



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

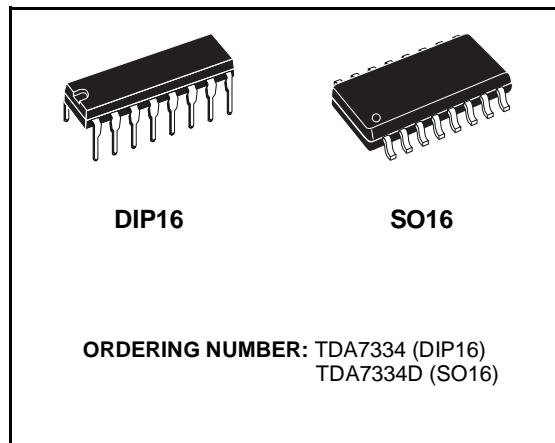
DESCRIPTION

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.

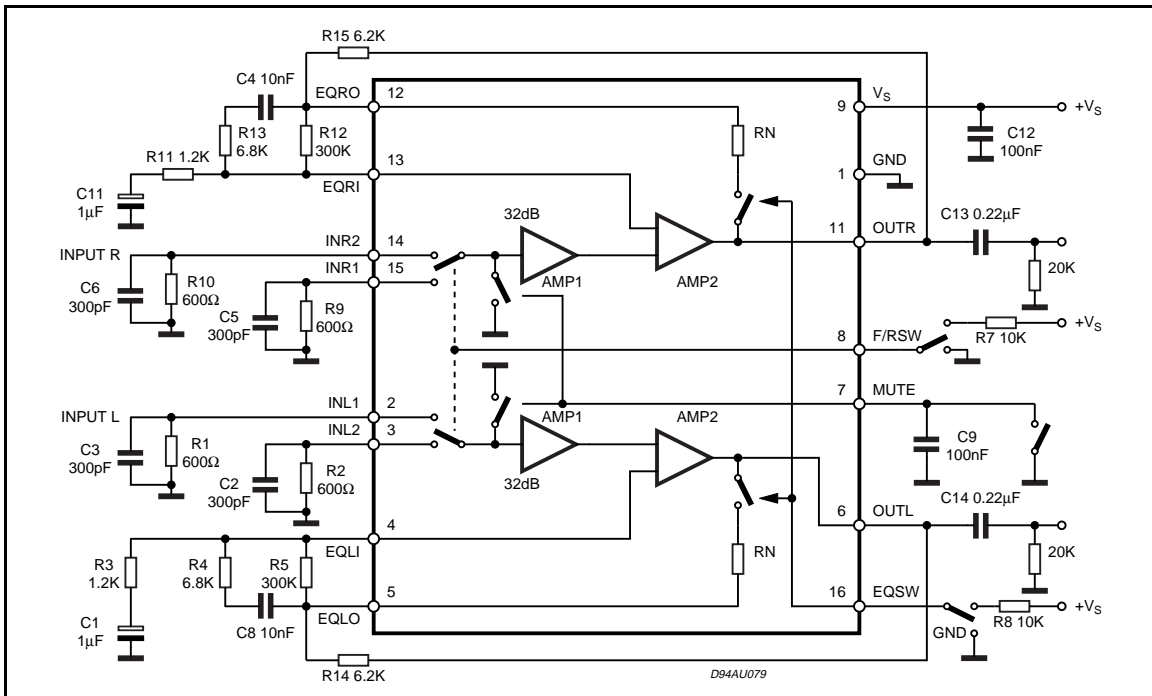
Each channel consists of two cascaded operational amplifiers.

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

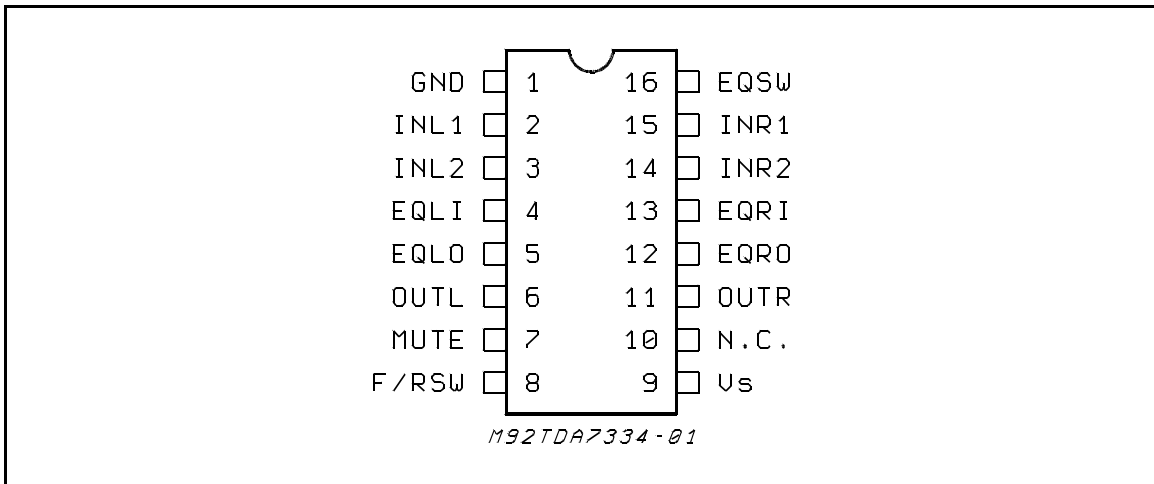


TDA7334

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

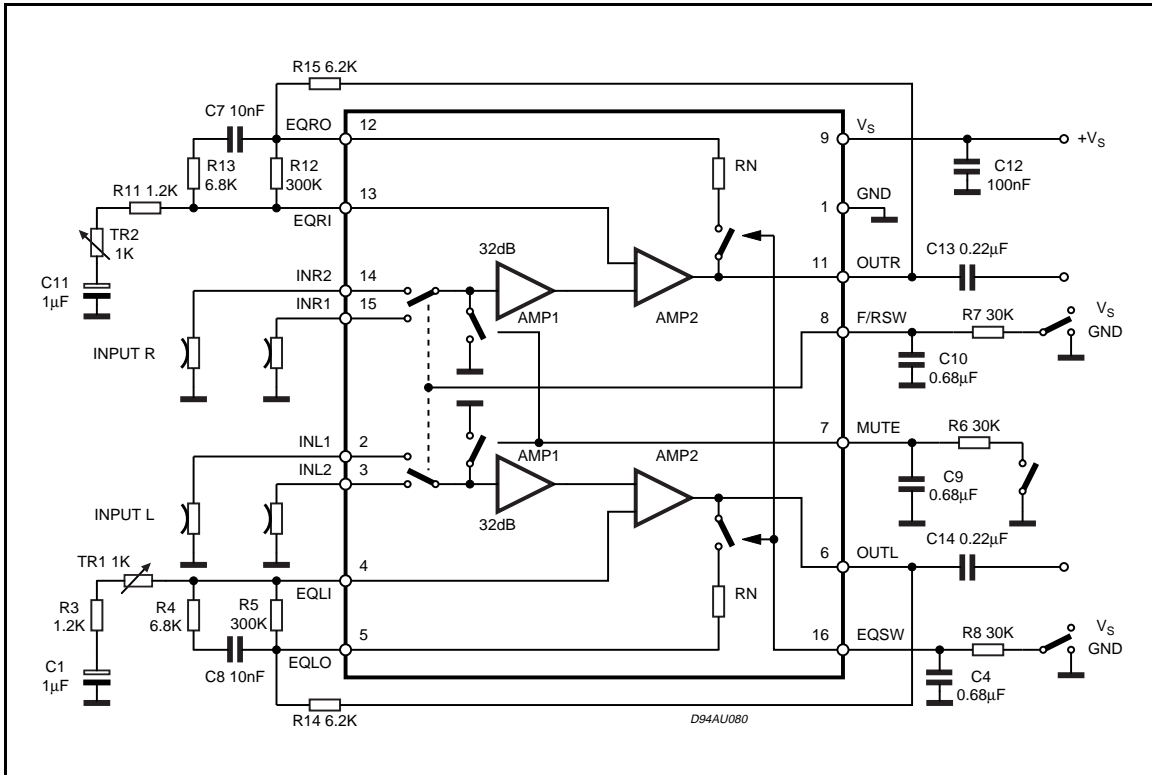
PIN CONNECTION (Top view)



THERMAL DATA

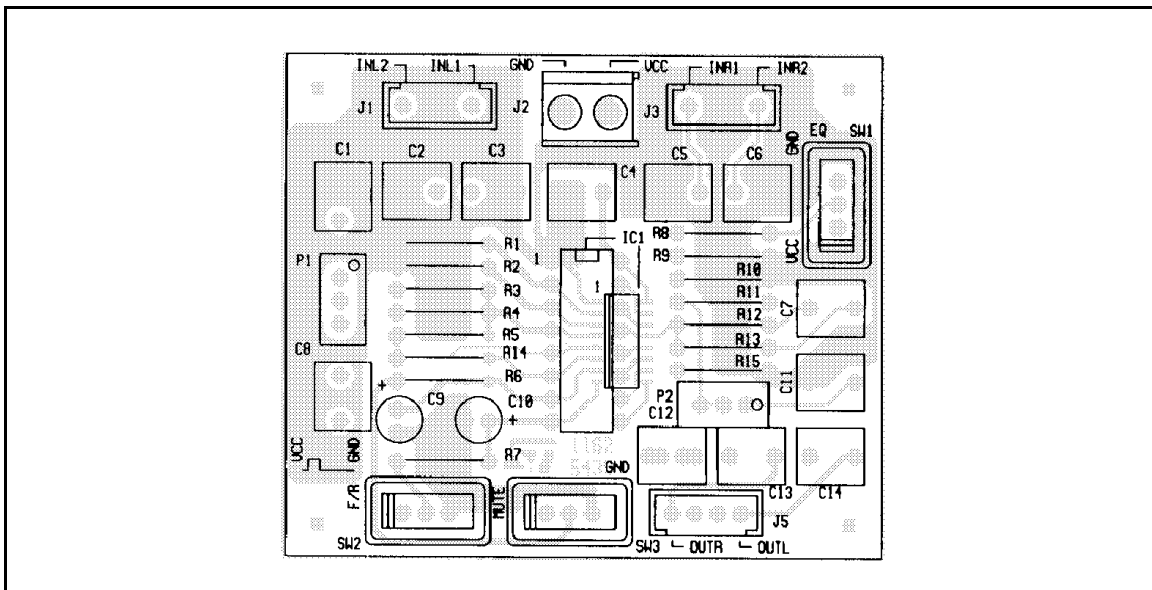
		DIP 16	SO16	
R _{th j-pins}	Thermal resistance junction-pins	100	200	°C/W

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)



TDA7334

ELECTRICAL CHARACTERISTICS ($V_s = 8V$; $R_{IN} = 600\Omega$; $f = 1KHz$; $T_{amb} = 25^\circ C$; 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			K Ω
$V_{out DC}$	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		V_{rms}
R_N	Resistance Normal Position			100	300	Ω
S_R	Slew Rate	NAB Short		1		V/ μs
e_N	Total Input Noise	$R_{IN} = 600\Omega$; unweighted		0.8		μV
		$R_{IN} = 600\Omega$; A weighted		0.5		μV
		$R_{IN} = 0$; unweighted		0.45		μV
R_o	Output Resistance				1	K Ω
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

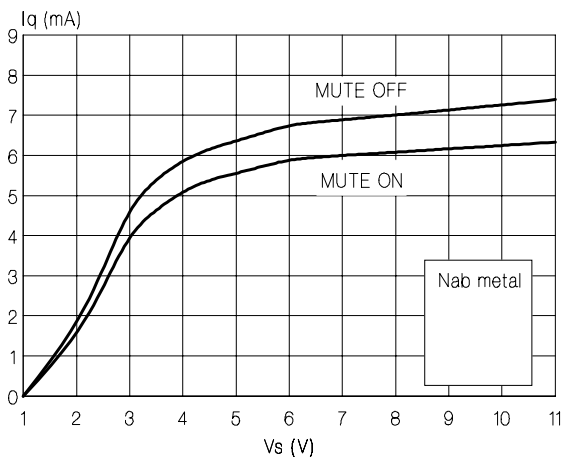


Figure 2: D.C. Output vs. Supply Voltage

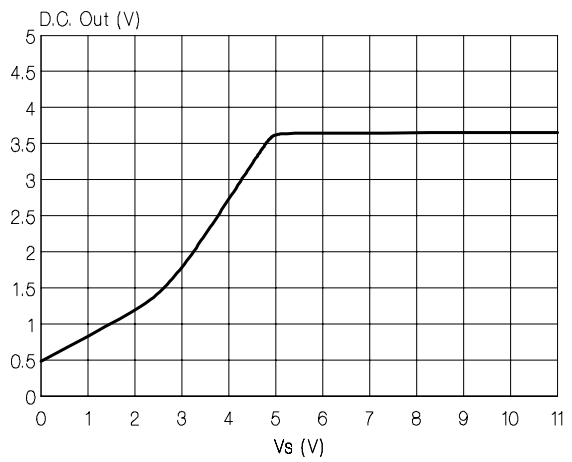


Figure 3: Forward/Reverse Threshold

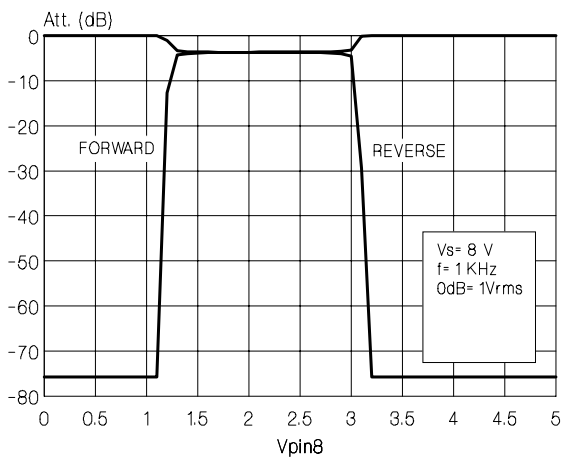


Figure 4: Metal/Normal Threshold

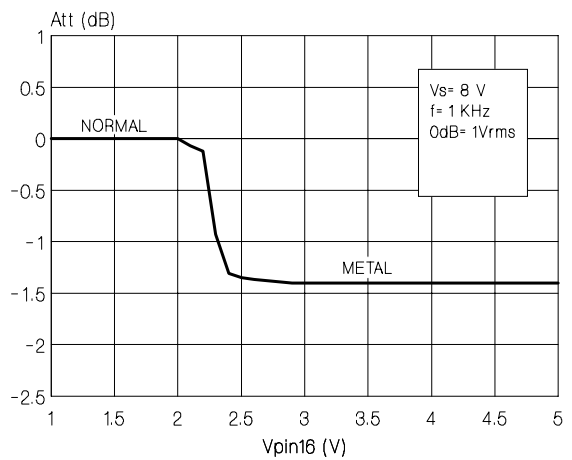


Figure 5: Mute Threshold

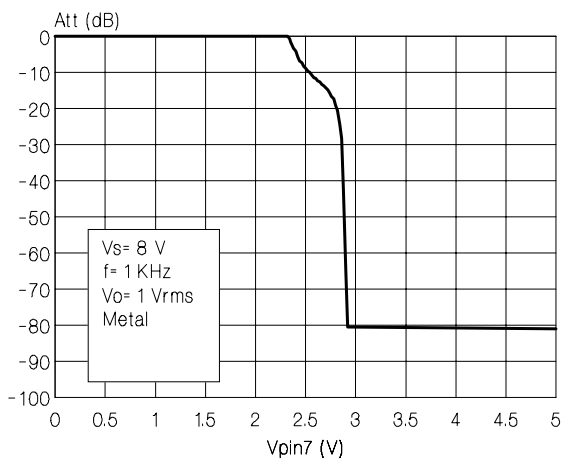


Figure 6: Mute Attenuation vs. Frequency

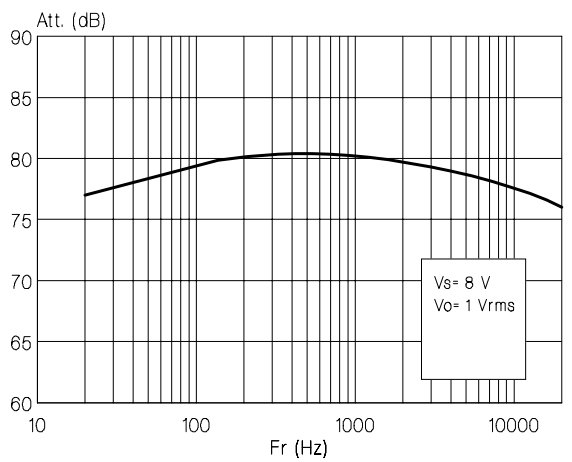


Figure 7: Mute Attenuation vs. Output Level

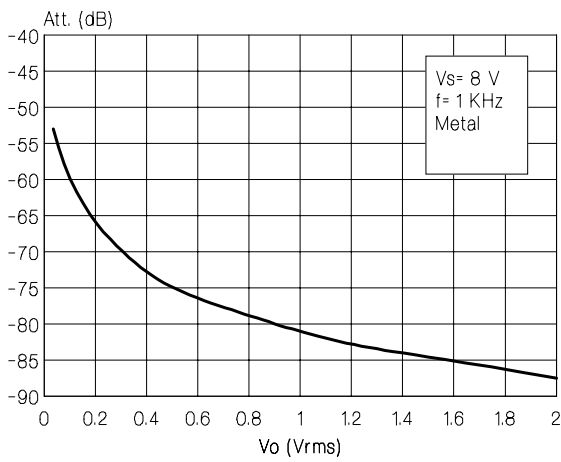


Figure 8: THD vs. Frequency

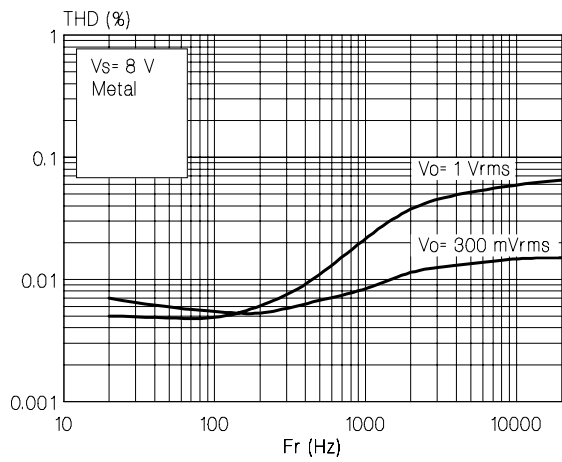


Figure 9: THD + N vs. Frequency

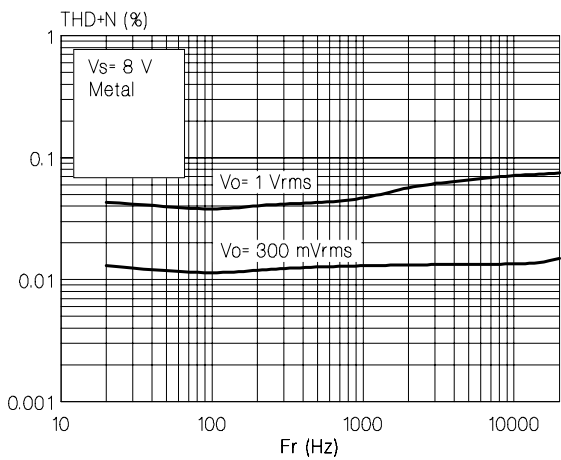


Figure 10: THD vs. Supply Voltage

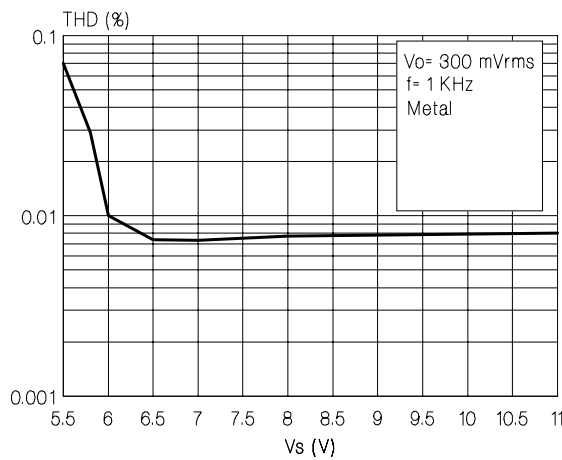


Figure 11: Load Characteristic

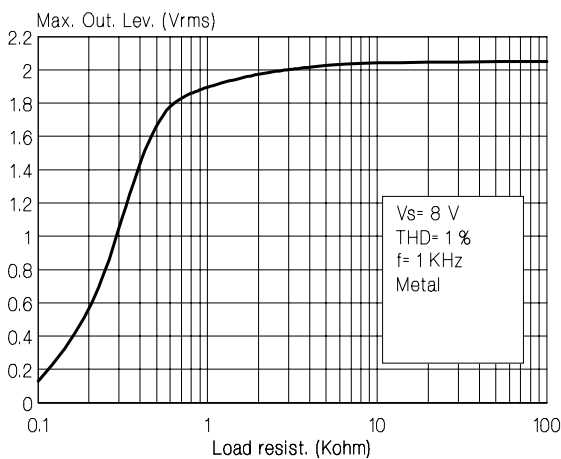


Figure 12: Signal Handling vs. Supply Voltage

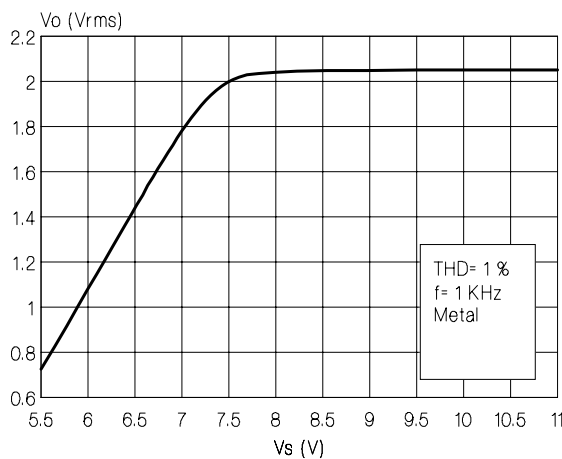


Figure 13: Total Input Noise vs. Input Resistance

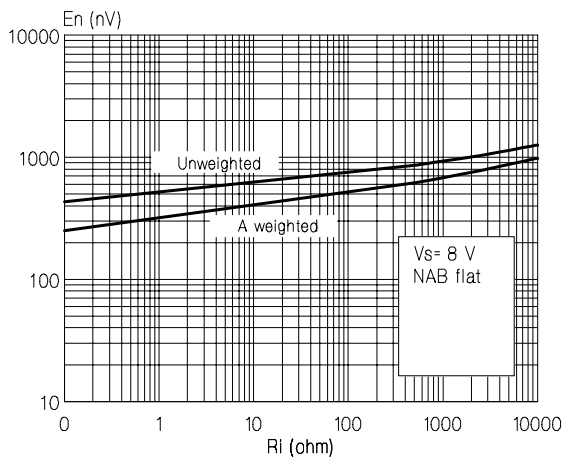


Figure 14: Cross Channel vs. Frequency

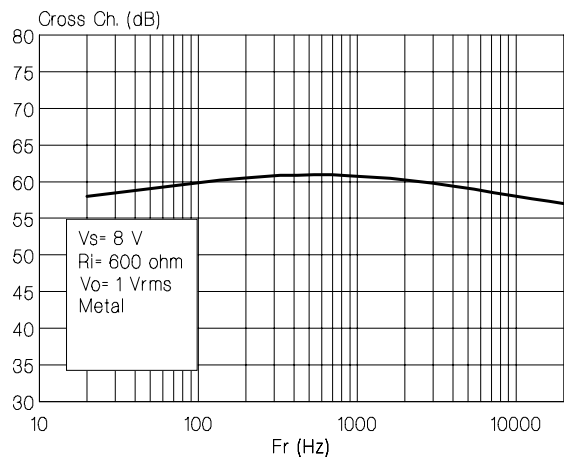


Figure 15: Cross Talk vs. Frequency

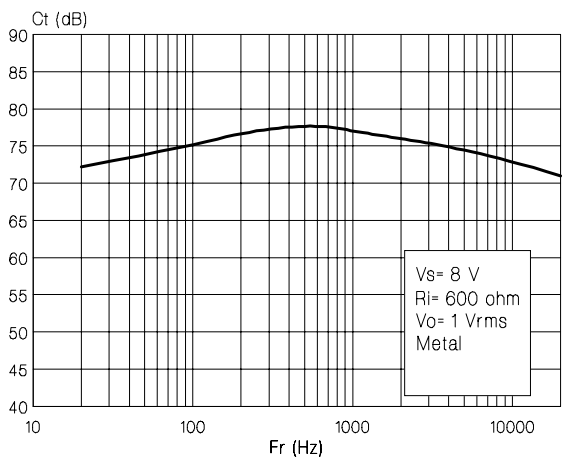


Figure 16: SVR vs. Frequency

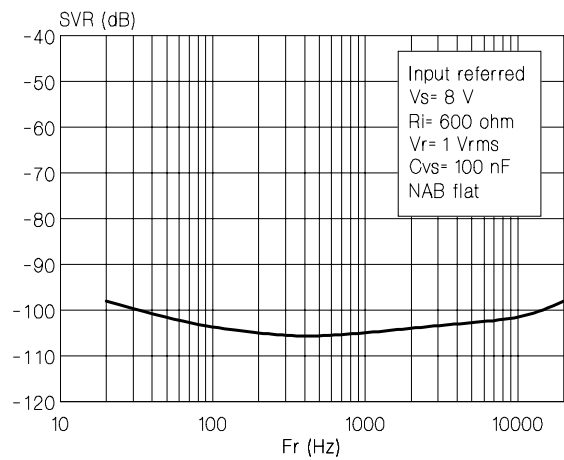


Figure 17: SVR vs. Frequency

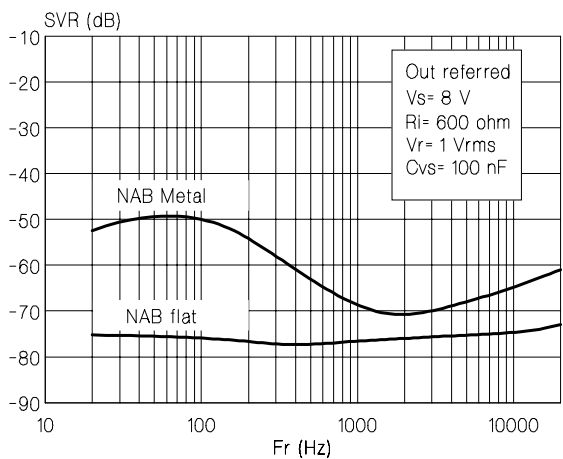


Figure 18: Power Bandwidth

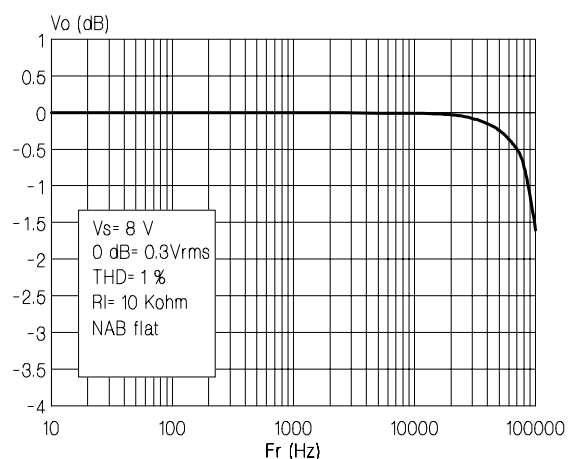


Figure 19: Voltage Gain vs. Input Voltage

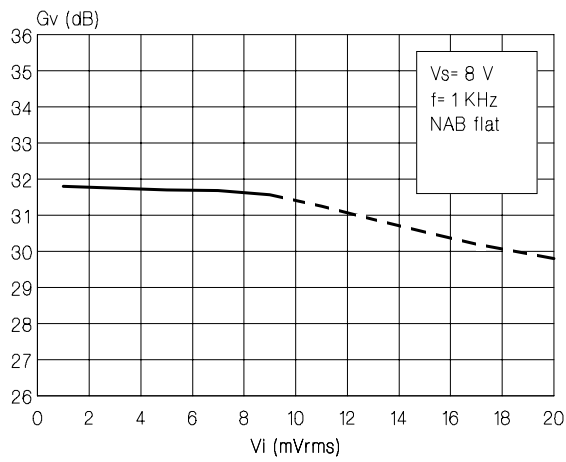
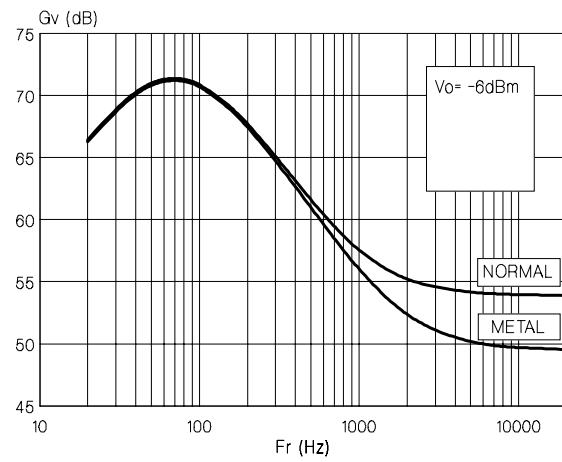
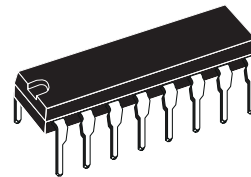


Figure 20: NAB Network

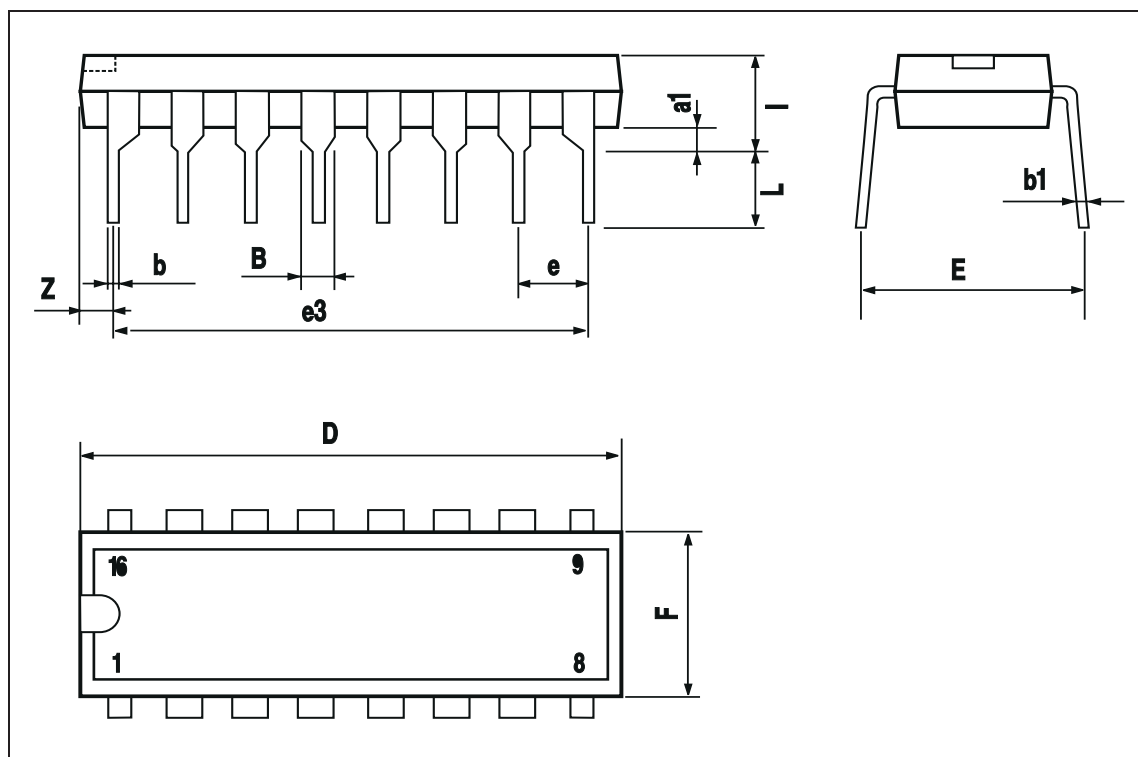


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
I			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050

OUTLINE AND MECHANICAL DATA

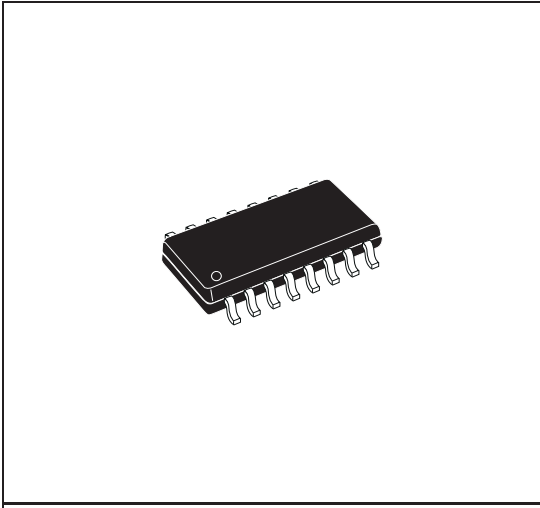


DIP16



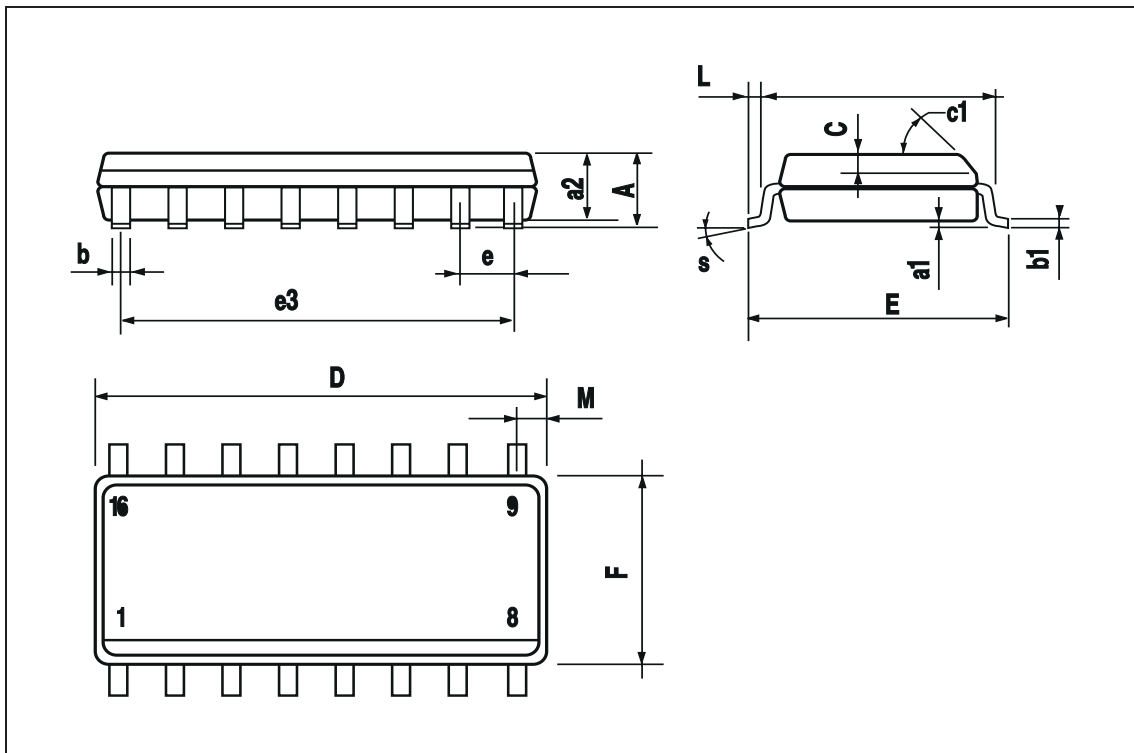
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.75			0.069
a1	0.1		0.25	0.004		0.009
a2			1.6			0.063
b	0.35		0.46	0.014		0.018
b1	0.19		0.25	0.007		0.010
C		0.5			0.020	
c1	45° (typ.)					
D (1)	9.8		10	0.386		0.394
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		8.89			0.350	
F (1)	3.8		4	0.150		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 protrusions shall not exceed 0.15mm (.006inch).



Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics
© 1999 STMicroelectronics – Printed in Italy – All Rights Reserved
STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco -
Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>

