



NPN Epitaxial Planar Silicon Transistor

SBFP420M

UHF to C Band Low-Noise Amplifier Low Phase Noise Osc.Applications

Preliminary

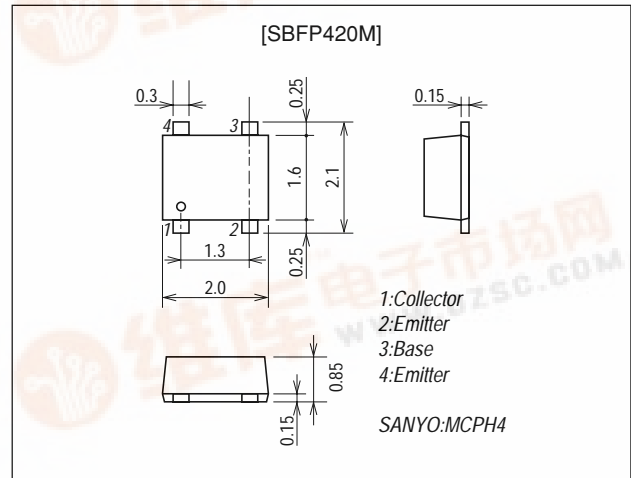
Features

- Low noise : NF=1.1dB typ (f=1.8GHz).
- High cut-off frequency : $f_T=18\text{GHz typ (VCE=1V)}$
: $f_T=25\text{GHz typ (VCE=3V)}$.
- Low operating voltage.
- High gain : $|S_{21e}|^2=17\text{dB typ (f=1.8GHz)}$.

Package Dimensions

unit : mm

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Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to- Base Voltage	V _{CB0}		15	V
Collector-to-Emitter Voltage	V _{CEO}		4.5	V
Emitter-to-Base Voltage	V _{EBO}		1.5	V
Collector Current	I _C		35	mA
Collector Dissipation	P _C		160	mW
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =5V, I _E =0			200	nA
Emitter Cutoff Current	I _{EBO}	V _{EB} =1.5V, I _C =0			35	μA
DC Current Gain	h _{FE}	V _{CE} =4V, I _C =20mA	50		150	
Gain-Bandwidth Product	f _T (1)	V _{CE} =1V, I _C =10mA	13	18		GHz
	f _T (2)	V _{CE} =3V, I _C =30mA	18	25		GHz
Reverse Transfer Capacitance	C _{re}	V _{CB} =2V, f=1MHz		0.15	0.3	pF
Forward Transfer Gain	S _{21e} ² (1)	V _{CE} =2V, I _C =5mA, f=1.8GHz	12	15		dB
	S _{21e} ² (2)	V _{CE} =2V, I _C =20mA, f=1.8GHz	14	17		dB
Noise Figure	NF	V _{CE} =2V, I _C =5mA, f=1.8GHz		1.1		dB

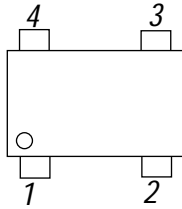
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SBFP420M

Electrical Connection (Top view)



- 1 : *Collector*
- 2 : *Emitter*
- 3 : *Base*
- 4 : *Emitter*

This product adopts a high-frequency process. Please be careful when handling it because it is susceptible to static electricity.

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