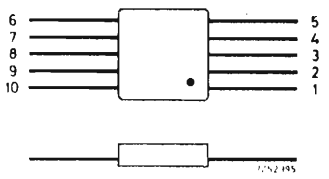
OPERATIONAL AMPLIFIER

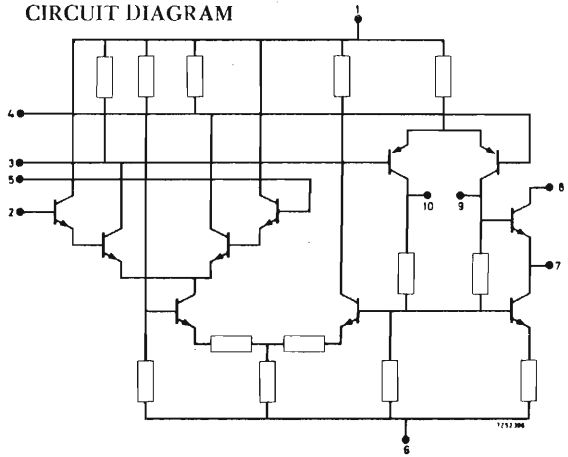
The TAA182 is a silicon monolithic integrated differential amplifier designed to be used as an operational amplifier in analog instrumentation and control systems. It has both single-ended and differential outputs, greatly increasing its application flexibility. The use of both n-p-n and true (vertical) p-n-p transistors contributes to improved performance. With proper use of feedback this amplifier makes an excellent transducer amplifier, preamplifier, voltage comparator, bandpass or buffer amplifier.



Operating ambient temperature range: −55 to +125 °C
(With heatsink of at least 6 cm^2)

QUICK REFERENCE DATA			
Ambient temperature		25	°C
Positive supply voltage		10	V
Negative supply voltage		10	V
Voltage gain	typ.	1100	
Common mode rejection	typ.	80	dB
Input offset voltage	typ.	10	mV
Input offset voltage drift	typ.	5	μV/°C
Frequency response (−3 dB)	typ.	500	kHz
Input impedance	typ.	300	kΩ
Output impedance	typ.	40	Ω
Output voltage range (peak-peak)	typ.	10	V
Package	C1 (TO-91 flat-pack)		

CIRCUIT DIAGRAM



1. Positive supply
2. Inverting input
3. Node
4. Node
5. Non-inverting input
6. Negative supply
7. Single-ended output
8. Positive supply
9. Differential output
10. Differential output

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CHARACTERISTICS

No load, open loop, no frequency compensation unless otherwise specified.
$V_1 = V_8 = 10$ V; $-V_6 = 10$ V.

		Tamb (°C)			
		−55	+25	+125	
Voltage gain $\left\lvert\frac{\Delta V_7}{\Delta(V_5 - V_2)}\right\rvert$, 0 to 1000 Hz	min.		800		
	typ.		1100		
	max.		3000		
Input offset voltage	typ.	10.4	10.0	9.5	mV
	max.		20.0		mV
Input offset voltage change with temperature	typ.	5	5	5	μV/°C
	max.		10		μV/°C
Input bias current	typ.		120		nA
	max.		800		nA
Input offset current	typ.		60		nA
	max.		250		nA
Input offset current change with temperature	typ.		1.0		nA/°C
Common mode rejection ratio, referred to output 7, at 1000 Hz and load 560 Ω	min.		75		dB
	typ.		80		dB
	max.		86		dB
10 kHz and load 560 Ω	typ.		60		dB
100 kHz and load 560 Ω	typ.		40		dB
1 MHz and load 560 Ω	typ.		20		dB
Frequency response (−3 dB)	min.		0 to 250		kHz
	typ.		0 to 500		kHz
	max.		0 to 600		kHz
Unity gain frequency	min.		20		MHz
	typ.		30		MHz
Quiescent input voltage (V_2; V_5)	typ.	0	0	0	mV
Quiescent output voltage (V_7)	typ.	0	0	0	V
Input common mode voltage range	min.		−4.9 to +4.9		V
Max. output voltage (peak-peak) at pin 7 load 560 Ω	min.		7		V
	typ.		10		V
load 2000 Ω	typ.		11		V
Differential input impedance	min.		100		kΩ
	typ.		300		kΩ
Output impedance at pin 7	typ.		40		Ω
	max.		90		Ω
Power dissipation	typ.		420		mW

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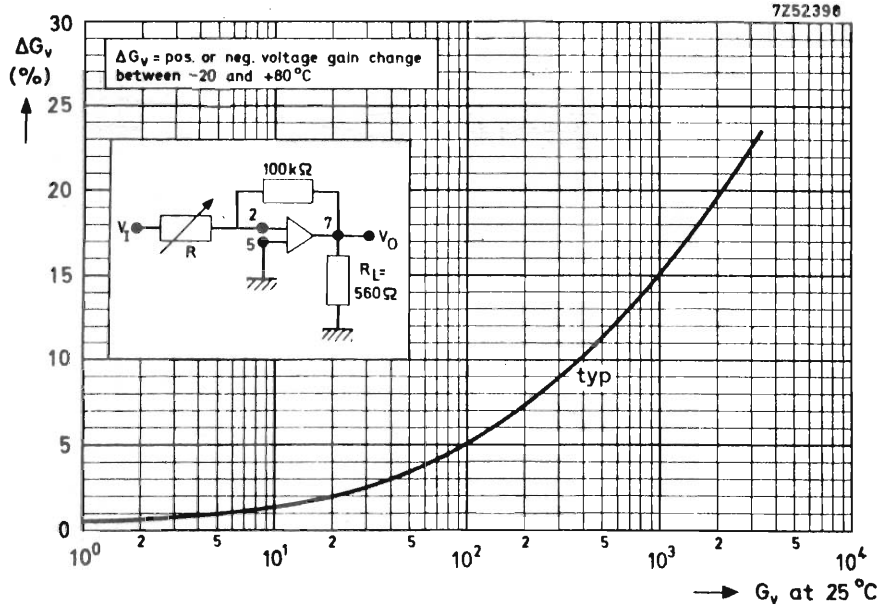
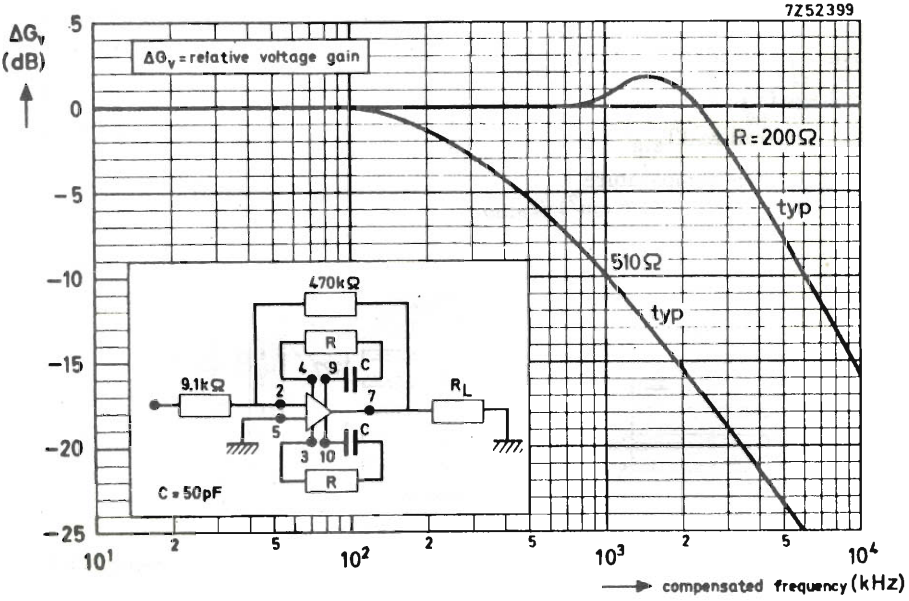
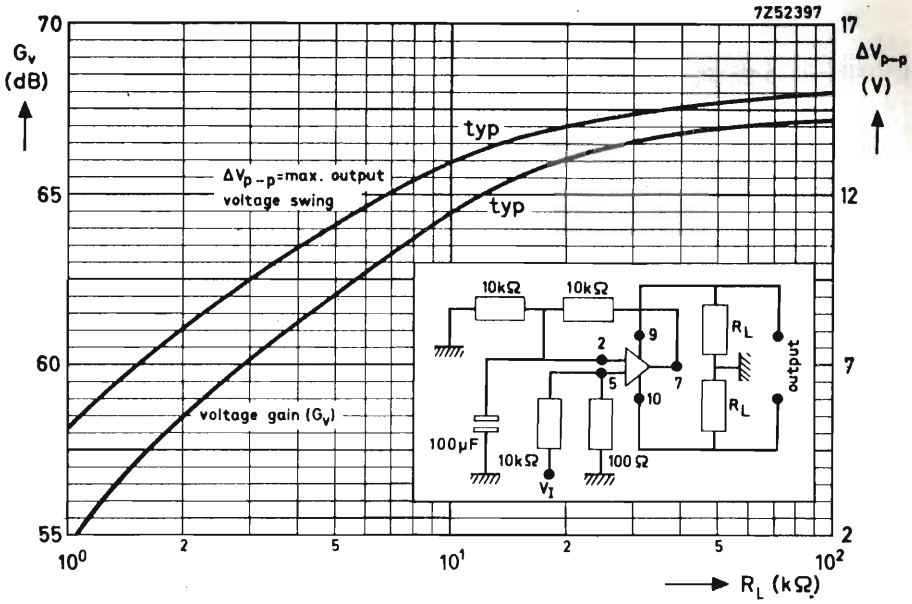

7Z52398
ΔGv (%)
ΔGv = pos. or neg. voltage gain change between −20 and +80 °C
100kΩ
VI
R
2
5
7
VO
RL= 560Ω
typ
Gv at 25 °C

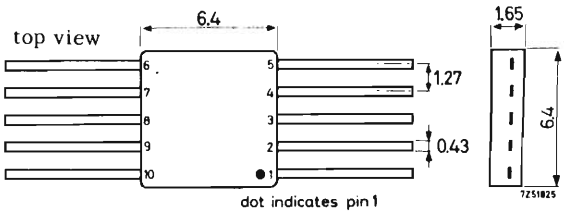

7Z52399
ΔGv (dB)
ΔGv = relative voltage gain
R = 200Ω
typ
510Ω
typ
470kΩ
R
4
9
C
9.1kΩ
2
7
RL
5
3
10
C
R
C = 50pF
compensated frequency (kHz)



RATINGS (Limiting values) [1])

Positive supply voltage (V_1 = V_8)	max.	12.0	V
Negative supply voltage ($-V_6$)	max.	12.0	V
Input voltage (V_2, V_5)		−6.25 to +6.25	V
Storage temperature (T_{stg})		−65 to +175	°C
Operating ambient temperature (with heatsink of at least 6 cm²) (T_{amb})		−55 to +125	°C

PACKAGE OUTLINE Dimensions in mm



[1]) Limiting values according to the Absolute Maximum System as defined in IEC publication 134. 7Z3 1630