

Silicon NPN planar RF transistor

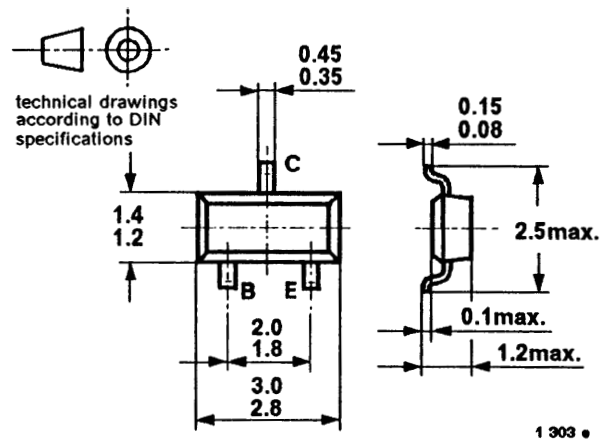
Applications

Wide band amplifier up to GHz range.

Features

- High power gain
- Low noise figure
- High transition frequency

Dimensions in mm



Case 23 A 3 DIN 41869 (SOT 23) Marking: P1

Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	20	V
Collector-emitter voltage	V_{CEO}	15	V
Emitter-base voltage	V_{EBO}	2	V
Collector current	I_C	30	mA
Total power dissipation $T_{amb} \leq 60^\circ\text{C}$	P_{tot}	200	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-65 to +150	$^\circ\text{C}$

Maximum Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient on glass fibre printed board (25 x 20 x 1.5) mm ³ plated with 35 μm Cu	R_{thJA}	450	K/W

Electrical DC Characteristics

T_{amb} = 25°C

Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector-base cut-off current V _{CB} = 10 V, I _E = 0 A	I _{CBO}			50	nA
Collector-base breakdown voltage I _C = 10 μA	V _{(BR)CBO}	20			V
Collector-emitter breakdown voltage I _C = 2 mA, I _B = 0 A	V _{(BR)CEO}	15 ¹⁾			V
Emitter-base breakdown voltage I _E = 10 μA	V _{(BR)EBO}	2			V
DC forward current transfer ratio V _{CE} = 1 V, I _C = 2 mA	h _{FE}	65		130	

1) $\frac{t_p}{T} = 0.01$, t_p = 0.3 ms

Electrical AC Characteristics

T_{amb} = 25°C

Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Transition frequency V _{CE} = 10 V, f = 500 MHz, I _C = 14 mA	f _T		5.0		GHz
Collector-base capacitance V _{CB} = 10 V, f = 1 MHz	C _{cb}		0.38	0.48	pF
Collector-emitter capacitance V _{CE} = 10 V, f = 1 MHz	C _{ce}		0.15	0.25	pF
Emitter-base capacitance V _{EB} = 0.5 V, f = 1 MHz	C _{eb}		1.3	1.6	pF
Noise figure V _{CE} = 10 V, I _C = 2 mA, R _S = 50 Ω, f = 500 MHz f = 800 MHz	F F		2.2 2.5		dB dB
Power gain V _{CE} = 10 V, R _S = 50 Ω, R _L = 50 Ω, I _C = 14 mA f = 500 MHz f = 800 MHz	G _{pe} G _{pe}	16 12	14	20 13.5	dB dB
Linear output voltage – two tone intermodulation test V _{CE} = 10 V, I _C = 14 mA, d _{IM} = 60 dB, f ₁ = 806 MHz, f ₂ = 810 MHz, R _S = R _L = 50 Ω	V ₁ = V ₂	110			mV
Third order intercept point V _{CE} = 10 V, I _C = 14 mA, f = 800 MHz	IP ₃		23.5		dBm

We reserve the right to make changes without further notice to improve technical design.

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