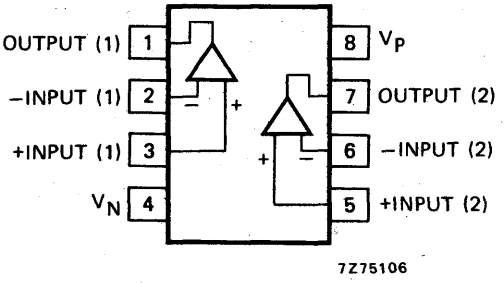
DUAL OPERATIONAL AMPLIFIER

The TDA1458D consists of two independent, internally frequency compensated operational amplifiers. The circuit is the equivalent of two standard μA741 circuits. It is mounted in a miniature plastic package suitable for hybrid modules and for applications where small dimensions are important.

Features

- No frequency compensation required
- Short-circuit protection
- Large input and output voltage range
- Miniature plastic encapsulation

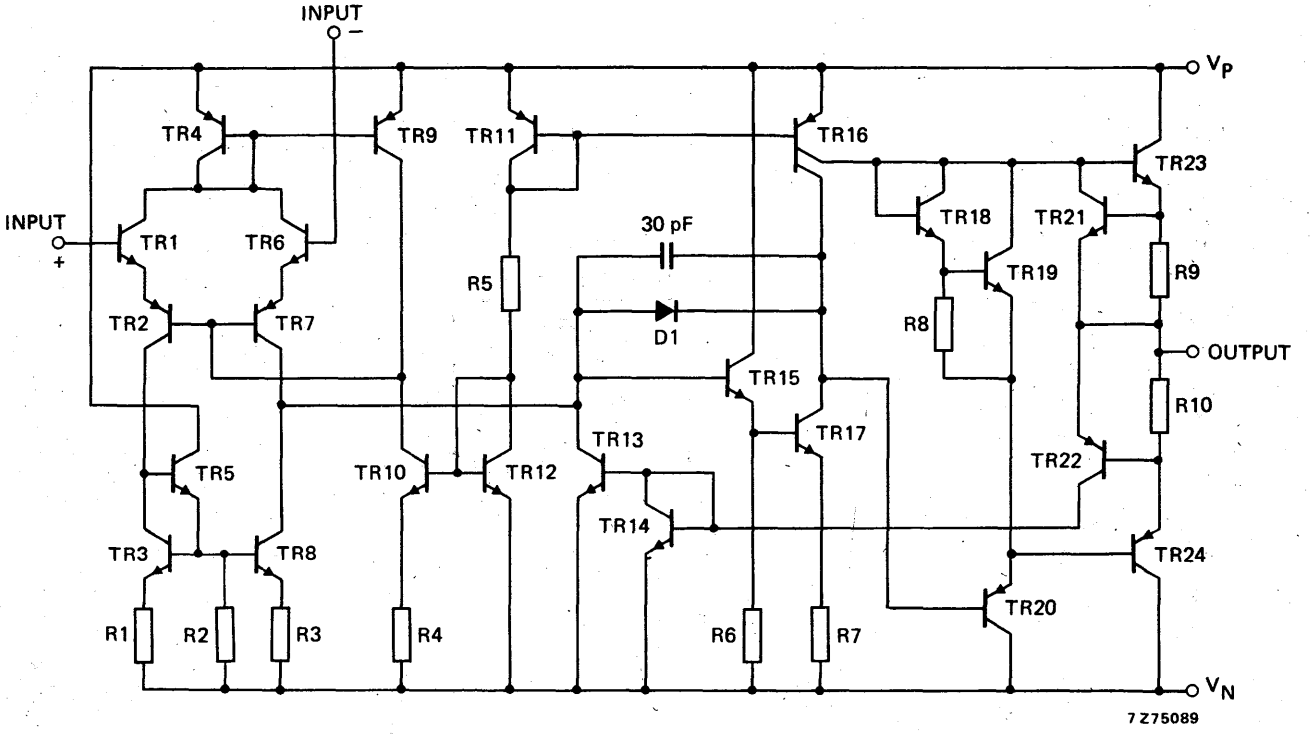
CONNECTION DIAGRAM



PACKAGE OUTLINE (see general section)

SO-8 (SOT-96A); plastic 8-lead flat pack.

CIRCUIT DIAGRAM (one amplifier)



RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

Supply voltage	$V_P - V_N$	max.	36	V
Differential input voltage	$V_{I+} - V_{I-}$	max.	±30	V
Common mode input voltage	V_{I+}; V_{I-}	V_N to V_P		
Temperatures				
Operating ambient temperature	T_{amb}	−25 to	+85	°C
Storage temperature	T_{stg}	−65 to	+125	°C
Junction temperature	T_j	max.	125	°C
Power dissipation in free air; T_{amb} = 50 °C				
Mounted on a ceramic substrate of 4 cm^2	P_{tot}	max.	480	mW
derating factor for T_{amb} > 50 °C	$1/R_{th}$	=	6,4	mW/°C
Mounted on PC board of 4 cm^2	P_{tot}	max.	325	mW
derating factor for T_{amb} > 50 °C	$1/R_{th}$	=	4,3	mW/°C

CHARACTERISTICS at V_P = 15 V; $-V_N$ = 15 V; T_{amb} = 25 °C unless otherwise specified

Parameter	Conditions	Symbol	min.	typ.	max.	Unit
Input offset voltage		V_{io}	–	2	6	mV
Input offset current		I_{io}	–	20	200	nA
Input bias current		I_i	–	80	500	nA
Input voltage range		V_i	±12	±13	–	V
Common mode rejection ratio		CMRR	70	90	–	dB
Differential input resistance		R_i	0,3	1	–	MΩ
Power supply rejection ratio		PSRR	–	30	150	μV/V
Large signal voltage gain	R_L = 2 kΩ; V_o = ± 10 V	G_v	20	100	–	V/mV
Output voltage swing	R_L = 10 kΩ R_L = 2 kΩ	V_o V_o	±12 ±10	±14 ±13	– –	V V
Output resistance	f = 20 Hz	R_o	–	300	–	Ω
Output short-circuit current		I_{sc}	–	20	–	mA
Supply current	I_o = 0	I_P; I_N	–	2,3	5,6	mA
Power bandwidth	gain = 1; R_L = 2 kΩ; THD < 5%; $V_{o(p-p)}$ = 20 V	B	–	14	–	kHz [1]
Unity gain cross-over frequency	open loop		–	1,1	–	MHz
Phase margin			–	65	–	degree
Gain margin			–	11	–	dB
Slew rate	R_L = 2 kΩ	S	–	0,8	–	V/μs
Channel separation			–	120	–	dB

CHARACTERISTICS at V_P = 15 V; $-V_N$ = 15 V; T_{amb} = 0 to +70 °C

Parameter	Conditions	Symbol	min.	typ.	max.	Unit
Large signal voltage gain	R_L = 2 kΩ; V_o = ±10 V	G_v	15	–	–	V/mV
Input offset voltage		V_{io}	–	–	7,5	mV
Input offset current		I_{io}	–	–	300	nA
Input bias current		I_i	–	–	800	nA
Output voltage swing	R_L = 2 kΩ	V_o	±10	±13	–	V

[1]) THD = total harmonic distortion.