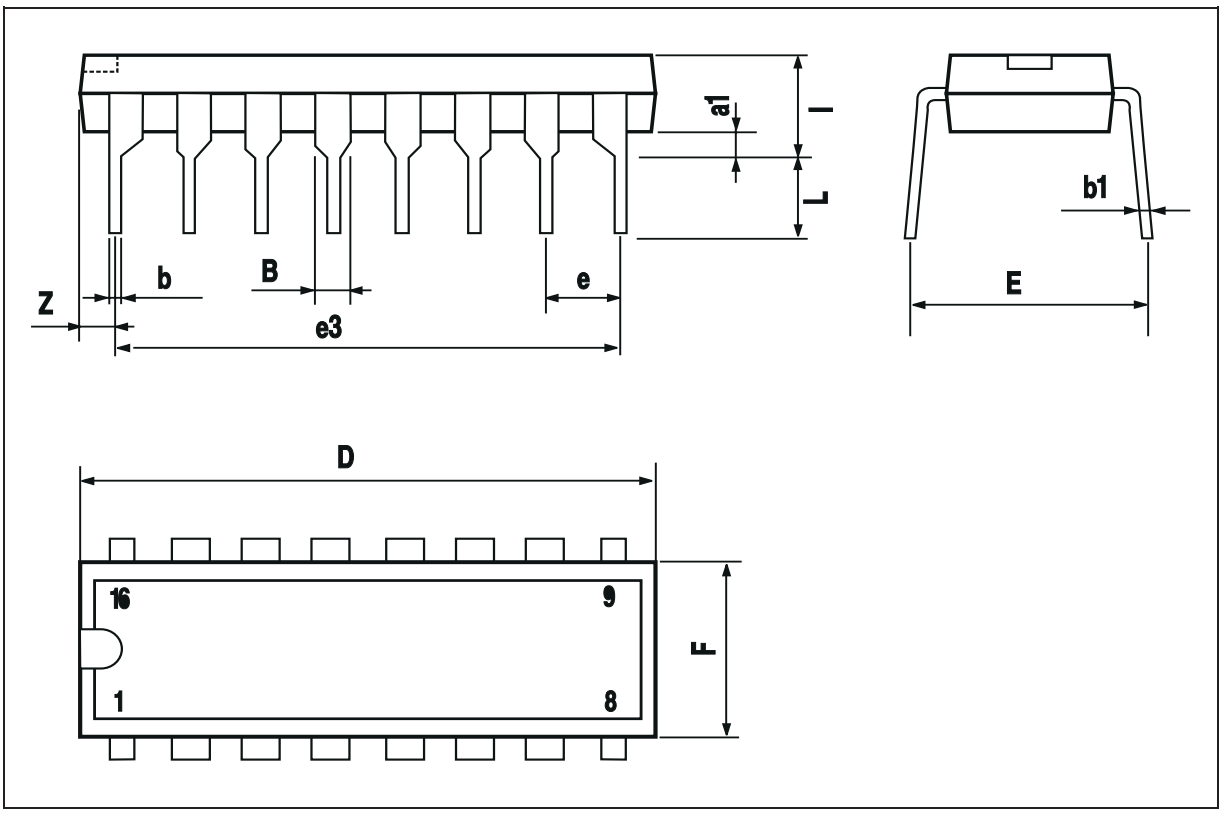


| DIM. | mm | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| a1 | 0.51 | | | 0.020 | | |
| B | 0.77 | | 1.65 | 0.030 | | 0.065 |
| b | | 0.5 | | | 0.020 | |
| b1 | | 0.25 | | | 0.010 | |
| D | | | 20 | | | 0.787 |
| E | | 8.5 | | | 0.335 | |
| e | | 2.54 | | | 0.100 | |
| e3 | | 17.78 | | | 0.700 | |
| F | | | 7.1 | | | 0.280 |
| I | | | 5.1 | | | 0.201 |
| L | | 3.3 | | | 0.130 | |
| Z | | | 1.27 | | | 0.050 |

## OUTLINE AND MECHANICAL DATA

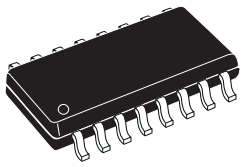


**DIP16**



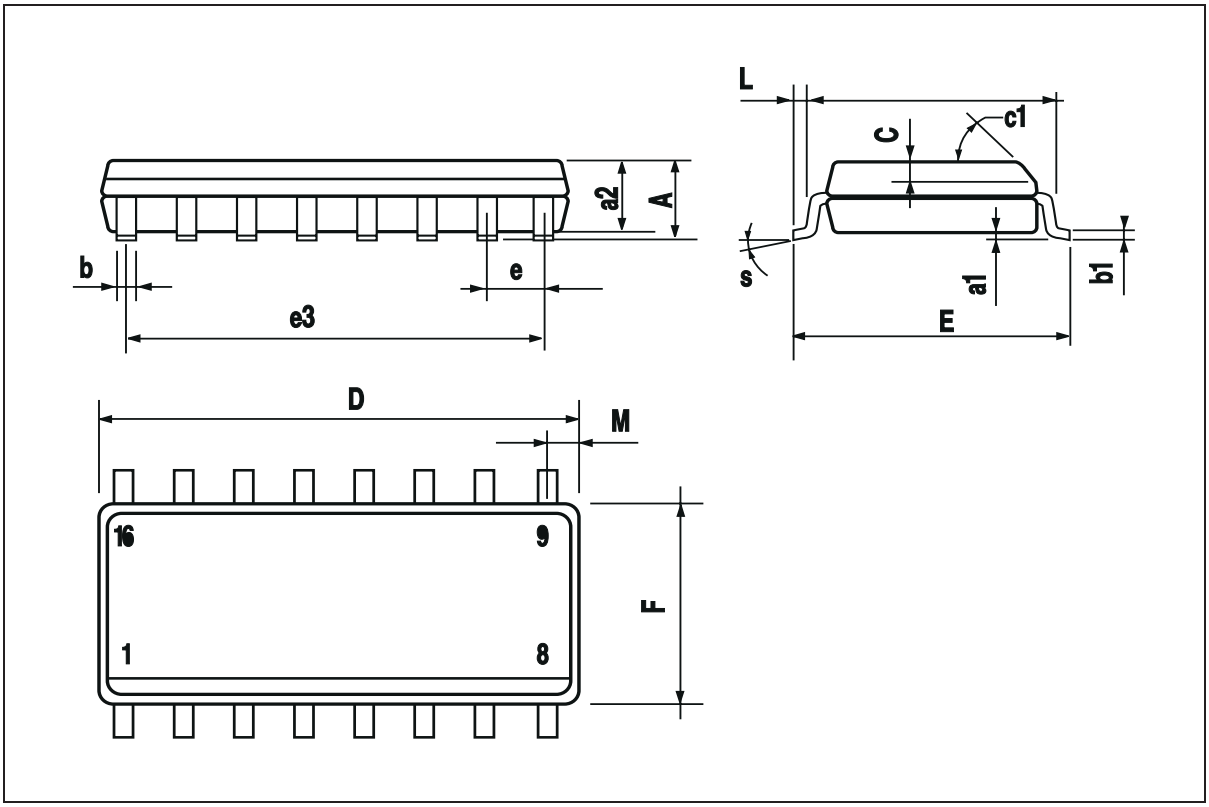
| DIM. | mm | | | inch | | |
|---|---|---|---|---|---|---|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | | 1.75 | | | 0.069 |
| a1 | 0.1 | | 0.25 | 0.004 | | 0.009 |
| a2 | | | 1.6 | | | 0.063 |
| b | 0.35 | | 0.46 | 0.014 | | 0.018 |
| b1 | 0.19 | | 0.25 | 0.007 | | 0.010 |
| C | | 0.5 | | | 0.020 | |
| c1 | 45° (typ.) | | | | | |
| D (1) | 9.8 | | 10 | 0.386 | | 0.394 |
| E | 5.8 | | 6.2 | 0.228 | | 0.244 |
| e | | 1.27 | | | 0.050 | |
| e3 | | 8.89 | | | 0.350 | |
| F (1) | 3.8 | | 4 | 0.150 | | 0.157 |
| G | 4.6 | | 5.3 | 0.181 | | 0.209 |
| L | 0.4 | | 1.27 | 0.016 | | 0.050 |
| M | | | 0.62 | | | 0.024 |
| S | 8°(max.) | | | | | |

## OUTLINE AND MECHANICAL DATA



## SO16 Narrow

(1) D and F do not include mold flash or protrusions. Mold flash or potrusions shall not exceed 0.15mm (.006inch).



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