XN6543

Silicon NPN epitaxial planer transistor

For low-noise amplification (2GHz band)

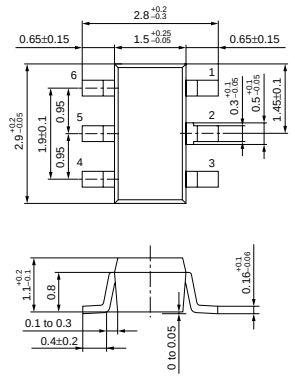
Features

- Two elements incorporated into one package.
- Reduction of the mounting area and assembly cost by one half.

Basic Part Number of Element

- 2SC3904 × 2 elements

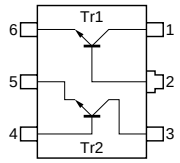
Unit: mm



1 : Collector (Tr1)
2 : Base (Tr1)
3 : Collector (Tr2)
4 : Base (Tr2)
5 : Emitter (Tr2)
6 : Emitter (Tr1)
EIAJ : SC–74
Mini Type Package (6–pin)

Marking Symbol: 9Y

Internal Connection



Absolute Maximum Ratings (Ta=25˚C)

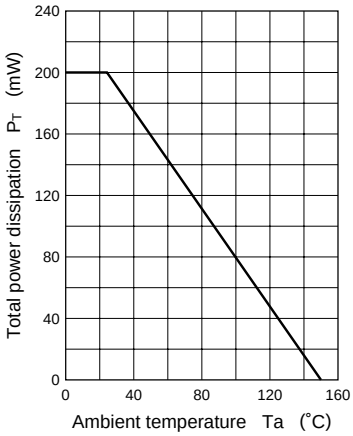
Parameter		Symbol	Ratings	Unit
Rating of element	Collector to base voltage	V_{CBO}	15	V
	Collector to emitter voltage	V_{CEO}	10	V
	Emitter to base voltage	V_{EBO}	2	V
	Collector current	I_C	65	mA
Overall	Total power dissipation	P_T	200	mW
	Junction temperature	T_j	150	˚C
	Storage temperature	T_{stg}	–55 to +150	˚C

Electrical Characteristics (Ta=25˚C)

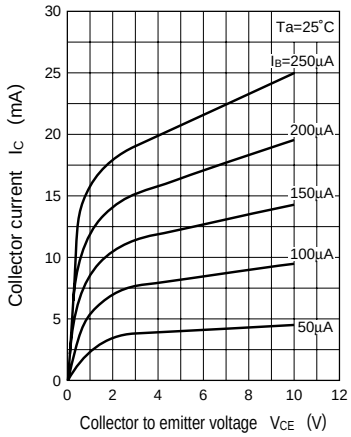
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 10V, I_E = 0			1	µA
Emitter cutoff current	I_{EBO}	V_{EB} = 1V, I_C = 0			1	µA
Forward current transfer ratio	h_{FE}	V_{CE} = 8V, I_C = 20mA	50	120	300	
Forward current transfer h_{FE} ratio	h_{FE} (small/large)*1	V_{CE} = 8V, I_C = 20mA	0.5	0.99		
Transition frequency	f_T	V_{CE} = 8V, I_C = 20mA	7.0	8.5		GHz
Collector output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz		0.6	1.0	pF
Forward transfer gain	$\|S_{21e}\|^2$	V_{CE} = 8V, I_C = 20mA, f = 1.5GHz	7	9		dB
Power gain	GUM	V_{CE} = 8V, I_C = 20mA, f = 1.5GHz		10		dB
Noise figure	NF	V_{CE} = 8V, I_C = 7mA, f = 1.5GHz		2.2	3.0	dB

*1 Ratio between 2 elements

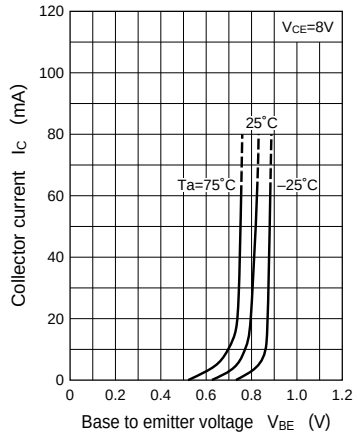
P_T — Ta



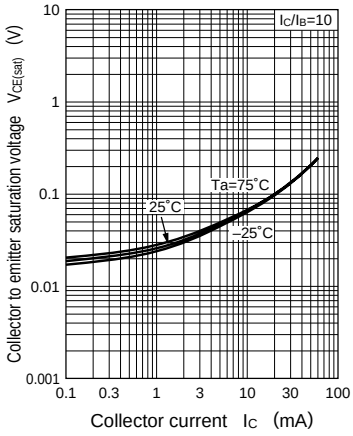
I_C — V_{CE}



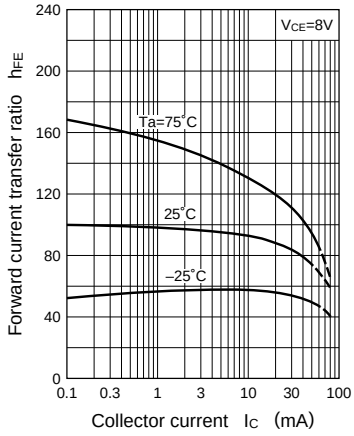
I_C — V_{BE}



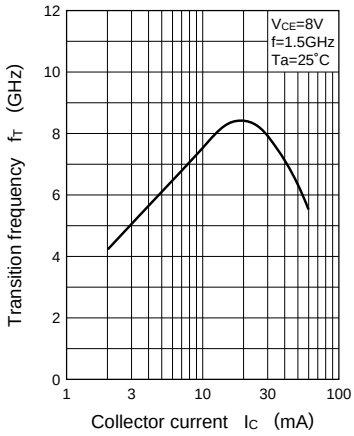
$V_{CE(sat)}$ — I_C



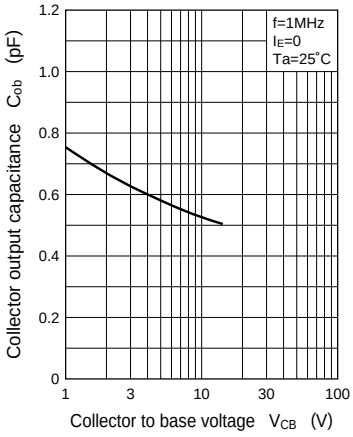
h_{FE} — I_C



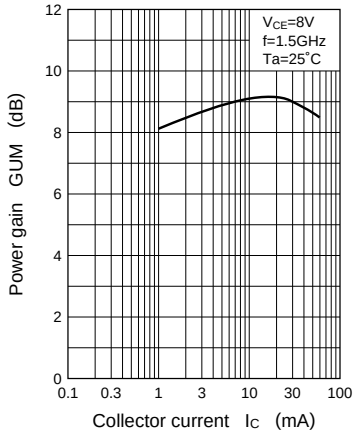
f_T — I_C



C_{ob} — V_{CB}



GUM — I_C



NF — I_C