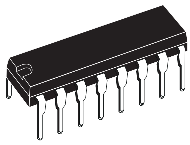
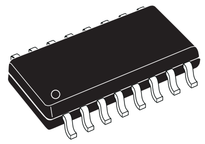
TDA7334

LOW NOISE STEREO PREAMPLIFIER

- DUAL CHANNEL PROCESSOR FOR PLAYBACK 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

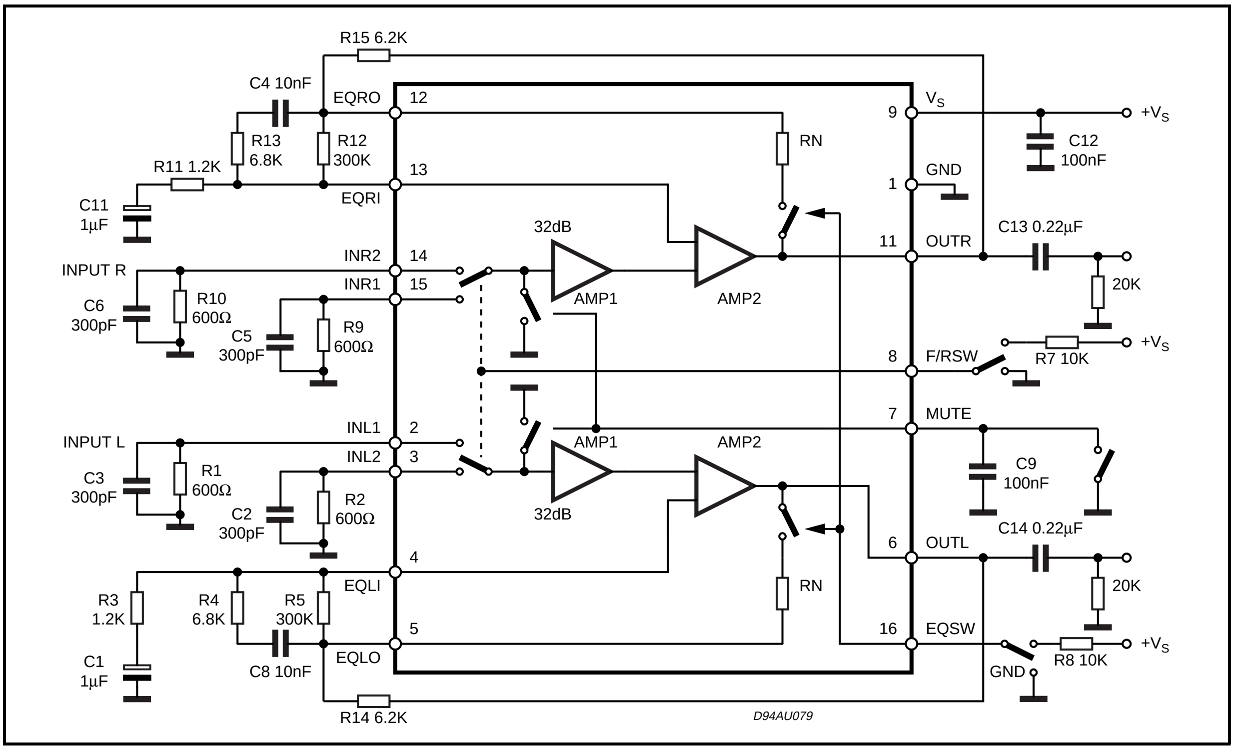
The TDA7334 is a monolithic BICmos IC designed for use in stereo cassette player systems.

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.

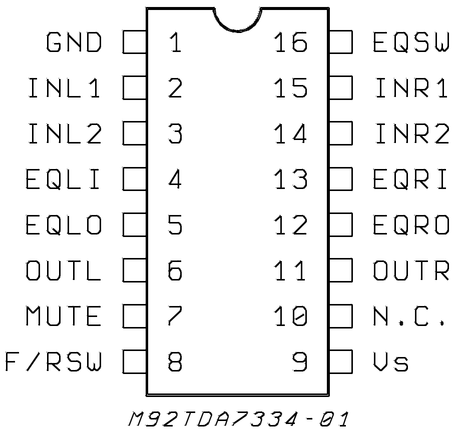
TEST CIRCUIT



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

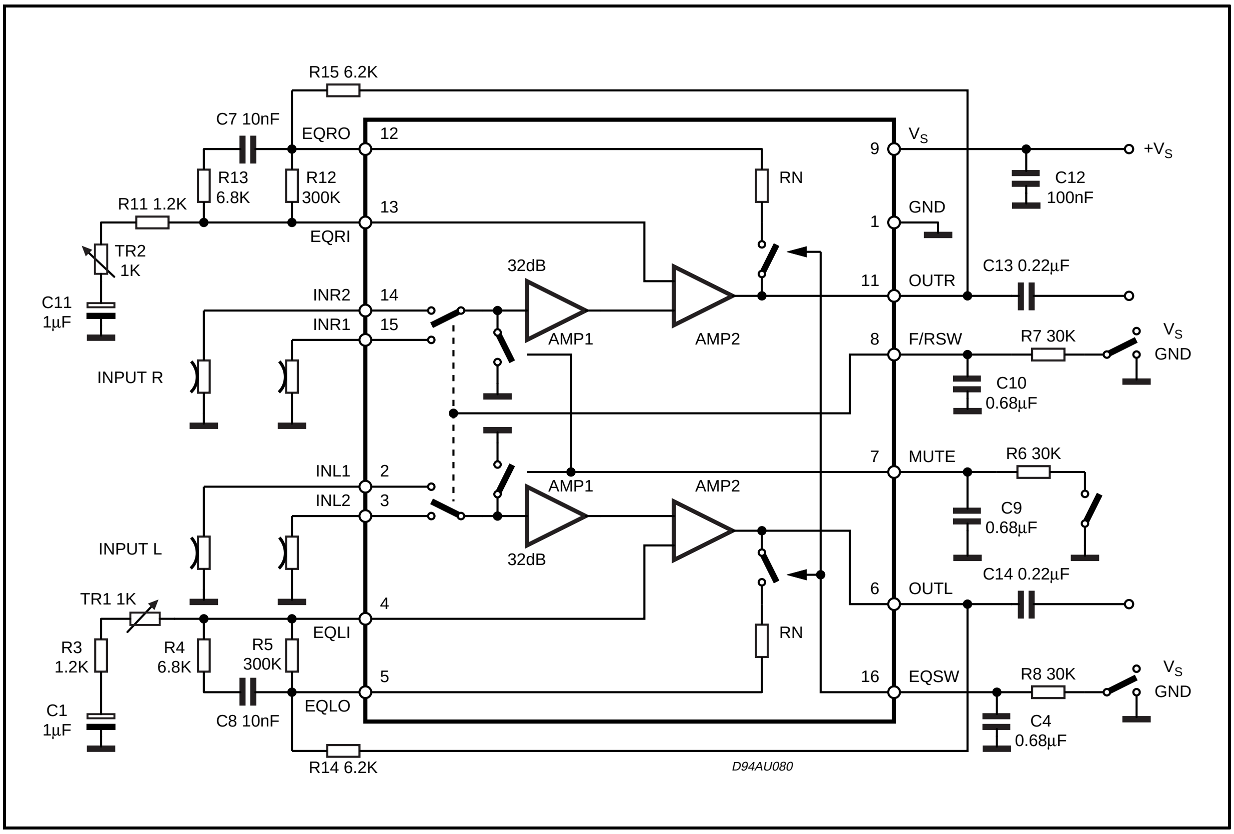
PIN CONNECTION (Top view)



THERMAL DATA

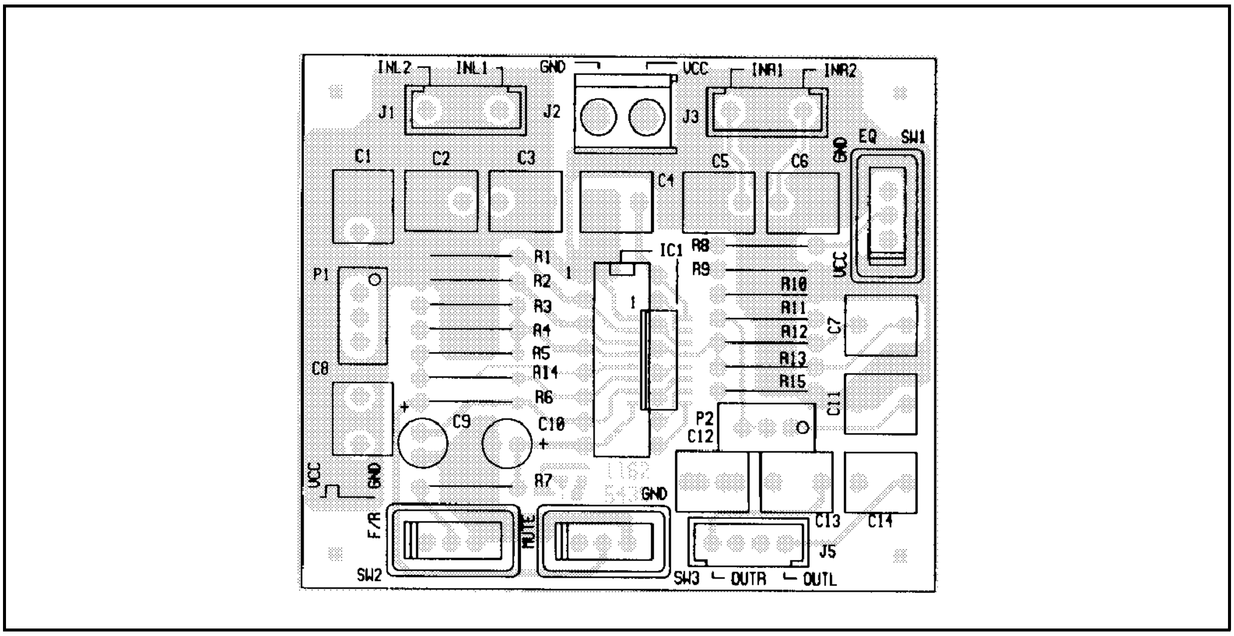
		DIP 16	SO16	
$R_{th\ j\text{-}pins}$	Thermal resistance junction-pins	100	200	°C/W

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 ON	0 3.5		0.8 V_S	V 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
ΔG_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

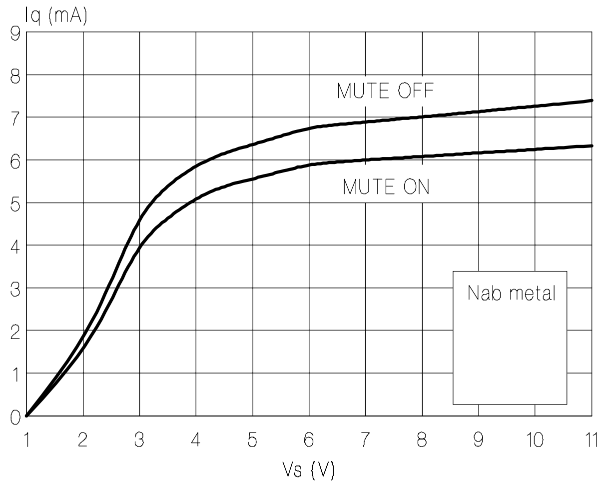


Figure 2: D.C. Output vs. Supply Voltage

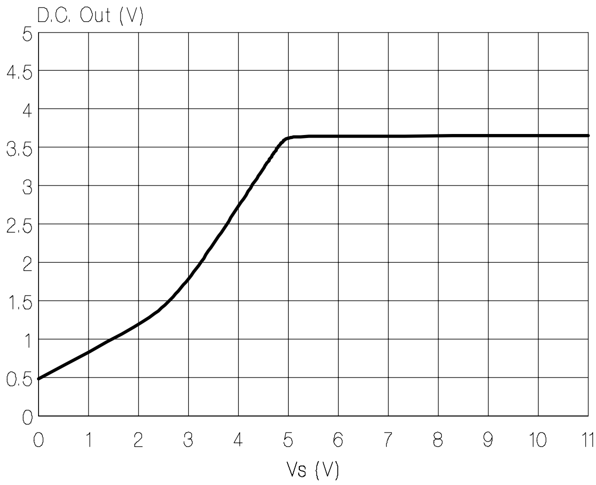


Figure 3: Forward/Reverse Threshold

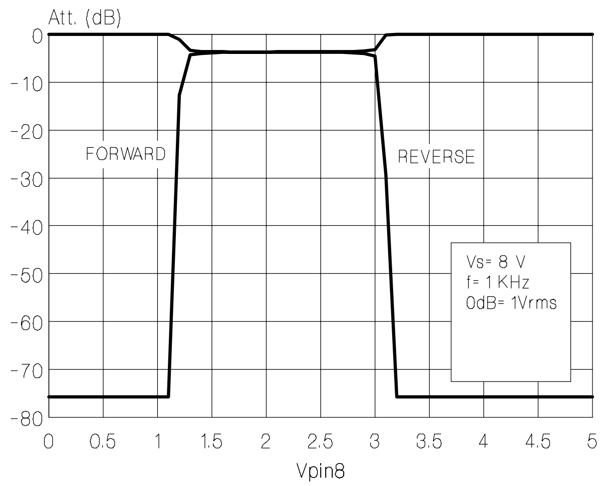


Figure 4: Metal/Normal Threshold

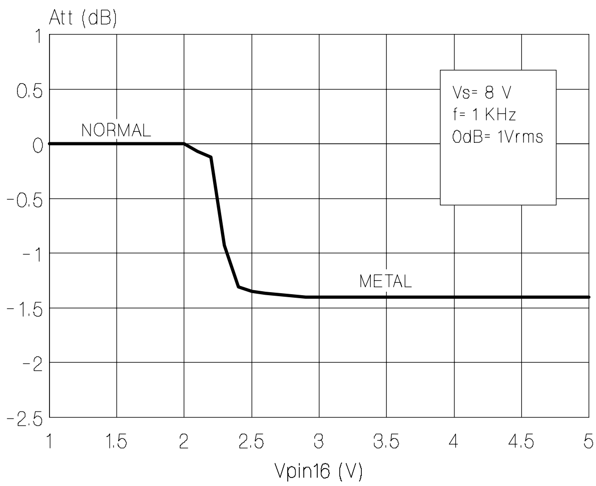


Figure 5: Mute Threshold

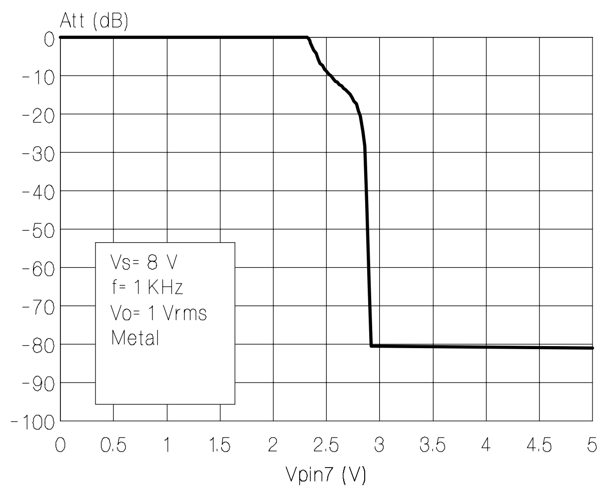


Figure 6: Mute Attenuation vs. Frequency

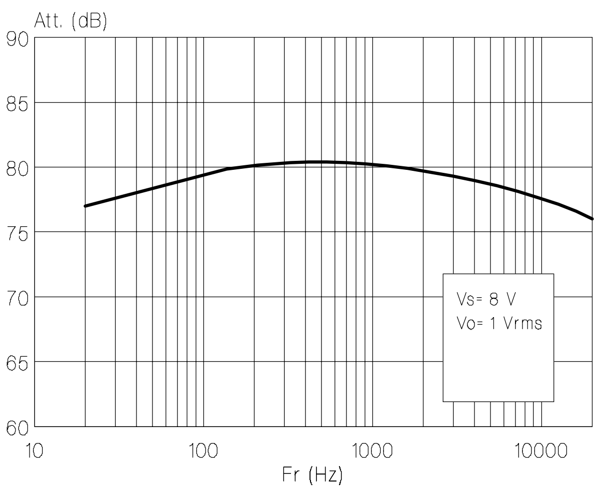


Figure 7: Mute Attenuation vs. Output Level

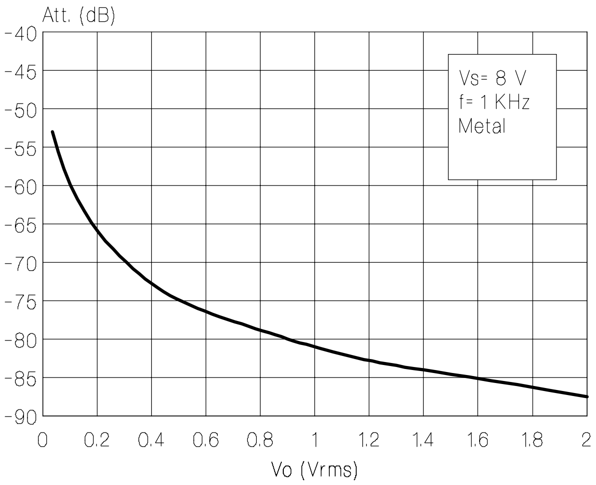


Figure 8: THD vs. Frequency

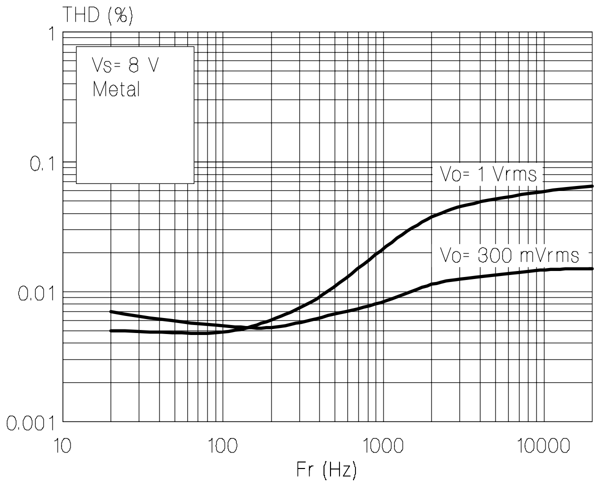


Figure 9: THD + N vs. Frequency

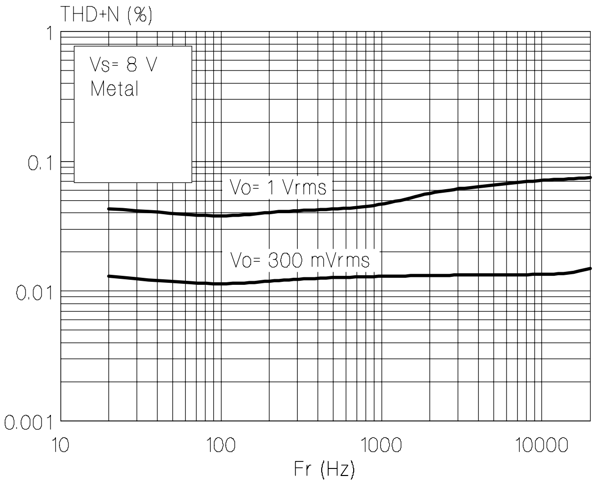


Figure 10: THD vs. Supply Voltage

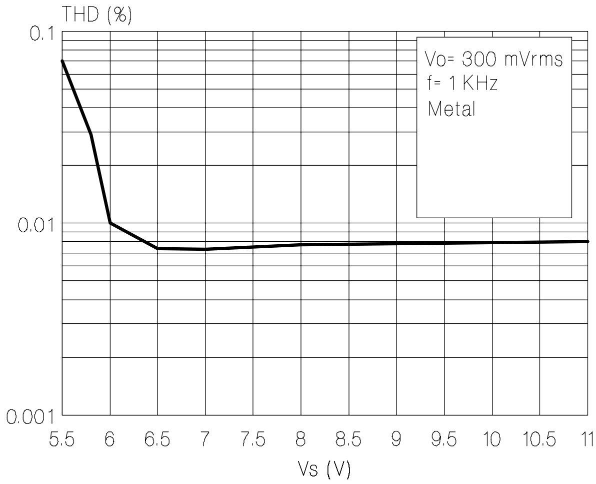


Figure 11: Load Characteristic

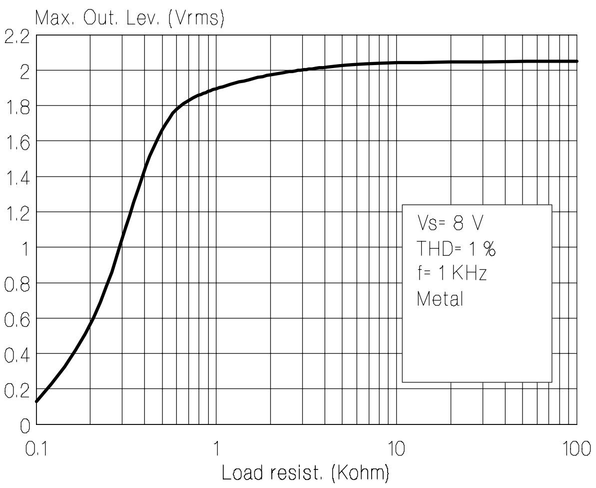


Figure 12: Signal Handling vs. Supply Voltage

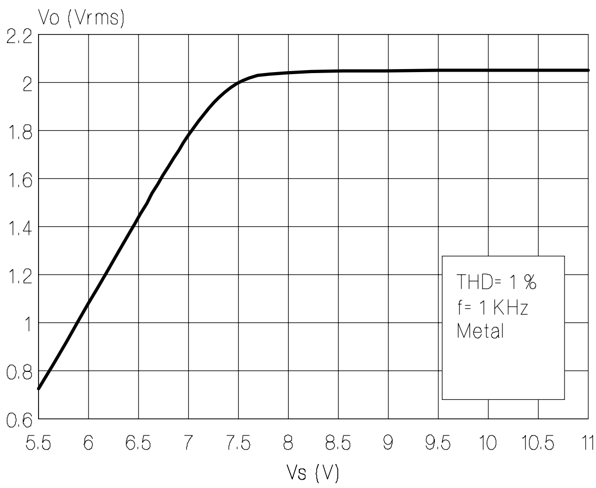


Figure 13: Total Input Noise vs. Input Resistance

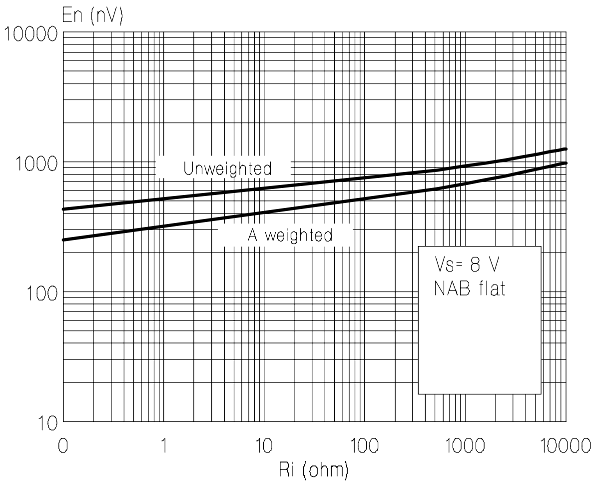


Figure 14: Cross Channel vs. Frequency

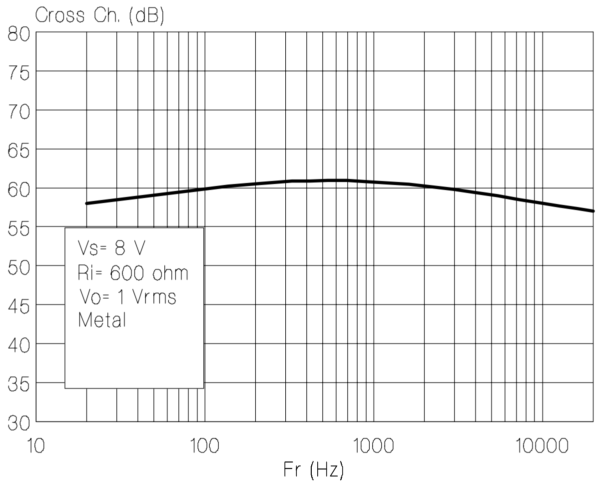


Figure 15: Cross Talk vs. Frequency

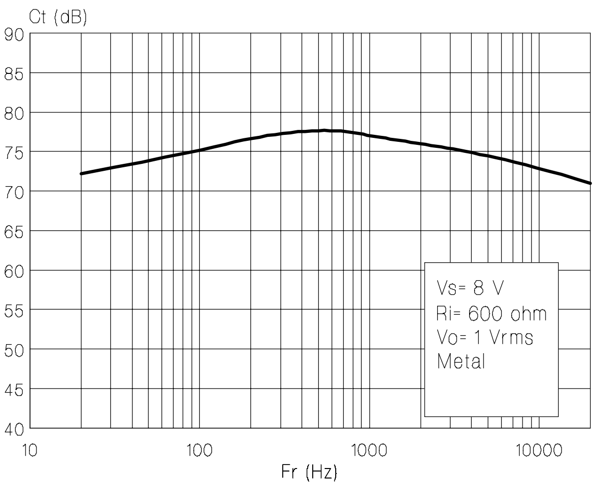


Figure 16: SVR vs. Frequency

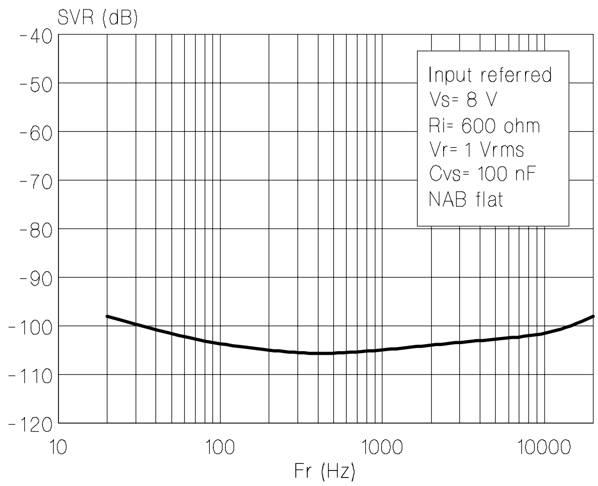


Figure 17: SVR vs. Frequency

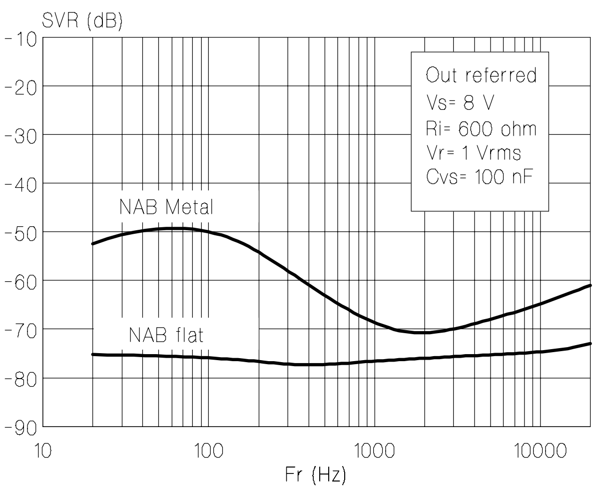


Figure 18: Power Bandwidth

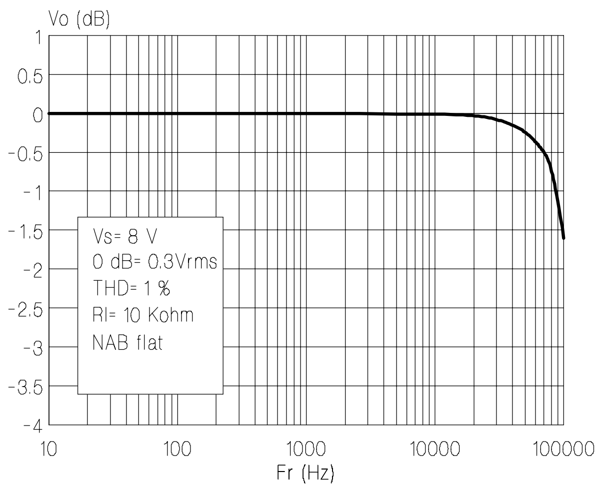


Figure 19: Voltage Gain vs. Input Voltage

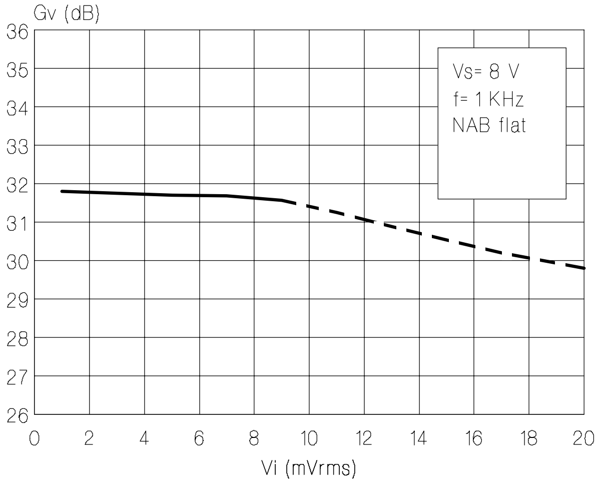
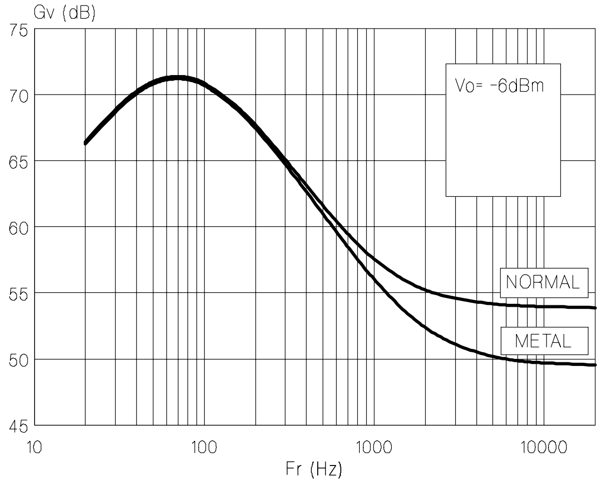
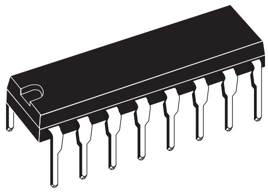


Figure 20: NAB Network

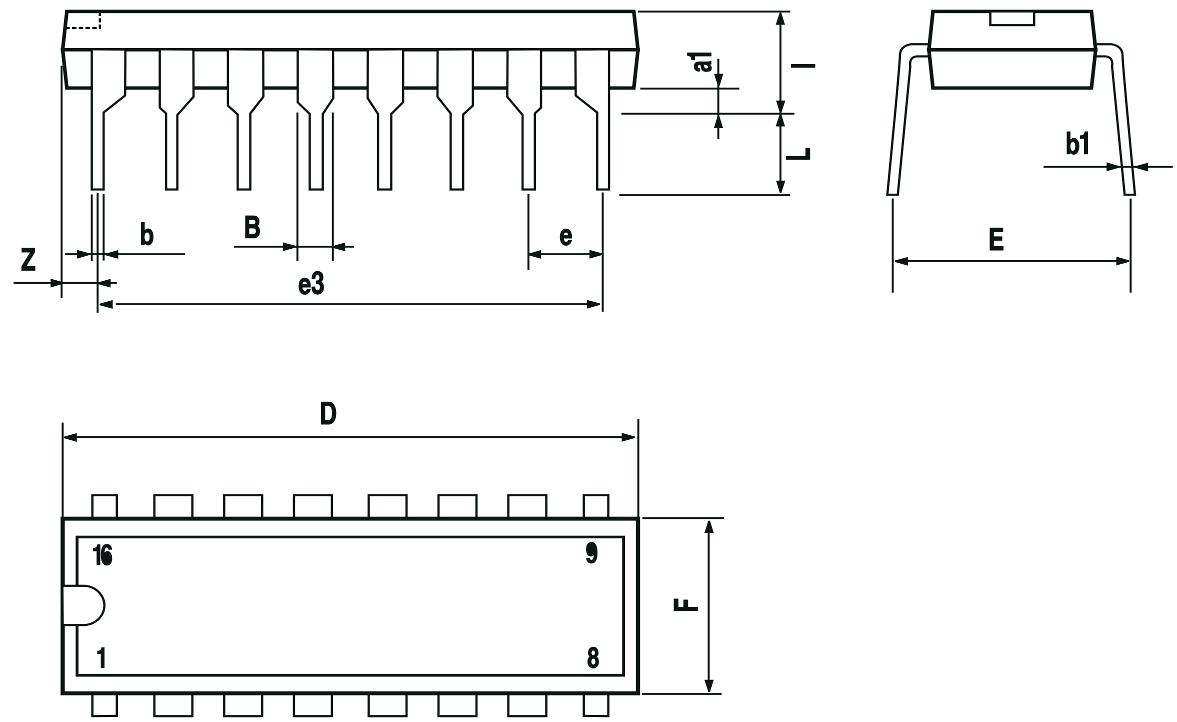


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
I			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050

OUTLINE AND MECHANICAL DATA

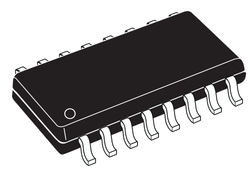


DIP16



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).