



SGS-THOMSON
MICROELECTRONICS

MC33172/MC34172
MC35172

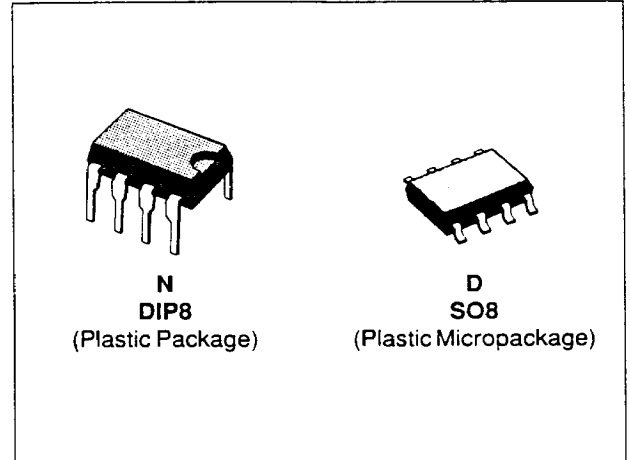
LOW POWER DUAL BIPOLAR OP AMPs

PRELIMINARY DATA

- GOOD CONSUMPTION/SPEED RATIO:
ONLY 200 μ A/Amp FOR 1.8 MHz, 2.1 V/ μ s
- SINGLE (OR DUAL) SUPPLY OPERATION
FROM +4V TO +44V ($\pm$ 2V TO $\pm$ 22V)
- WIDE INPUT COMMON MODE VOLTAGE
RANGE INCLUDING V_{CC-}
- LOW LEVEL OUTPUT VOLTAGE CLOSE TO
 V_{CC-} : 100mV TYPICAL
- ESD INTERNAL PROTECTION
- PIN TO PIN COMPATIBLE WITH STANDARD
DUAL OP AMPs

DESCRIPTION:

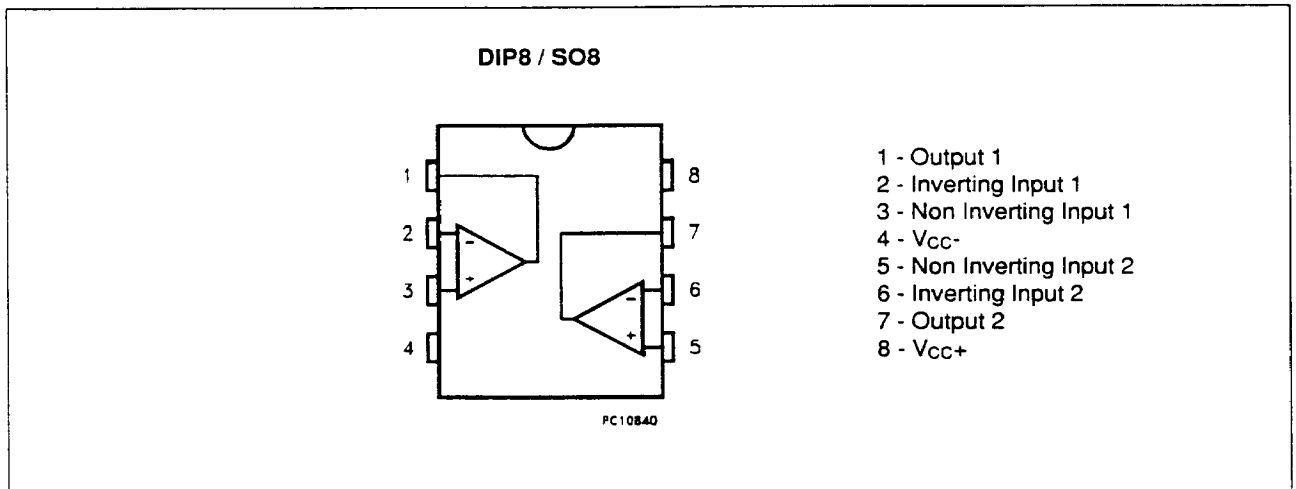
The MC33172 series are dual bipolar operational amplifiers offering both low consumption (200 μ A/Amp) and good speed (1.8MHz, 2.1V/ μ s). Moreover the Input Common Mode Range extends down to the lower supply rail, allowing single supply operation from +4V to +44V.



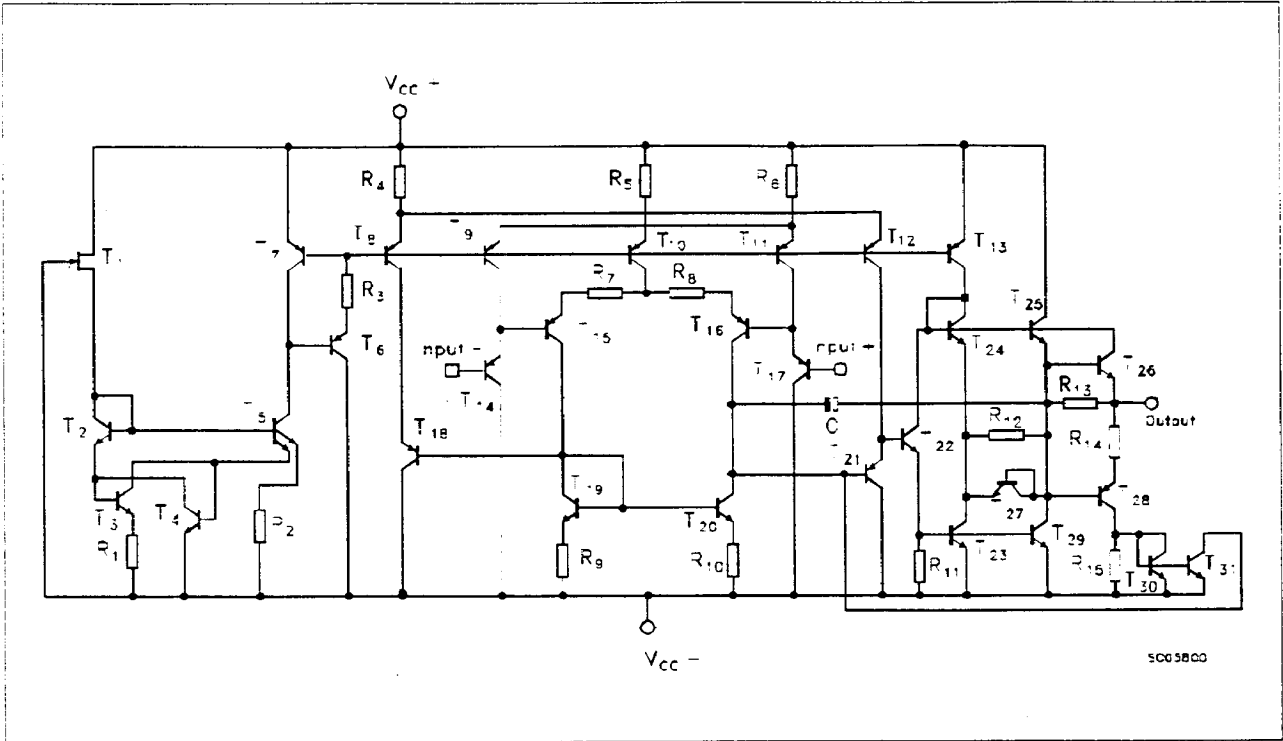
ORDER CODES

Part Number	Temperature Range	Package	
		N	D
MC33172	- 40°C to + 105°C	•	•
MC34172	0°C to + 70°C	•	•
MC35172	- 55°C to +125°C	•	•
Example: MC33172N			

PIN CONNECTION (Top View)



SCHEMATIC DIAGRAM (for 1/2 MC33172)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V _{CC}	Supply Voltage		±22	V
V _{id}	Differential Input Voltage		(Note 1)	V
V _i	Input Voltage		(Note 1)	V
	Output Short Circuit Duration		Indefinite	s
T _{oper}	Operating Temperature Range	MC33172	-40 to 105	°C
		MC34172	0 to 70	°C
		MC35172	-55 to 125	°C
T _j	Junction Temperature		150	°C
T _{stg}	Storage Temperature		-65 to 150	°C

Note 1: Either or both input voltages must not exceed the magnitude of V_{CC}

OPERATING CONDITIONS

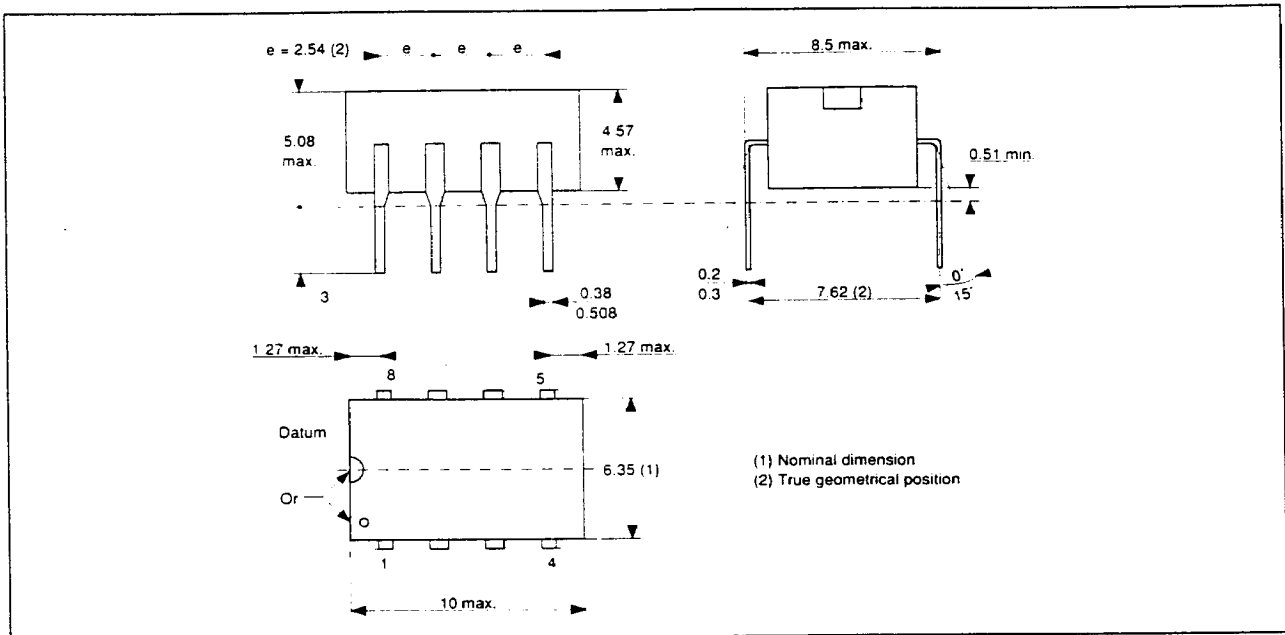
Symbol	Parameter		Value	Unit
V _{CC}	Supply Voltage Range		±2 to ±15	V

ELECTRICAL CHARACTERISTICS ($V_{CC} = \pm 15V$, R_L connected to Ground, $T_{amb} = 25^\circ C$ unless otherwise specified)

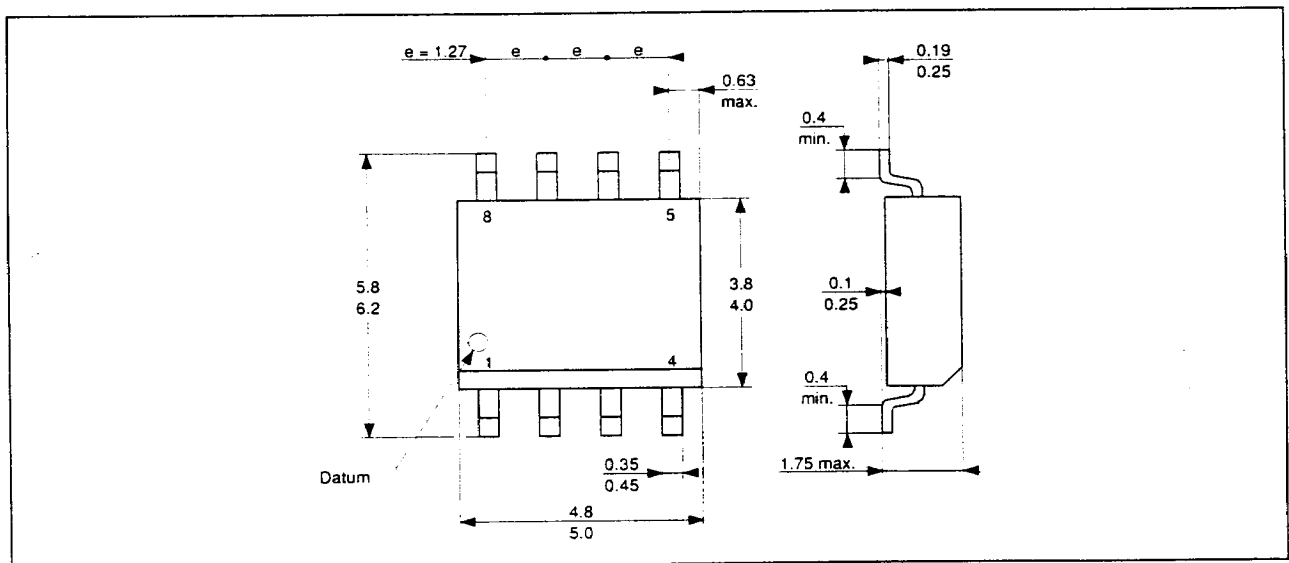
Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{io}	Input Offset Voltage $V_{CC} = \pm 15V$ $V_{cm} = 0V$ $V_{CC+} = 5V$ $V_{CC-} = 0V$ $V_{C-} = 0V$		1 1	4.5 5	mV
DV_{io}	Input Offset Voltage Drift		10		$\mu V/^\circ C$
I_{io}	Input Offset Current ($V_{cm} = 0V$)		4	20	nA
I_{ib}	Input Bias Current ($V_{cm} = 0V$)		15	100	nA
A_{vd}	Large Signal Voltage Gain ($R_L = 10 K\Omega$ $V_O = \pm 10V$)	50	100		V/mV
V_{OH}	High Level Output Voltage $V_{CC+} = 5V$ $V_{CC-} = 0V$ $R_L = 10 K\Omega$ $V_{CC} = \pm 15V$ $R_L = 10 K\Omega$	3.5 13.6	4.2 14.2		V
V_{OL}	Low Level Output Voltage $V_{CC+} = 5V$ $V_{CC-} = 0V$ $R_L = 10 K\Omega$ $V_{CC} = \pm 15V$ $R_L = 10 K\Omega$		0.1 -14	0.15 -13.6	V
I_{sc}	Output Short Circuit Current ($V_o = 1V$ $V_o = 0V$) Source Sink	3 15	9 27		mA
V_{icm}	Input Common Mode Voltage Range	0 to $V_{CC}-1.8$			V
CMR	Common Mode Rejection Ratio ($V_i = V_{icm min}$)	80	100		dB
SVR	Supply Voltage Rejection Ratio ($V_{CC} = \pm 5$ to $\pm 15V$)	80	100		dB
I_{cc}	Supply Current (Per Amplifier) $V_{CC+} = 5V$ $V_{CC-} = 0V$ no load $V_{CC} = \pm 15V$ no load		200 230	250 250	μA
S_{VO}	Slew Rate ($V_i = \pm 10V$ $R_L = 10 K\Omega$ $C_L = 100 pF$)	1.6	2		V/ μs
GBP	Gain Bandwidth Product ($R_L = 10 K\Omega$ $C_L = 100 pF$ $f = 100 KHz$)	1.4	2.1		MHz
ϕ_m	Phase Margin ($R_L = 10 K\Omega$ $C_L = 100 pF$)		45		degrees
V_n	Equivalent Input Noise Voltage ($f = 1 KHz$)		29		$nV/\sqrt{Hz}$
THD	Total Harmonic Distortion		0.05		%
	Channel Separation		120		dB

PACKAGE MECHANICAL DATA

8 PINS - PLASTIC DIP



8 PINS - PLASTIC MICROPACKAGE (SO)



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