Broadband Amplifier

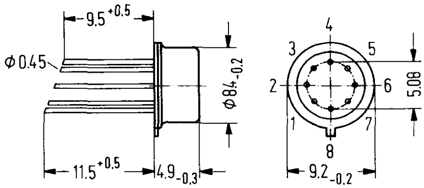
TAA 721
TAA 722

The integrated circuits TAA 721 and TAA 722 are differential amplifiers with wide bandwith.

- Differential inputs and outputs
- Wide bandwidth of 0 to 40 MHz
- High common-mode rejection of 85 dB
- Excellent stability
- Intensive to asymmetrical supply voltages

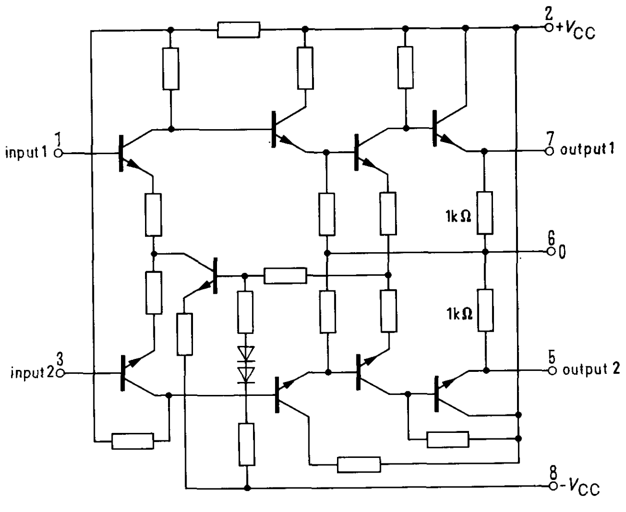
Type	Ordering codes
TAA 721	Q67000-A82
TAA 722	Q67000-A83

Package outlines



Package 5 G 8 DIN 41873
(similar T078)
Weight approx. 1.1 g
Dimensions in mm

Circuit diagram



(pin 4 connected to case)

Not for new development

Maximum ratings

		TAA 721	TAA 722	
Suppl voltage	V_{CC}	±8	±8	V
Differential input voltage	V_{iD}	5	5	V
Output current (between Pins 6/5, Pins 6/7)	I_q	10	10	mA
Ambient operating temperature	T_{amb}	0 to 70	−55 to +125	°C
Storage temperature	T_S	−55 to +150	−65 to +150	°C
Junction temperature	T_j	150	150	°C
Thermal resistance: System-ambient air	R_{thSamb}	190	190	K/W

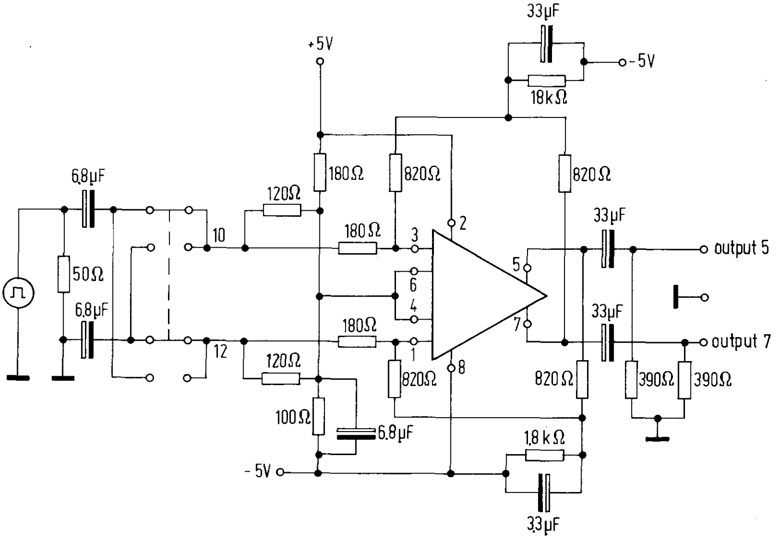
Operating characteristics
V_{CC} = ±6 V, T_{amb} = 25 °C

		TAA 721			TAA 722			
		min	typ	max	min	typ	max	
Current consumption	$+I_{CC}$		14.5			14.5	25	mA
	$-I_{CC}$		9			9	16	mA
Input current	I_i		50	100		40	80	µA
Input offset current	I_{io}		3	30		3	30	µA
Input impedance (f = 100 kHz)	Z_i		6			6		kΩ
Output voltage (R_L = 5 kΩ, f = 100 kHz)	V_{qpp}		3.7			3.7		V
Output offset voltage[1]	V_{qo}		.5	2.0		.5	1.2	V
Output impedance (f = 100 kHz)	Z_q		35			35		Ω
Voltage gain[2] (V_i = 1 mV, R_L = 5 kΩ, f = 100 kHz)	G_V	38.5	40.4	41.8	38.5	40.4	41.8	dB
Common mode rejection ratio (f = 100 kHz, R_L = 5 kΩ)	*CMRR*		85			85		dB
Common mode voltage gain (V_{iCM} = 0.3 V, R_L = 5 kΩ, f = 100 kHz)	G_{VCM}		−45	−30		−45	−30	dB
Bandwidth (−3 dB)	B		40			40		MHz
Distortion factor (V_i = 1 V, R_L = 5 kΩ, f = 10 kHz)	k		1.5			1.5		%
Impulse measurements made with following measuring circuit (V_{CC} = ±5 V, T_{amb} = 25°C, with V_i = 10 mV)								
Rise time of the output pulse	t_r		10	15		9	12	ns
Fall time of the output pulse (V_i = 5 mV)	t_f		10	15		9	12	ns
Amplification between the channels with V_i = 250 mV	G_V				60	68		dB
Storage time	t_s					25	40	ns
Modulation voltage	V_{qpp}				1.2	1.4		V

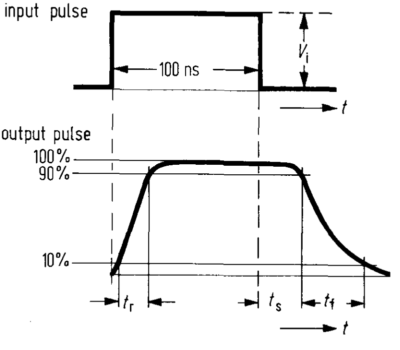
[1]) measured between both outputs.
[2]) output voltage to ground. Between both outputs, the gain measured is twice as high, the outputs being of opposite phase.

Not for new development

Circuit for measuring wave forms



Wave shapes



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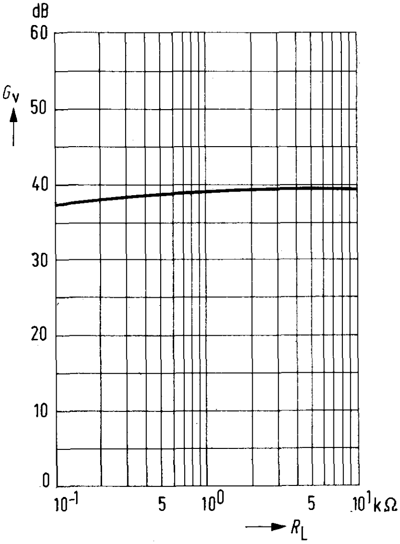
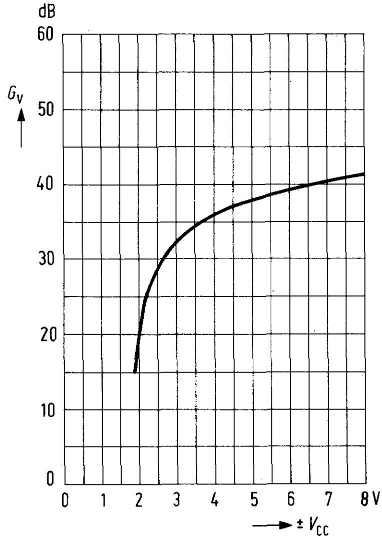
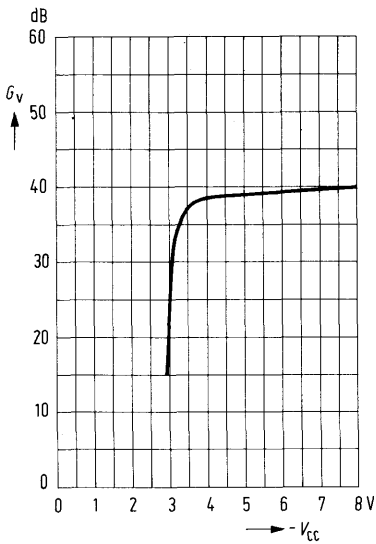
Voltage gain $G_V = f(R_L)$
f = 100 kHz, T_{amb} = 25 °C, R_G = 50 Ω
R_L = 5 kΩ, V_{CC} = ±6 V



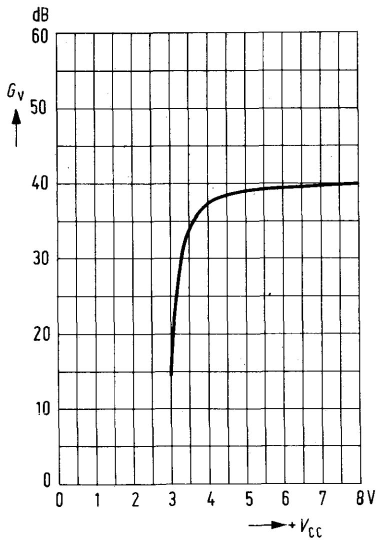
Voltage gain $G_V = f(\pm V_{CC})$
f = 100 kHz, T_{amb} = 25 °C, R_G = 50 Ω
R_L = 5 kΩ



Voltage gain $G_V = f(-V_{CC})$
f = 100 kHz, T_{amb} = 25 °C, R_G = 50 Ω
R_L = 5 kΩ, $+V_{CC}$ = 6 V

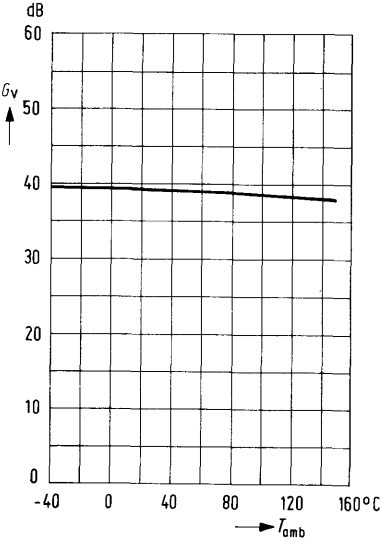


Voltage gain $G_V = f(+V_{CC})$
f = 100 kHz, T_{amb} = 25 °C, R_G = 50 Ω
R_L = 5 kΩ, $-V_{CC}$ = 6 V

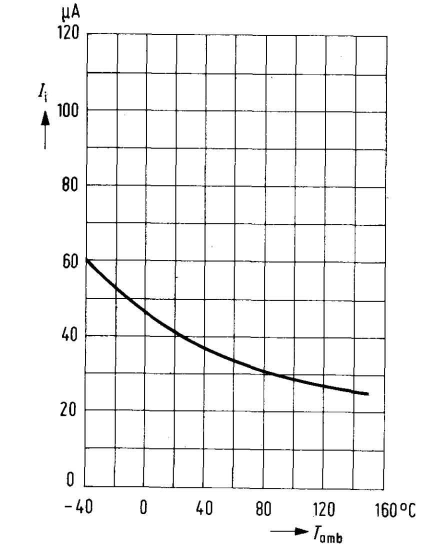


Not for new development

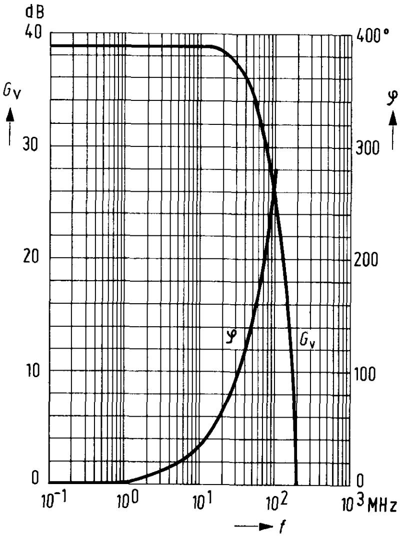
Voltage gain $G_V = f(T_{amb})$
f = 100 kHz, T_{amb} = 25 °C, R_G = 50 Ω
R_L = 5 kΩ, V_{CC} = ± 6 V



Input current $I_I = f(T_{amb})$
V_{CC} = ± 6 V



Voltage gain $G_V = f(f)$
Phase deviation $\varphi = f(f)$
V_{CC} = ± 6 V, T_{amb} = 25°C, R_G = 50 Ω
R_L = 5 kΩ



Common mode rejection $CMRR = f(f)$
V_{CC} = ± 6 V, T_{amb} = 25°C, R_G = 50 Ω
R_L = 5 kΩ