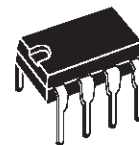
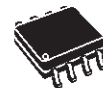


LOW NOISE DUAL OPERATIONAL AMPLIFIERS

- LOW VOLTAGE NOISE : $4.5\text{nV}/\sqrt{\text{Hz}}$
- HIGH GAIN BANDWIDTH PRODUCT : **15MHz**
- HIGH SLEW RATE : **7V/μs**
- LOW DISTORTION : 0.002%
- EXCELLENT FREQUENCY STABILITY
- ESD PROTECTION 2kV



N
DIP8
(Plastic Package)



D
S08
(Plastic Micropackage)

DESCRIPTION

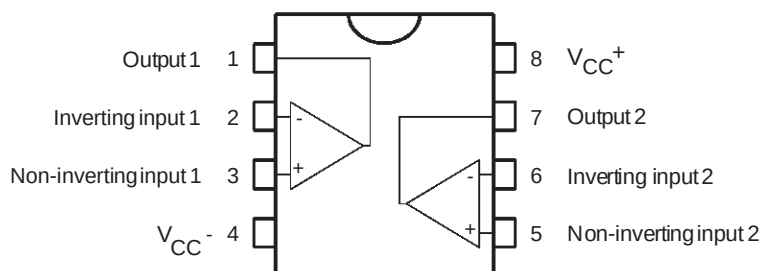
The LM833 is a monolithic dual operational amplifier dedicated to audio applications. The LM833 offers low voltage noise ($4.5\text{nV}/\sqrt{\text{Hz}}$) and high frequency performances (15MHz gain bandwidth product, 7V/μs slew rate).

In addition the LM833 has also a very low distortion (0.002%) and excellent phase/gain margins.

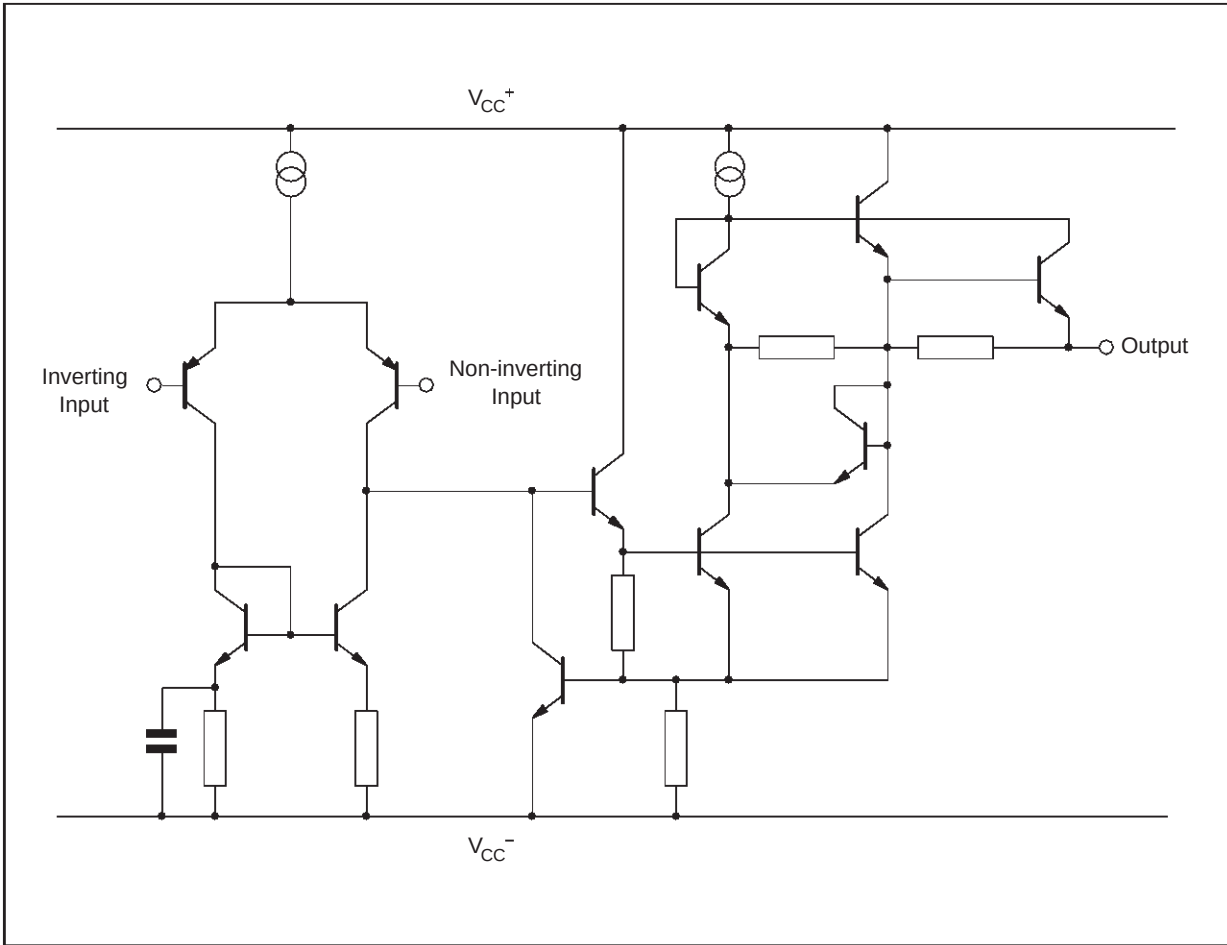
ORDER CODES

Part Number	Temperature Range	Package	
		N	D
LM833	-40, +105°C	•	•

PIN CONNECTIONS (top view)



SCHEMATIC DIAGRAM (1/2 LM833)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	± 18 or ± 36	V
V_{id}	Differential Input Voltage - (note 1)	± 30	V
V_i	Input Voltage - (note 1)	± 15	V
	Output Short-Circuit Duration - (note 2)	Infinite	
T_{oper}	Operating Free-air Temperature Range	-40 to $+105$	$^{\circ}\text{C}$
T_j	Maximum Junction Temperature	$+150$	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-65 to $+150$	$^{\circ}\text{C}$
P_{tot}	Maximum Power Dissipation - (note 2)	500	mW

Notes : 1. Either or both input voltages must not exceed the magnitude of V_{CC}^+ or V_{CC}^-
2. Power dissipation must be considered to ensure maximum junction temperature (T_j) is not exceeded

OPERATING CONDITIONS

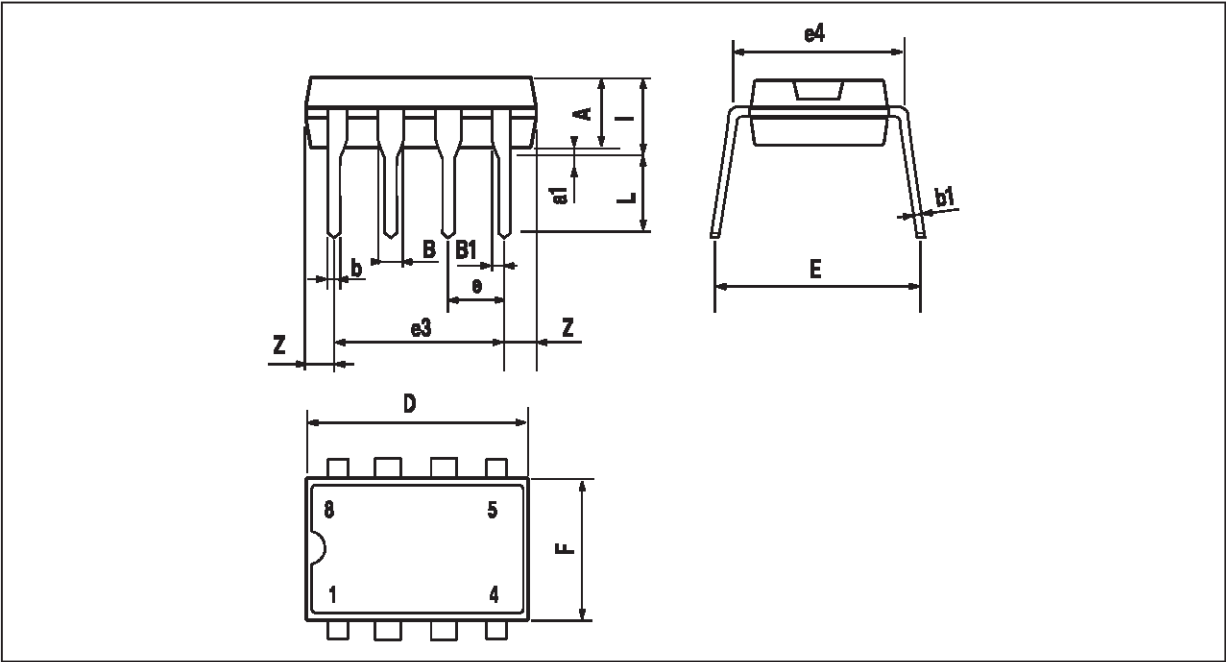
Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	± 2.5 to ± 15	V

ELECTRICAL CHARACTERISTICS

$V_{CC}^{+} = +15V$, $V_{CC}^{-} = -15V$, $T_{amb} = 25^{\circ}C$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{io}	Input Offset Voltage ($R_s = 10\Omega$, $V_o = 0V$, $V_{ic} = 0V$)		0.3	5	mV
DV_{io}	Input Offset Voltage Drift $R_s = 10\Omega$, $V_o = 0V$, $T_{min.} \leq T_{amb} \leq T_{max.}$		2		$\mu V/^{\circ}C$
I_{io}	Input Offset Current ($V_{ic} = 0V$, $V_o = 0V$)		25	200	nA
I_{ib}	Input Bias Current ($V_{ic} = 0V$, $V_o = 0V$)		300	1000	nA
V_{icm}	Common Mode Input Voltage Range	± 12	± 14		V
A_{vd}	Large Signal Voltage Gain ($R_L = 2k\Omega$, $V_o = \pm 10V$)	90	100		dB
$\pm V_{opp}$	Output Voltage Swing ($V_{id} = \pm 1V$) $R_L = 2.0k\Omega$ $R_L = 2.0k\Omega$ $R_L = 10k\Omega$ $R_L = 10k\Omega$	10 12	13.7 -14 13.9 -14.4	-10 -12	V
CMR	Common Mode Rejection Ratio ($V_{ic} = \pm 12V$)	80	100		dB
SVR	Supply Voltage Rejection Ratio $V_{CC}^{+} / V_{CC}^{-} = +15V / -15V$ to $+5V / -5V$	80	105		dB
I_{CC}	Supply current ($V_o = 0V$, All Amplifiers)		4	8	mA
SR	Slew Rate $V_i = -10V$ to $+10V$, $R_L = 2k\Omega$, $A_v = +1V$	5	7		V/ μs
GBP	Gain Bandwidth Product ($f = 100kHz$, $R_L = 2k\Omega$, $C_L = 100pF$)	10	15		MHz
B	Unity Gain Bandwidth (Open loop)		9		MHz
ϕ_m	Phase Margin		60		Degrees
e_n	Equivalent Input Noise Voltage ($R_s = 100\Omega$, $f = 1kHz$)		4.5		$\frac{nV}{\sqrt{Hz}}$
i_n	Equivalent Input Noise current ($f = 1kHz$)		0.5		$\frac{pA}{\sqrt{Hz}}$
THD	Total Harmonic Distortion $R_L = 2k\Omega$, $f = 20Hz$ to $20kHz$, $V_o = 3V_{rms}$, $A_v = +1$		0.002		%
V_{O1}/V_{O2}	Channel Separation ($f = 20Hz$ to $20kHz$)		120		dB
FPB	Full Power Bandwidth ($V_o = 27V_{pp}$, $R_L = 2k\Omega$, $THD \leq 1\%$)		120		kHz

PACKAGE MECHANICAL DATA
8 PINS - PLASTIC DIP

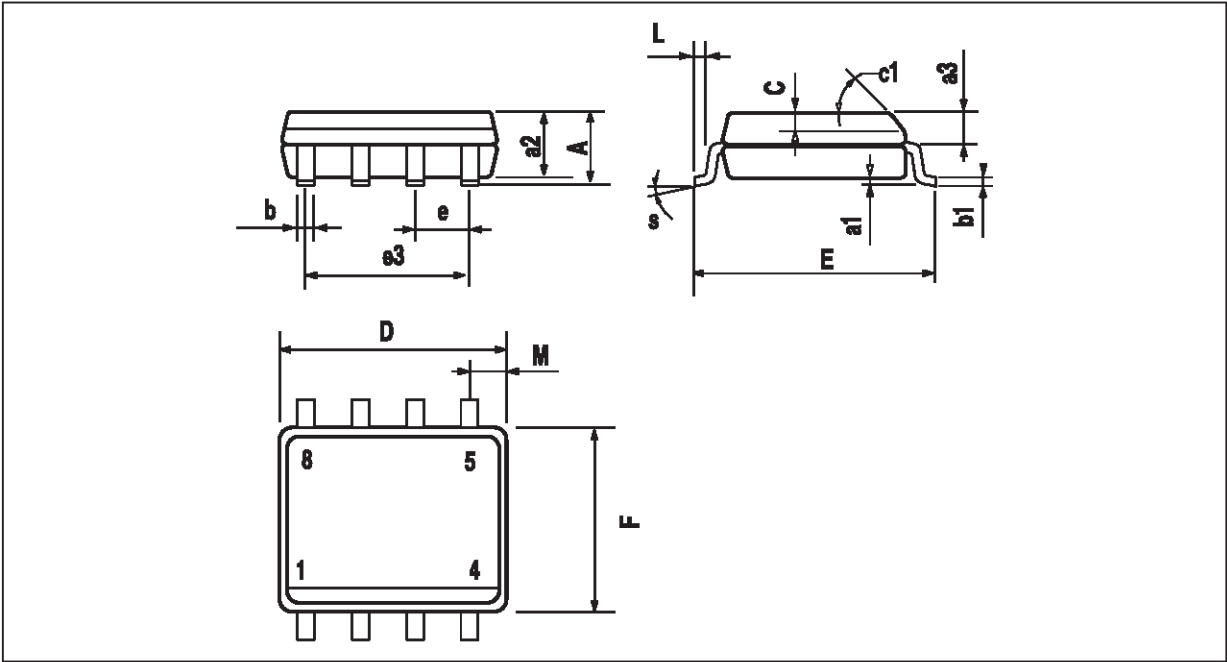


PM-DIP8.EPS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.32			0.131	
a1	0.51			0.020		
B	1.15		1.65	0.045		0.065
b	0.356		0.55	0.014		0.022
b1	0.204		0.304	0.008		0.012
D			10.92			0.430
E	7.95		9.75	0.313		0.384
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			6.6			0.260
i			5.08			0.200
L	3.18		3.81	0.125		0.150
Z			1.52			0.060

DIP8.TBL

PACKAGE MECHANICAL DATA
8 PINS - PLASTIC MICROPACKAGE (SO)



Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.010
a2			1.65			0.065
a3	0.65		0.85	0.026		0.033
b	0.35		0.48	0.014		0.019
b1	0.19		0.25	0.007		0.010
C	0.25		0.5	0.010		0.020
c1	45° (typ.)					
D	4.8		5.0	0.189		0.197
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		3.81			0.150	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.6			0.024
S	8° (max.)					

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics 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 SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1997 SGS-THOMSON Microelectronics – Printed in Italy – All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES
Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Morocco
The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.