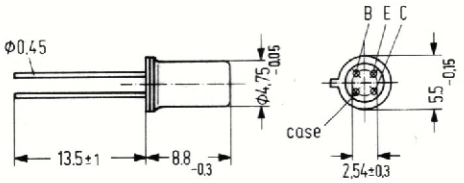
Not for new development

For IF power stages in television sets

The AF 202 and AF 202 S are epitaxial PNP germanium mesa RF transistors in the case 18 B 4 DIN 41876 (sim. to TO-72). The leads are electrically insulated from the case. The transistors are especially suitable for use in TV IF power stages.

Type	Order number
AF 202	Q60106-X202
AF 202 S	Q60106-X202-S



Weight approx. 0.5 mg Dimensions in mm

Maximum ratings		AF 202	AF 202 S	
Collector-base voltage	$-V_{CBO}$	25	32	V
Collector-emitter voltage	$-V_{CES}$	25	32	V
Emitter-base voltage	$-V_{EBO}$	0.3	0.3	V
Collector current	$-I_C$	30	30	mA
Junction temperature	T_j	90	90	°C
Storage temperature	T_s	− 30 to + 75	− 30 to + 75	°C
Total power dissipation (T_{case} = 45 °C)	P_{tot}	225	225	mW

Thermal resistance

Junction to ambient air	R_{thJamb}	≦ 450	≦ 450	K/W
Junction to case	$R_{thJcase}$	≦ 200	≦ 200	K/W

Static characteristics (T_{amb} = 25 °C) **AF 202, AF 202 S**

$-V_{CE}$ V	$-I_C$ mA	$-I_B$ µA	h_{FE} I_C/I_B	$-V_{BE}$ mV
10	3	35 (< 150)	85 (> 20)	360 (280 to 400)

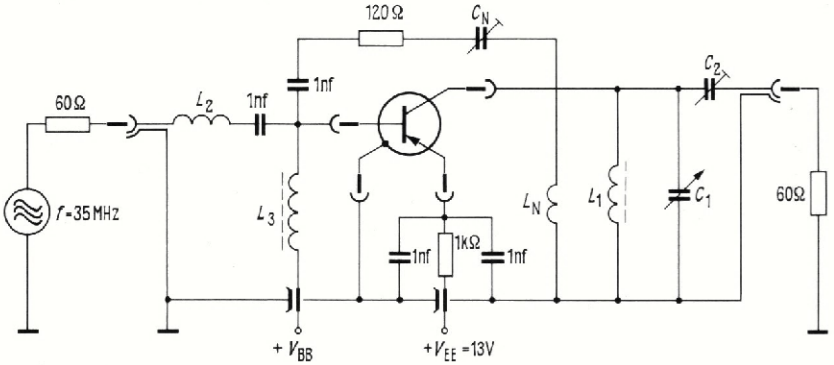
		AF 202	AF 202 S	
Collector-base cutoff current ($-V_{CBO}$ = 12 V)	$-I_{CBO}$	0.4 (< 10)	0.4 (< 10)	µA
Collector-base breakdown voltage ($-I_{CBO}$ = 100 µA)	$-V_{(BR)\,CBO}$	> 25	> 32	V
Collector-emitter breakdown voltage ($-I_{CES}$ = 100 µA)	$-V_{(BR)\,CES}$	> 25	> 32	V
Emitter-base breakdown voltage ($-I_{EBO}$ = 100 µA)	$-V_{(BR)\,EBO}$	> 0.3	> 0.3	V

Dynamic characteristics (T_{amb} = 25 °C)		**AF 202**	**AF 202 S**	
Test condition: $-I_C$ = 1 mA; $-V_{CE}$ = 12 V				
Feedback time constant (f = 2.5 MHz)	$r_{bb'} \cdot C_{b'c}$	6	6	ps
Short-circuit reverse capacitance	$-C_{12e}$	0.6 (< 0.8)	0.6 (< 0.8)	pf
Test condition: $-I_C$ = 3 mA; $-V_{CE}$ = 10 V				
Dynamic forward current transfer ratio (f = 1 kHz)	h_{fe}	150	150	–
Power gain[1]) (f = 35 MHz)	G_{pe}	31 (> 27)	31 (> 27)	db
Test condition: $-V_{CB}$ = 15 V; $-I_C$ = 8 mA ; f = 35 MHz modulated with f_{AF} = 1 kHz; m = 90% Output voltage across R_L = 2.7 kΩ at a nonlinear distortion of 15% of the demodulated signal	V_A	6 (> 5)	7.5 (> 7)	V_{pp}

Four-pole characteristics: $-I_C$ = 3 mA; $-V_{CE}$ = 10 V; f = 35 MHz

g_{11e} = 3.5 mmhos	$-b_{12e}$ = 0.13 mmhos	$\lvert y_{21e}\rvert$ = 95 mmhos	g_{22e} = 0.04 mmhos
b_{11e} = 6.7 mmhos	$-c_{12e}$ = 0.6 pf	φ_{21e} = – 25 °	b_{22e} = 0.55 mmhos
c_{11e} = 30 pf			c_{22e} = 2.5 pf

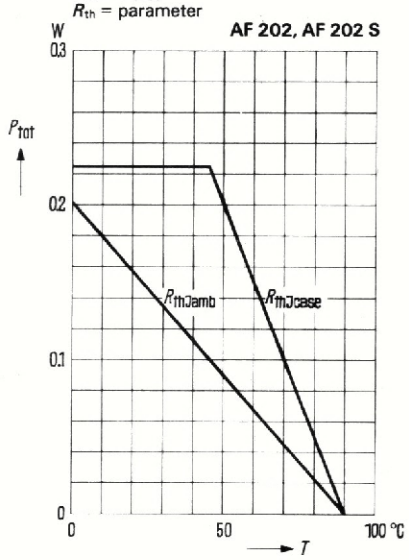
Power gain measuring circuit (f = 35 MHz)



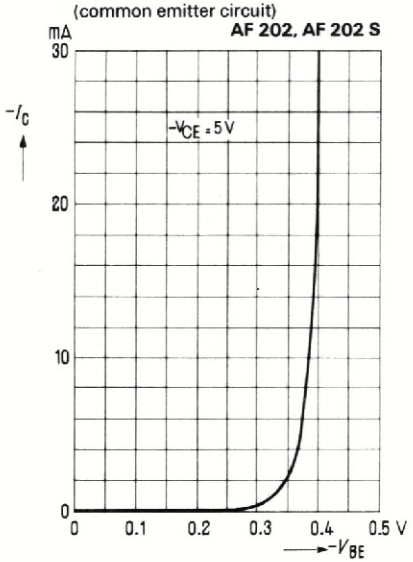
L_1 6 turns of 0.4 CuLS (enameled silk-covered copper wire), on a coil former dia. = 7.5 mm; core: Siferrit B 63 310–K 12–D 13.3
L_2 9 turns of 0.4 CuLS; dia. = 5 mm
L_3 14 turns of 0.4 CuLS wound directly on Siferrit B 63 310–K 1–D 13.3
L_N 1 turn of 0.4 CuLS
$C_N \approx$ 5 pf; neutralized for $-C_{12e}$ = 0.5 pf
$C_2 \approx$ 26 pf
Load resistance R_L = 500 Ω

[1]) Measured in circuit shown above

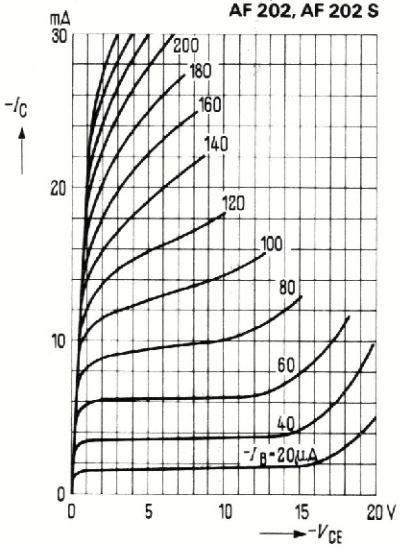
Maximum power dissipation
$P_{tot} = f(T)$;
R_{th} = parameter



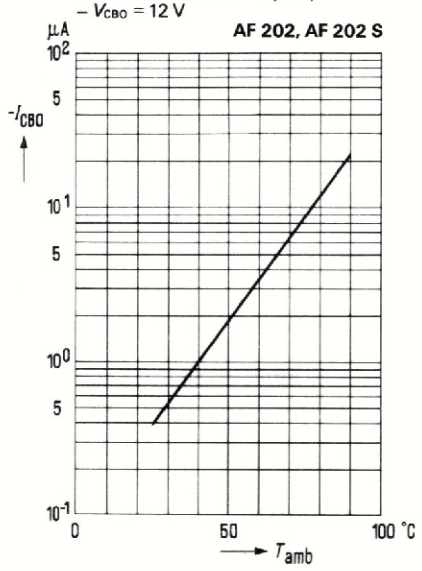
Collector current $I_C = f(V_{BE})$
$-V_{CE} = 5$ V
(common emitter circuit)



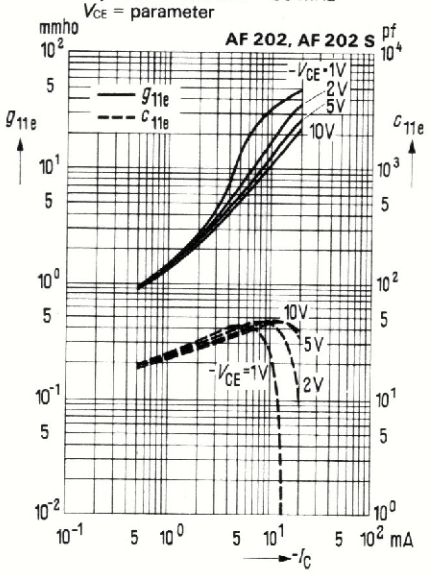
Output characteristics $I_C = f(V_{CE})$;
I_B = parameter
(common emitter circuit)



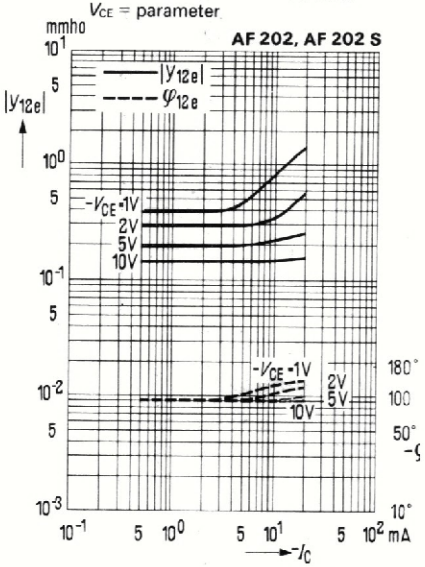
Temperature dependence of cutoff current $I_{CBO} = f(T_{amb})$
$-V_{CBO} = 12$ V



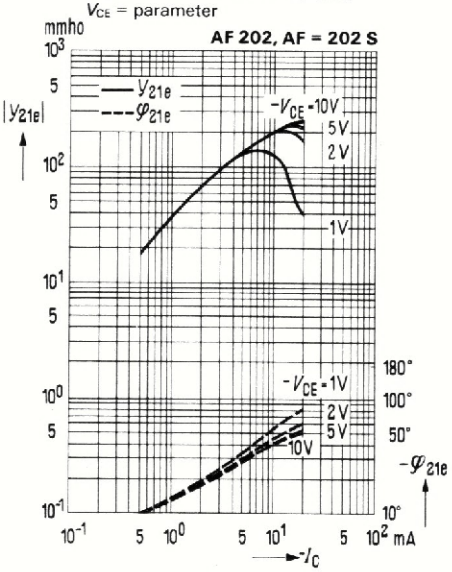
Small-signal short-circuit input admittance $f = 35$ MHz
V_{CE} = parameter



Small-signal short-circuit reverse transconductance $f = 35$ MHz
V_{CE} = parameter



Small-signal short-circuit forward transconductance $f = 35$ MHz
V_{CE} = parameter



Small-signal short-circuit output admittance
$f = 35$ MHz; V_{CE} = parameter