SIEMENS

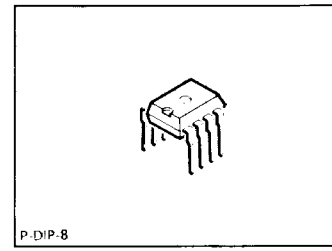
Dual Operational Amplifier

TBB 1458

Features

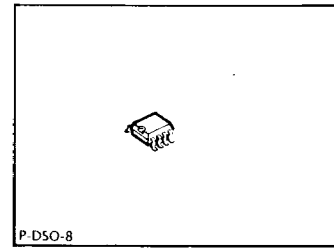
Bipolar IC

- NPN input
- High differential input voltage
- Short-circuit proof
- Push-pull output
- Fully compatible with industrial standard type 1458



Applications

- Amplifier
- Comparator



The op amp TBB 1458 is outstanding for its large common-mode and differential input voltage range, as well as its short-circuit strength. No external components are required for frequency compensation.

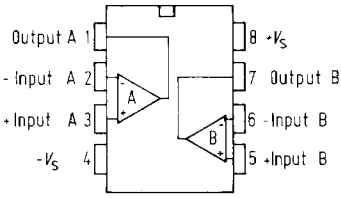
For single amplifier performance refer to the TBA 221 op amp.

Type	Ordering Code	Package	Color Code
■ TBB 1458 B	Q67000-A1036	P-DIP-8	–
■ TBB 1458 G	Q67000-A1458	P-DSO-8 (SMD)	orange/orange

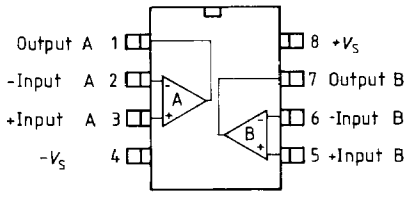
■ = Not for new Design

Pin Configurations (top view)

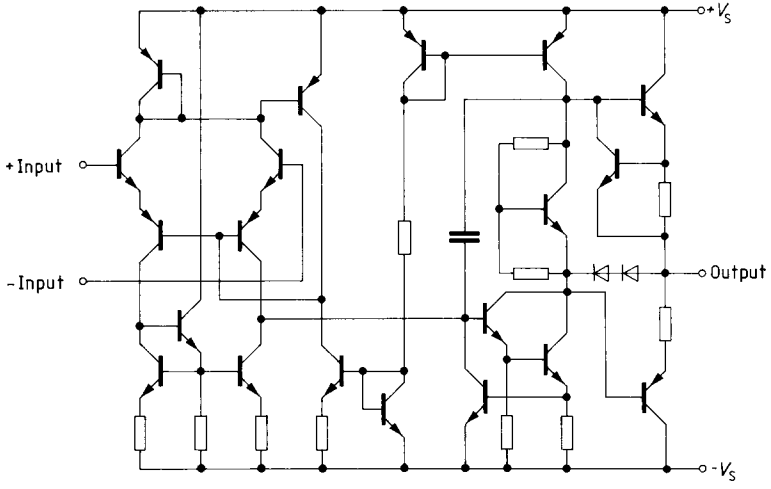
TBB 1458 B



TBB 1458 G



Circuit Diagram of one Op Amp



Absolute Maximum Ratings

Parameter	Symbol	Limit Values	Unit
Supply voltage	V_S	± 18	V
Input voltage[1] Differential input voltage[2]	V_I V_{ID}	± 15 ± 30	V V
Output short-circuit duration[3]	t_{QSC}	∞	
Junction temperature Storage temperature range	T_j T_{stg}	150 −55 to 125	°C °C
Thermal resistance TBB 1458 B TBB 1458 G	$R_{th\ SA}$ $R_{th\ SA}$	100 170	K/W K/W
Operating Range			
Supply voltage	V_S	± 4 to ± 18	V
Ambient temperature	T_A	0 to 70	°C

1) For supply voltages less than ± 15 V, the maximum input voltage is equal to the supply voltage.
2) For supply voltages less than ± 15 V, the maximum differential input voltage is equal to ± (V_S + I V_{S-} I).
3) Short circuit may be ground or to be supply voltage ± V_S, whereby the maximum ratings must not be exceeded.

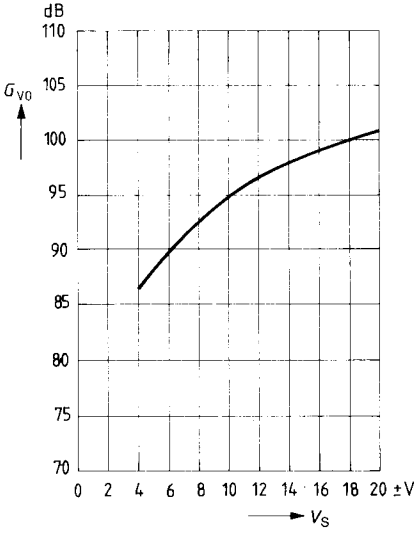
Characteristics

$V_S = \pm 15$ V

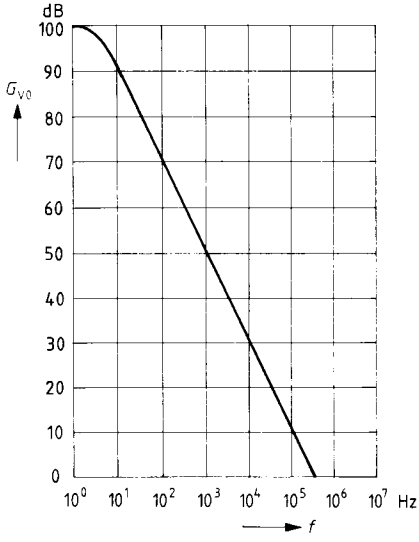
Parameter	Symbol	Limit Values $T_A = 25$ °C min.	typ.	max.	Limit Values $T_A = 0$ °C to 70 °C min.	max.	Unit
Input offset voltage $R_G \leq 10$ kΩ	V_{IO}	−6		6	−7.5	7.5	mV
Input offset current	I_{IO}	−200	±20	200	−300	300	nA
Input current	I_I		80	500		800	nA
Open-loop supply current consumption, total	I_S		2	3		3	mA
Output short-circuit current	I_{QSC}		±18				mA
Input resistance	R_I	0.3	1				MΩ
Input capacitance	C_I		6				pF
Output resistance	R_Q		75				Ω
Control range $R_L \geq 10$ kΩ	$V_{Q\,pp}$	13	±14	−13			V
$R_L \geq 2$ kΩ	$V_{Q\,pp}$	11	±13	−11			V
Common-mode input voltage range	V_{IC}	$-V_S+3$		V_S-3			V
Voltage gain $V_{Q\,pp} = \pm 10$ V, $R_L = 2$ kΩ	G_V	86	100		84		dB
Common-mode rejection $R_G \leq 10$ kΩ	k_{CMR}	70	90				dB
Supply voltage rejection	k_{SCR}		30	150		150	µV/V
Temperature coefficient of V_{IO}	α_{VIO}		3				µV/K
Temperature coefficient of I_{IO}	α_{IIO}		0.4				nA/K
Slew rate[1] $G_V = 1$, $R_L \geq 2$ kΩ	SR		0.5				V/µs

[1]) For the relationship between power bandwidth and slew rate refer to **"Introduction to Operational Amplifiers"**

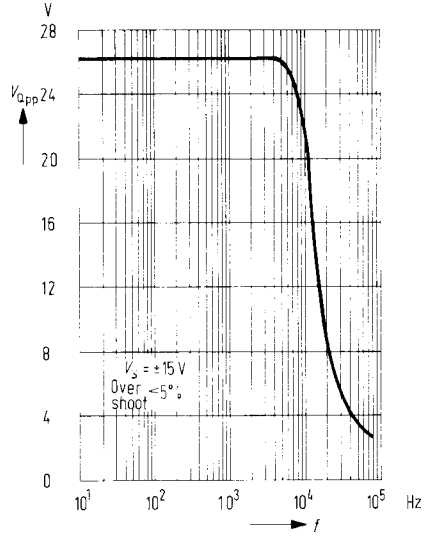
Open-loop voltage gain versus supply voltage



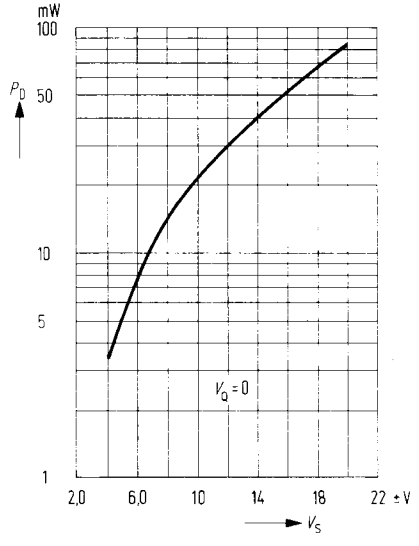
Open-loop voltage gain versus frequency



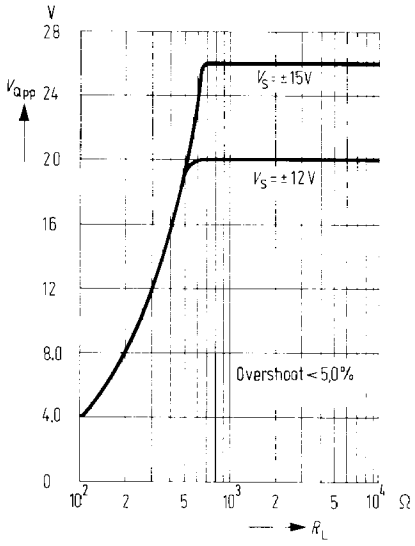
Power bandwidth
Output voltage versus frequency

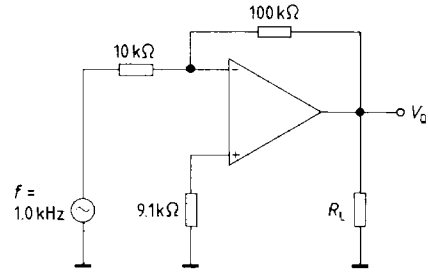


Power dissipation versus supply voltage

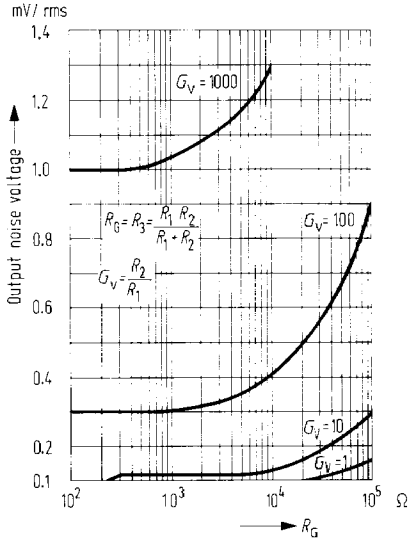


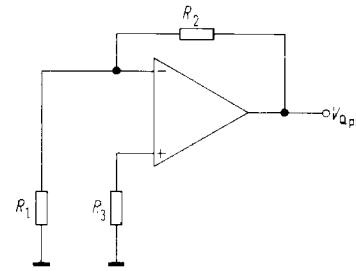
Output voltage versus load resistance





Output noise voltage versus generator resistance





For additional characteristic curves refer to TBA 221.