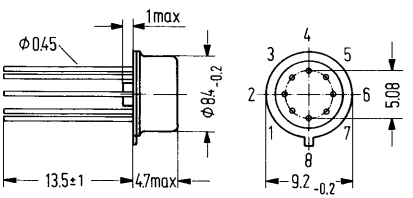
TBB 1458 and TBC 1458 are monolithic integrated dual operational amplifiers in packages similar to 5 G 8 DIN 41873. They are outstanding by reason of their large common-mode and differential voltage range and short-circuit protection. No external components for frequency compensation are required. TBB 1458 B (8 pins) in plastic plug-in package. For single amplifier performance, see the TBA 221 data sheet.

Type	Ordering codes
TBB 1458	Q67000-A1035
TBB 1458 B	Q67000-A1036
TBC 1458	Q67000-A1037

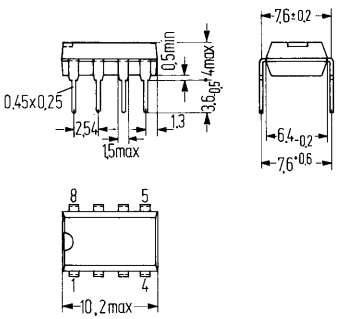
Package outlines

TBB 1458, TBC 1458



Case similar to 5 G 8 DIN 41873 (TO-99)
Weight approx. 1.2 g

TBB 1458 B



Plastic plug-in package, 8 pins
20 A 8 DIN 41866
Weight approx. 0.7 g

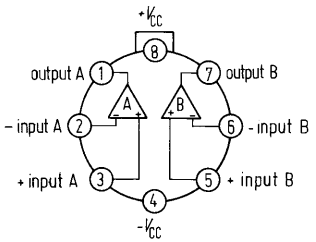
Dimensions in mm

Maximum ratings		TBB 1458 TBB 1458 B	TBC 1458	
Supply voltage	V_{CC}	±18	±22	V
Input voltage[1])	V_i	±15	±15	V
Differential input voltage[2])	V_{iD}	±30	±30	V
Short circuit duration[3])	t_{SC}	∞	∞	
Storage temperature	T_S	−65 to +150	−65 to +150	°C
Junction temperature	Tj	150	150	°C
Thermal resistance:				
System-case (TBB 1458/TBC 1458)	$R_{thScase}$	80	80	K/W
System-ambient air (TBB 1458, TBC 1458)	R_{thSamb}	190	190	K/W
System-ambient air (TBB 1458 B)	R_{thSamb}	140		K/W
Range of operation				
Supply voltage	V_{CC}	±4 to ±18	±4 to ±22	V
Ambient temperature in operation	T_{amb}	0 to +70	−55 to +125	°C

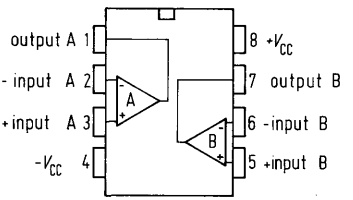
[1]) For supply voltage less than ± 15 V the maximum input voltage is equal to the supply voltage
[2]) For supply less than ± 15 V the maximum differential input voltage is equal to ± (V_{CC} + |V_{CC-}|)
[3]) Short circuit may be ground or ± V_{CC}.

Pin connection

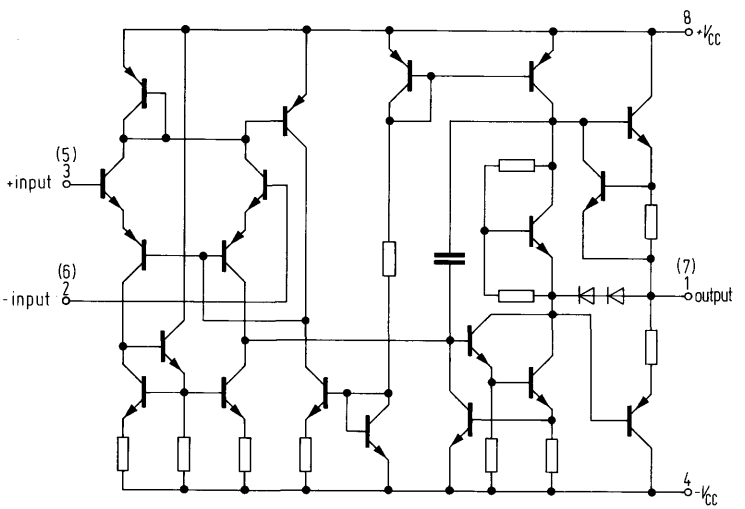
TBB 1458
TBC 1458



TBB 1458 B



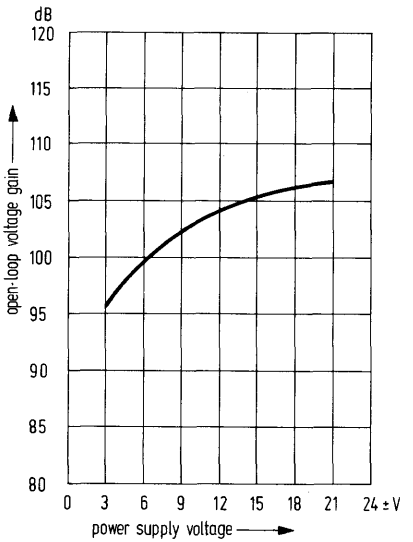
Equivalent circuit (each side)



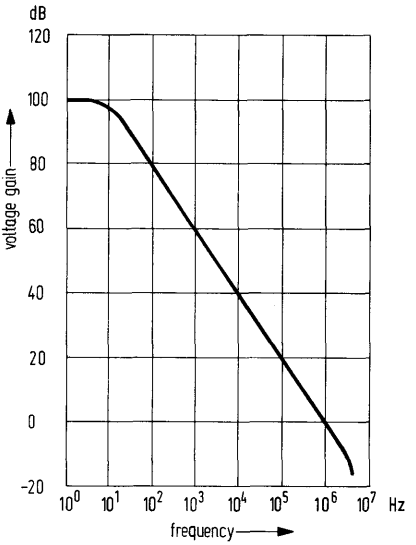
Operating characteristics
(V_{CC} = ±15 V, T_{amb} = 25°C when not otherwise stated)

		TBB 1458 Tbb 1458 B			TBC 1458			
		min	typ	max	min	typ	max	
Input offset voltage ($R_G \leq 10$ kΩ)	V_{io}	−6		6	−4		4	mV
(T_{amb} = 0 to 70°C)	V_{io}	−7.5		7.5				mV
(T_{amb} = −55 to +125°C)	V_{io}				−6		6	mV
Input offset current	I_{io}	−200	±20	200	−100	±20	100	nA
(T_{amb} = 0 to 70°C)	I_{io}	−300		300				nA
(T_{amb} = −55 to +125°C)	I_{io}				−500		500	nA
Input current	I_i		80	500		80	350	nA
(T_{amb} = 0 to 70°C)	I_i			800				nA
(T_{amb} = −55 to +125°C)	I_i					.3	1.5	μA
Current supply	I_{CC}		3.4	5.6		3.4	5.6	mA
Output short circuit current	I_{qsc}		±18			±18		mA
Input resistance	R_i	300	1000		300	1000		kΩ
Input capacitance	C_i		6			6		pf
Output resistance	R_q		75			75		Ω
Output voltage ($R_L \geq 10$ kΩ)	V_{qpp}	12	±14	−12	13	±14	−12.5	V
($R_L \geq 2$ kΩ)	V_{qpp}	10	±13	−10	11	±13	−11	V
Input voltage range	V_i	12	±13	−12	12	±13	−12	V
Voltage gain								
(V_{qpp} = ±10 V, $R_L \geq 2$ kΩ)	G_V	86	100		94	106		dB
(T_{amb} = 0 to 70°C)	G_V	84						dB
(T_{amb} = −55 to +125°C)	G_V				88			dB
Common-mode rejection ratio ($R_G \leq 10$ kΩ)	$CMRR$	70	90		80	90		dB
Sensitivity to supply voltage variations	$\frac{\Delta V_{io}}{\Delta V_{CC}}$		30	150		30	150	μV/V
Leading edge slope ($R_L \geq 2$ kΩ)	$\frac{dV_{qpp}}{dt}$		.5			.5		V/μs
Temperature coefficient of V_{io}	α_{Vio}					3		μV/K
Temperature coefficient of I_{io}	α_{Iio}					.4		nA/K

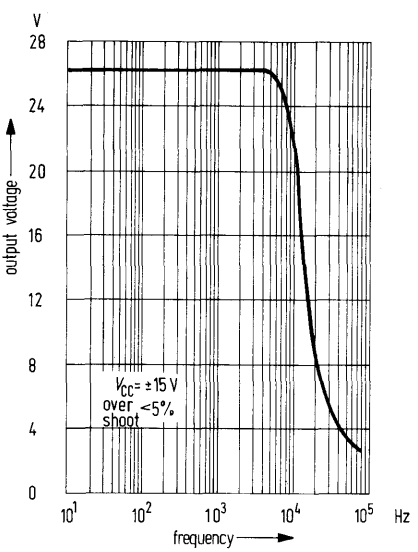
Open-loop voltage gain versus power-supply voltage



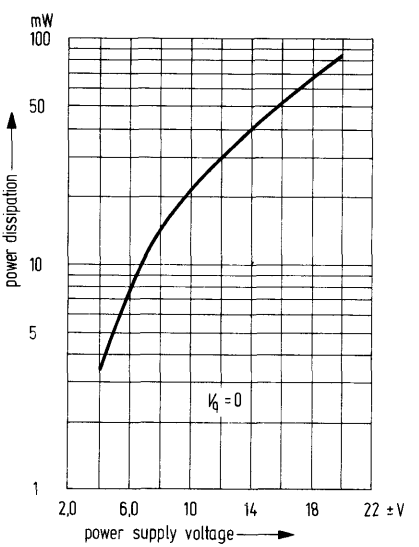
Open-loop frequency response



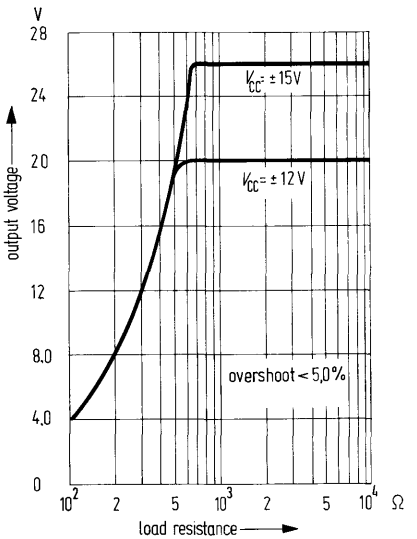
Power bandwidth (large signal swing versus frequency)

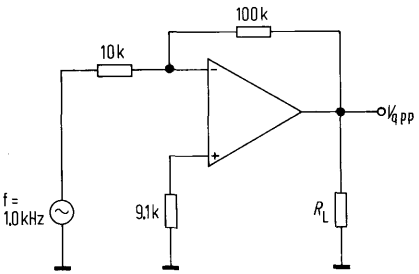


Power dissipation versus power supply voltage

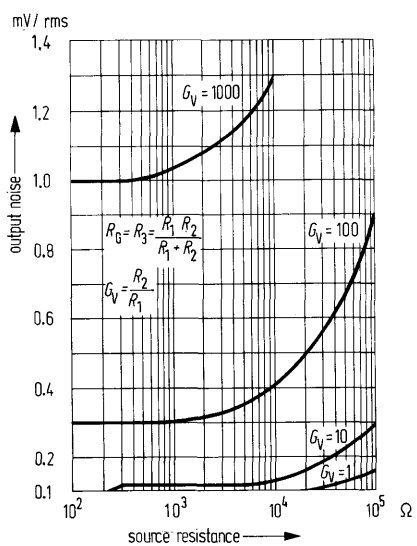


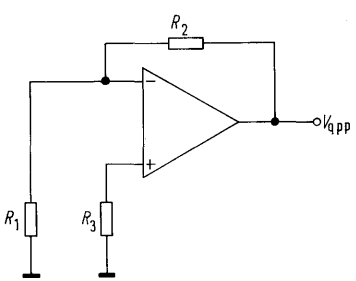
Output voltage swing versus load resistance





Output noise versus source resistance





For further performance curves, see TBA 221 data sheet