NP0A547

Silicon NPN epitaxial planar transistor

For high-speed switching

■ Features

- SSS-Mini type package, reduction of the mounting area and assembly cost by one half
- Maximum package height (0.4 mm) contributes to develop thinner equipments

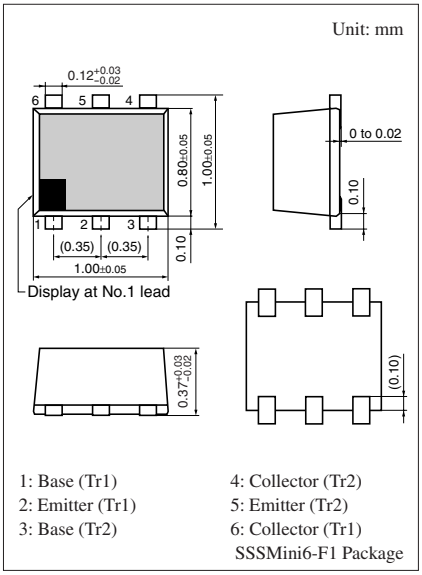
■ Basic Part Number of Element

- 2SC3707 × 2 elements

■ Absolute Maximum Ratings $T_a = 25°C$

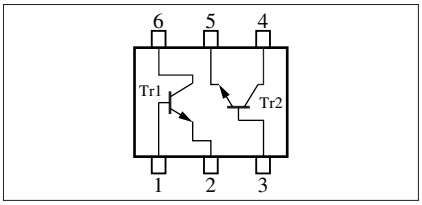
Parameter		Symbol	Rating	Unit
Tr1	Collector to base voltage	V_{CBO}	10	V
	Collector to emitter voltage	V_{CEO}	7	V
	Emitter to base voltage	V_{EBO}	2	V
	Collector current	I_C	10	mA
Tr2	Collector to base voltage	V_{CBO}	10	V
	Collector to emitter voltage	V_{CEO}	7	V
	Emitter to base voltage	V_{EBO}	2	V
	Collector current	I_C	10	mA
Overall	Total power dissipation	P_T	50	mW
	Junction temperature	T_j	125	°C
	Storage temperature	T_{stg}	–55 to +125	°C

Note) ∗: Measuring on substrate at 17 mm × 10 mm × 1 mm



Marking Symbol: 1R

Internal Connection



■ Electrical Characteristics $T_a = 25°C \pm 3°C$

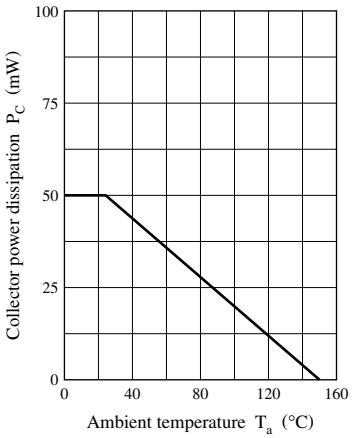
• Tr1

Parameter	Symbol	Rating	Unit			
Collector cutoff current	I_{CBO}	V_{CB} = 10 V, I_E = 0			1	μA
Emitter cutoff current	I_{EBO}	V_{EB} = 1.5 V, I_C = 0			1	μA
Forward current transfer ratio	h_{FE}	V_{CE} = 1 V, I_C = 1 mA	100		200	
Gain bandwidth product	f_T	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		4		GHz
Collector output capacitance	C_{ob}	V_{CB} = 1 V, I_E = 0, f = 1 MHz		0.4		pF
Forward transfer gain	$\|S_{21e}\|^2$	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		6.0		dB
Power gain	GUM	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		15		dB
Noise figure	NF	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		3.5		dB

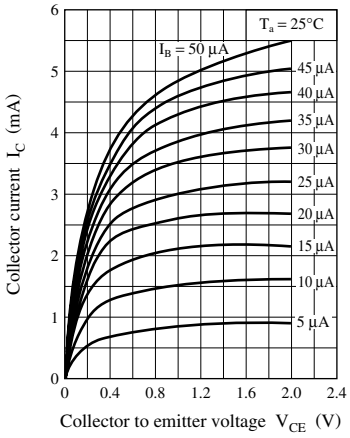
• Tr2

Parameter	Symbol	Rating	Unit			
Collector cutoff current	I_{CBO}	V_{CB} = 10 V, I_E = 0			1	μA
Emitter cutoff current	I_{EBO}	V_{EB} = 1.5 V, I_C = 0			1	μA
Forward current transfer ratio	h_{FE}	V_{CE} = 1 V, I_C = 1 mA	80		200	
Gain bandwidth product	f_T	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		4		GHz
Collector output capacitance	C_{ob}	V_{CB} = 1 V, I_E = 0, f = 1 MHz		0.4		pF
Forward transfer gain	$\|S_{21e}\|^2$	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		6.0		dB
Power gain	GUM	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		15		dB
Noise figure	NF	V_{CE} = 1 V, I_C = 1 mA, f = 0.8 GHz		3.5		dB

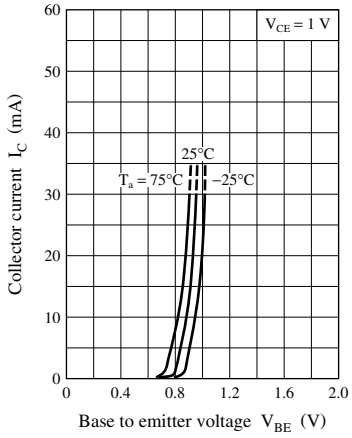
P_C — T_a



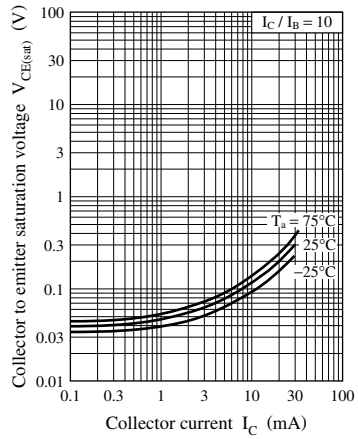
I_C — V_{CE}



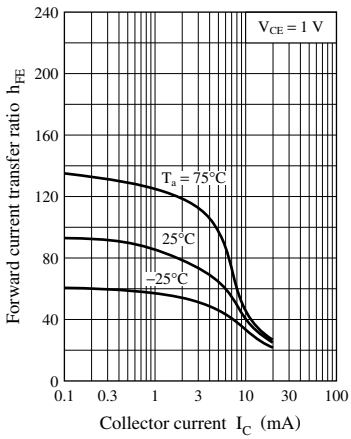
I_C — V_{BE}



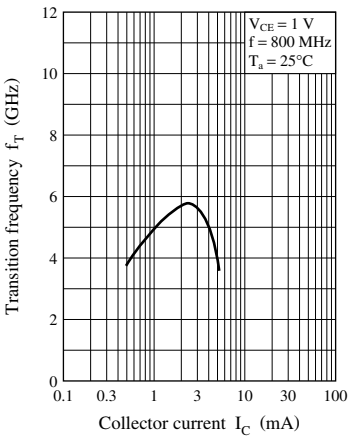
$V_{CE(sat)}$ — I_C



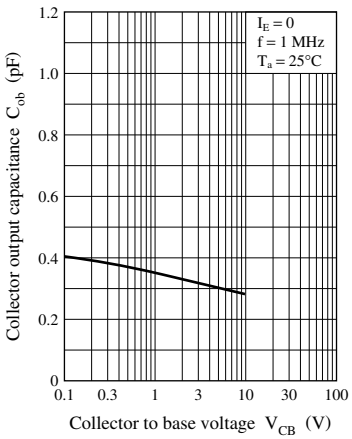
h_{FE} — I_C



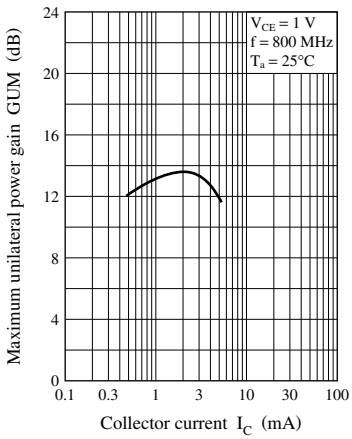
f_T — I_C



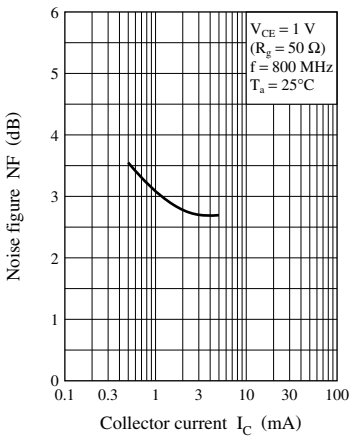
C_{ob} — V_{CB}



GUM — I_C



NF — I_C



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