Not for new development

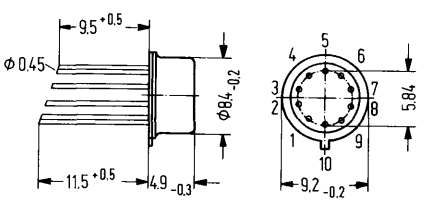
Gain-controlled 3-stage monolithic integrated broadband amplifier with symmetrical input and output, especially suited for application as video IF amplifier in TV sets.

- 75 dB gain, 60 dB control range
- Very good linearity of gain over the entire control range
- Distortion-free processing of input signals up to 240 mV_{eff}
- Noise figure at 30 dB down-control typically 8 dB

Type	Ordering codes
TBA 400	Q67000-A228
TBA 400D	Q67000-A623

Package outlines

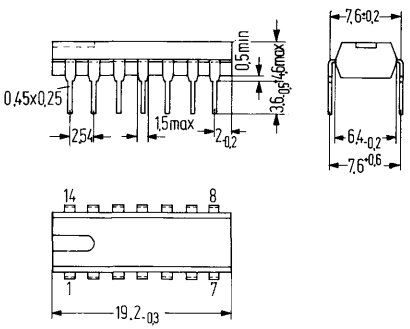
TBA 400



Package 5 J 10 DIN 41873
(similar to TO 100)
Weight approx. 1.1 g

Dimensions in mm

TBA 400D



Plastic plug-in package
20 A 14 DIN 41866
14 pins, dual-in-line
Weight approx. 1.1 g

Absolute maximum ratings

Supply voltage	V_{cc}	14	V
Control current	I_6	1	mA
Junction temperature	T_j	150	°C
Storage temperature	T_s	–40 to +125	°C
Thermal resistance (system-air)	R_{thsa}	100	K/W

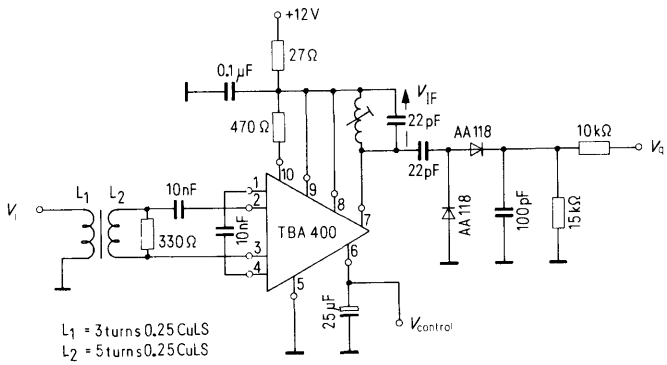
Range of operation

Supply voltage	V_{cc}	7 to 14	V
Ambient temperature in operation	T_{amb}	–15 to +80	°C
Frequency	f	0 to 200	MHz

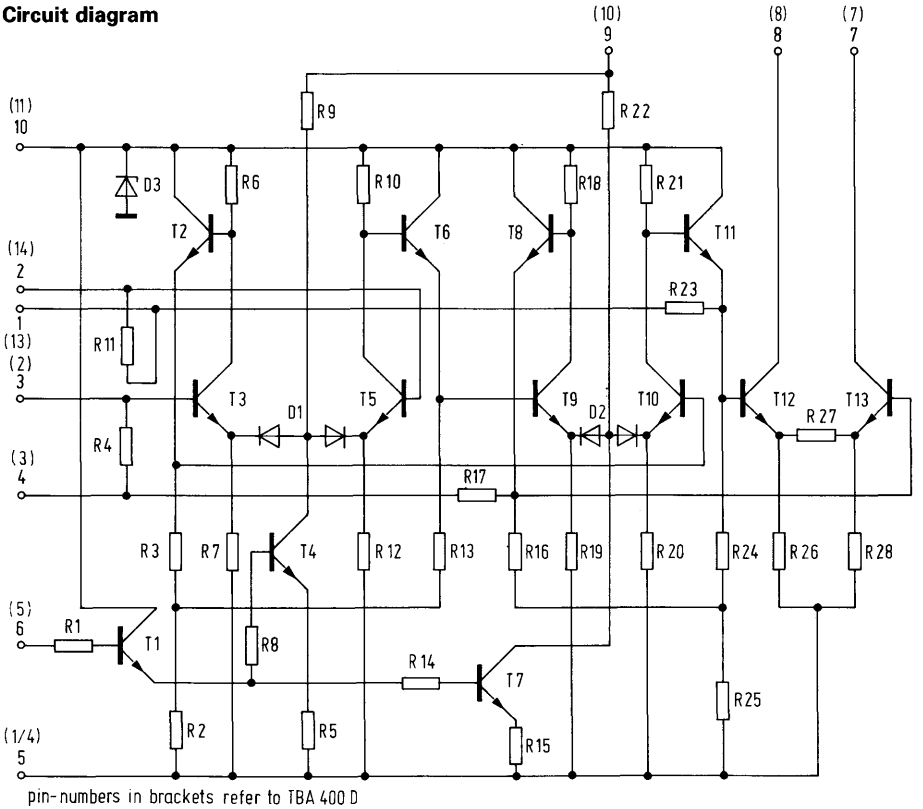
Electrical characteristics (V_{cc} = 12 V, T_{amb} = 25°C)

			min	typ	max	
Total current consumption		I_{cc}		25	32	mA
Output current		I_7, I_8	2.7	4.5	6.3	mA
Difference in output currents	$V_6 = 0$	I_7–I_8		.4	.9	mA
	$V_6 = 4$V	I_7–I_8		.5	1.6	mA
Control voltage	G_{Vmax}	V_6			1	V
	G_{Vmin}	V_6	4.0			V
Control current (G_{Vmin}, $V_6 = 4$V)		I_6			33	µA
Input impedance (f = 36 MHz)	G_{Vmax}	Z_i		.33/17		kΩ/pF
	G_{Vmin}	Z_i		1.5/0		kΩ/pF
Output voltage	$V_6 < 1$V	V_{qeff}	1.1	2.0		V
(f = 36 MHz, V_i = 120 mV,	$V_6 = 4$V	V_{qeff}		2.9		V
f_{mod} = 1 kHz, m = 80%, k = 5%)						
Input voltage		$V_{imax\ eff}$		240		mV
(f = 36 MHz, $V_6 \geq 4$V, f_{mod} = 1 kHz,						
m = 80%, k = 5%)						
Voltage gain		$\frac{V_{qeff}}{V_{ieff}}$		75		dB
(f = 36 MHz, Q_B = 9)						
Voltage gain		$\frac{V_{video\ pp}}{V_{ieff}}$		73		dB
Control range		$\frac{G_{Vmax}}{G_{Vmin}}$	55	60		dB
(f = 33 to 40 MHz)						

Test circuit

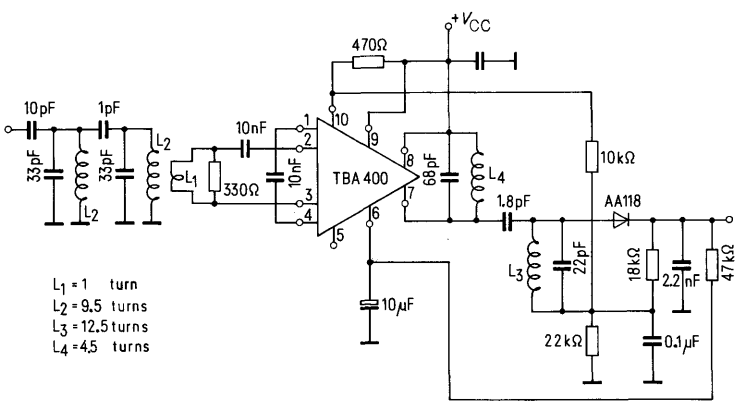


Circuit diagram

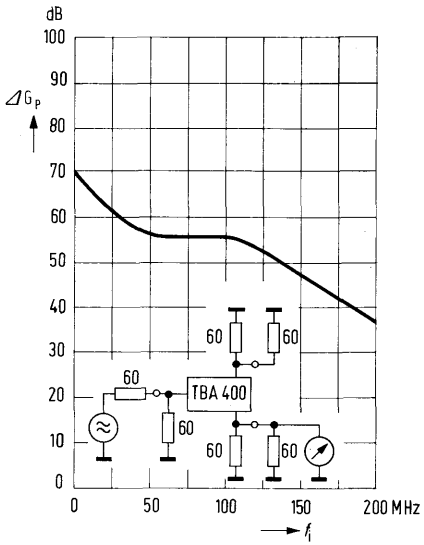


pin-numbers in brackets refer to TBA 400 D

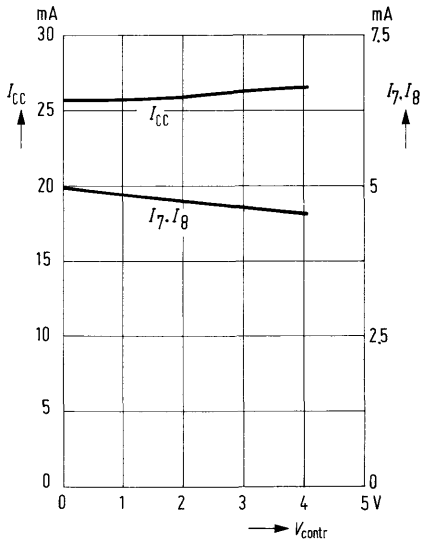
Application circuit for 39.2 MHz



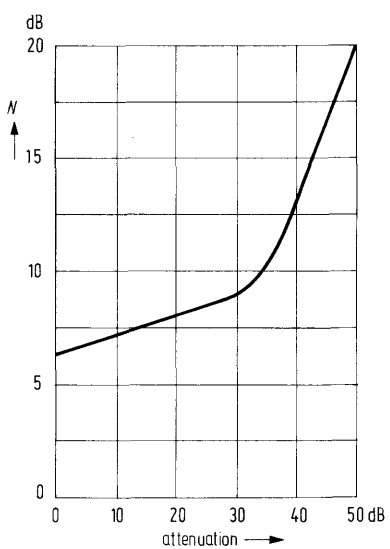
Power gain versus input frequency
$V_{cc} = 12\,V$, $V_q = 16\,mV$ const



Total current consumption and output currents v. control voltage
$V_{cc} = 12\,V$



Noise figure versus attenuation
$V_{cc} = 12\,V$, $f = 36\,MHz$



Voltage control versus attenuation
$V_{cc} = 12\,V$, $f = 36\,MHz$