XN6542

Silicon NPN epitaxial planer transistor

For high frequency amplification, oscillation, and mixing (Tr1),
For medium-frequency amplification (Tr2)

Features

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

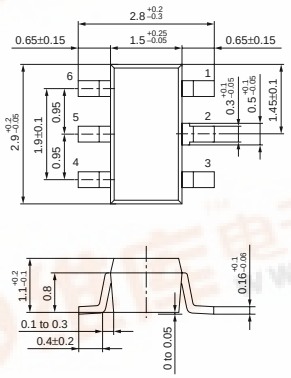
Basic Part Number of Element

- 2SC2480+2SC4444

Absolute Maximum Ratings (Ta=25˚C)

Parameter		Symbol	Ratings	Unit
Tr1	Collector to base voltage	V_{CBO}	30	V
	Collector to emitter voltage	V_{CEO}	20	V
	Emitter to base voltage	V_{EBO}	3	V
	Collector current	I_C	50	mA
Tr2	Collector to base voltage	V_{CBO}	45	V
	Collector to emitter voltage	V_{CEO}	35	V
	Emitter to base voltage	V_{EBO}	4	V
	Collector current	I_C	50	mA
Overall	Total power dissipation	P_T	300	mW
	Junction temperature	T_j	150	˚C
	Storage temperature	T_{stg}	–55 to +150	˚C

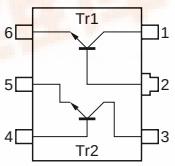
Unit: mm



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: 5Z

Internal Connection



Electrical Characteristics (Ta=25˚C)

- Tr1

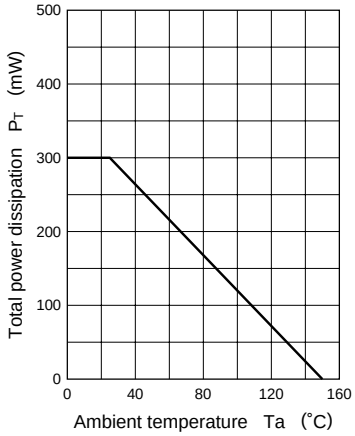
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	V_{CBO}	I_C = 100µA, I_E = 0	30			V
Emitter to base voltage	V_{EBO}	I_E = 10µA, I_C = 0	3			V
Forward current transfer ratio	h_{FE}	V_{CB} = 10V, I_E = –2mA	25		250	
Base to emitter voltage	V_{BE}	V_{CB} = 10V, I_E = –2mA		720		mV
Common emitter reverse transfer capacitance	C_{re}	V_{CB} = 10V, I_E = –1mA, f = 10.7MHz		1.0	1.5	pF
Transition frequency	f_T	V_{CB} = 10V, I_E = –15mA, f = 200MHz	1000	1300	1600	MHz
Power gain	PG	V_{CB} = 10V, I_E = –1mA, f = 100MHz		20		dB
Reverse transfer capacitance	C_{rb}	V_{CE} = 6V, I_C = 0, f = 1MHz		0.8		pF

- Tr2

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector to base voltage	V_{CBO}	I_C = 10µA, I_E = 0	45			V
Collector to emitter voltage	V_{CEO}	I_C = 1mA, IB = 0	35			V
Emitter to base voltage	V_{EBO}	I_E = 10µA, I_C = 0	4			V
Collector cutoff current	I_{CEO}	V_{CE} = 20V, I_B = 0			10	µA
Forward current transfer ratio	h_{FE}	V_{CB} = 10V, I_E = –10mA	20	50	100	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 20mA, I_B = 2mA			0.5	V
Transition frequency	f_T	V_{CB} = 10V, I_E = –10mA, f = 100MHz	300	500		MHz
Common emitter reverse transfer capacitance	C_{re}	V_{CB} = 10V, I_E = –1mA, f = 10.7MHz			1.5	pF
Power gain	PG	V_{CB} = 10V, I_E = –10mA, f = 58MHz		18		dB

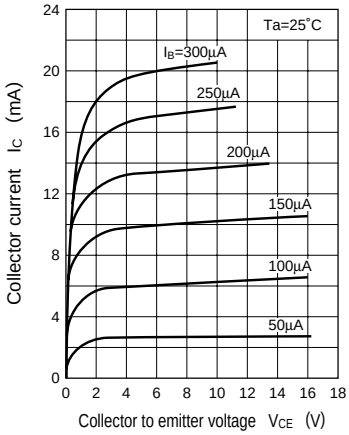
Common characteristics chart

P_T — Ta

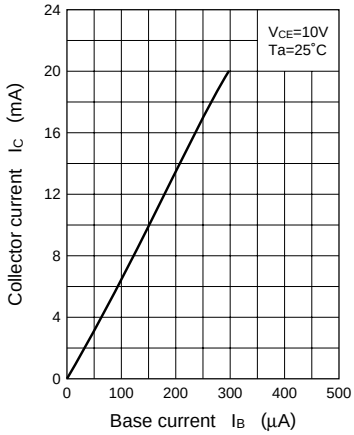


Characteristics charts of Tr1

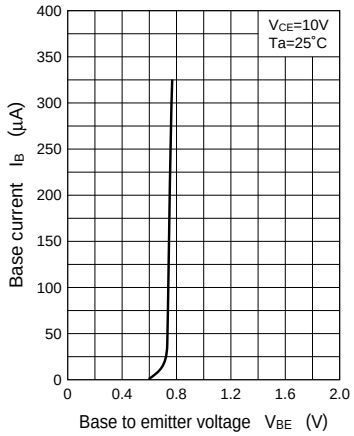
I_C — V_{CE}



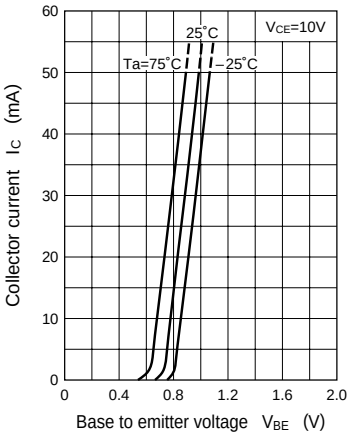
I_C — I_B



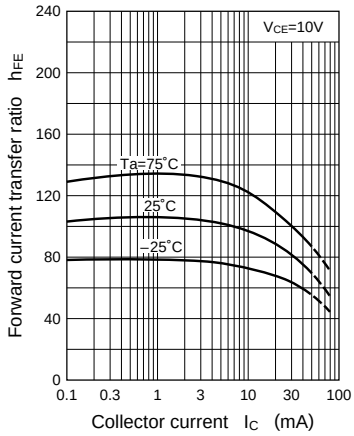
I_B — V_{BE}



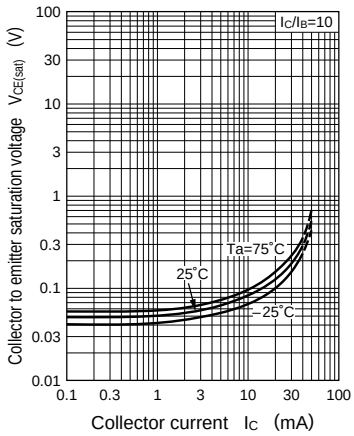
I_C — V_{BE}



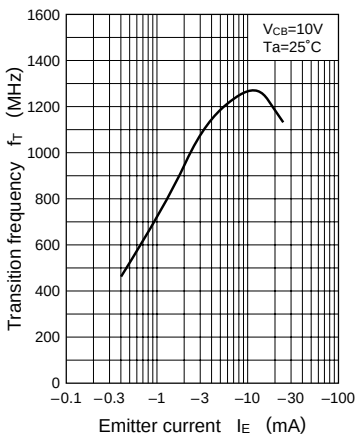
h_{FE} — I_C



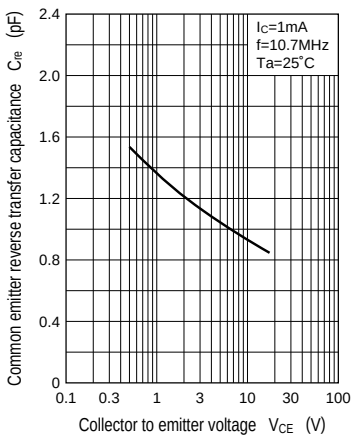
$V_{CE(sat)}$ — I_C



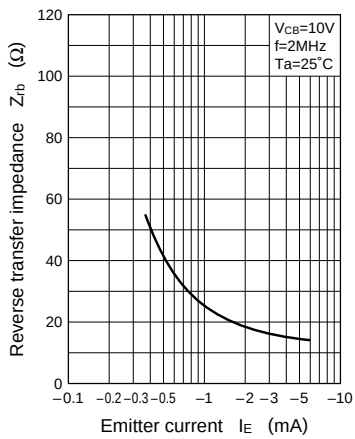
f_T — I_E



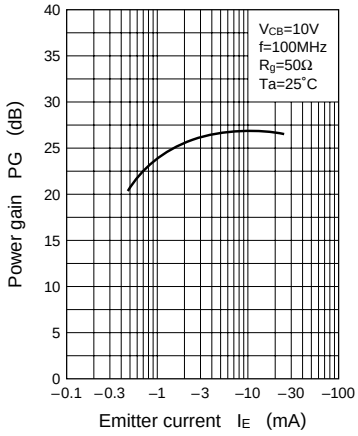
C_{re} — V_{CE}



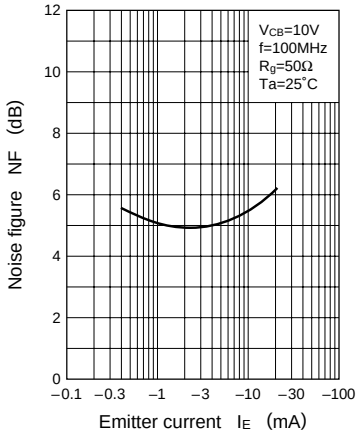
Z_{rb} — I_E



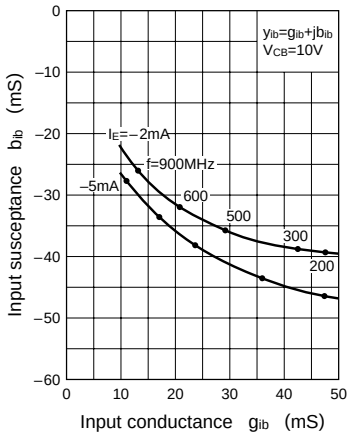
PG — I_E



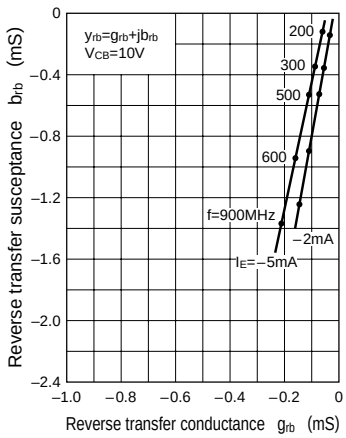
NF — I_E



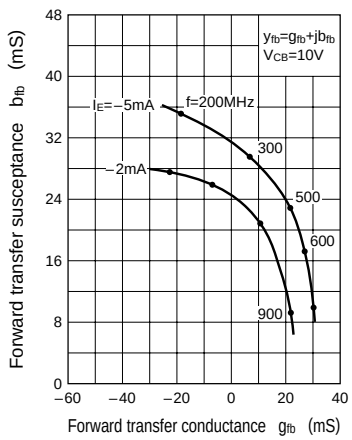
b_{ib} — g_{ib}



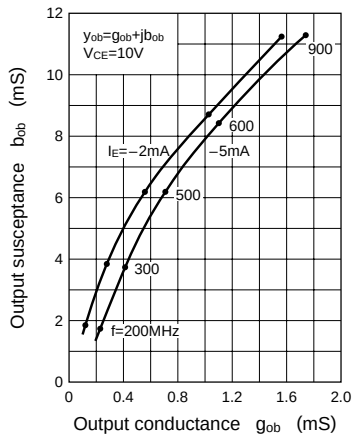
b_{rb} — g_{rb}



b_{fb} — g_{fb}

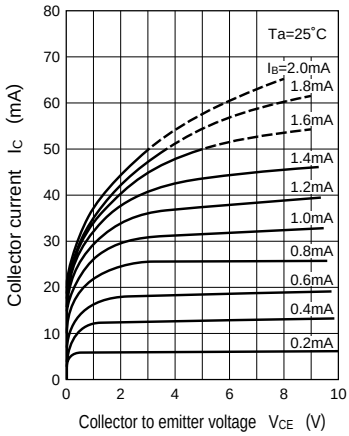


b_{ob} — g_{ob}

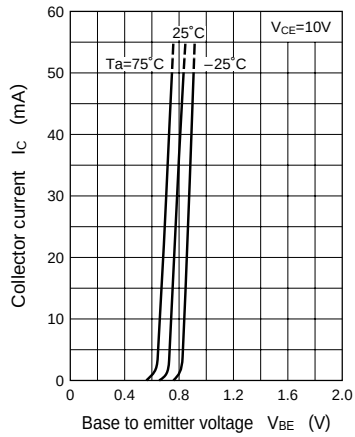


Characteristics charts of Tr2

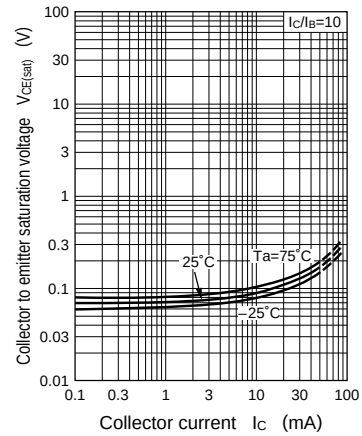
I_C — V_{CE}



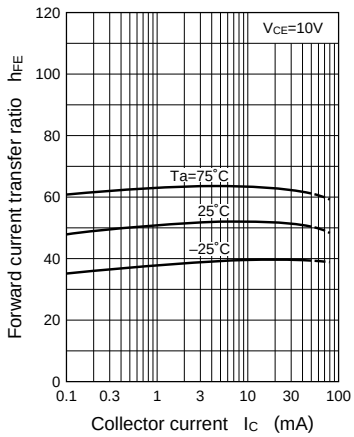
I_C — V_{BE}



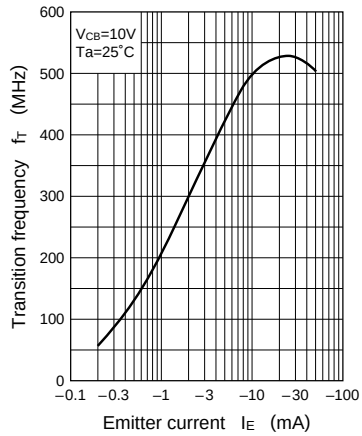
$V_{CE(sat)}$ — I_C



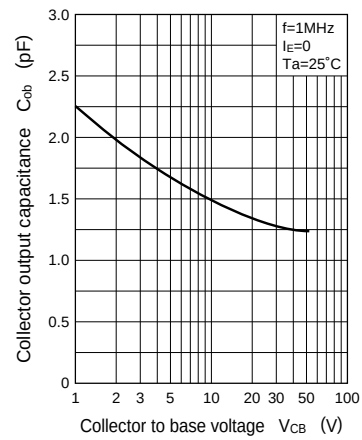
h_{FE} — I_C



f_T — I_E



C_{ob} — V_{CB}



C_{re} — V_{CE}