



# SBFP420M

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

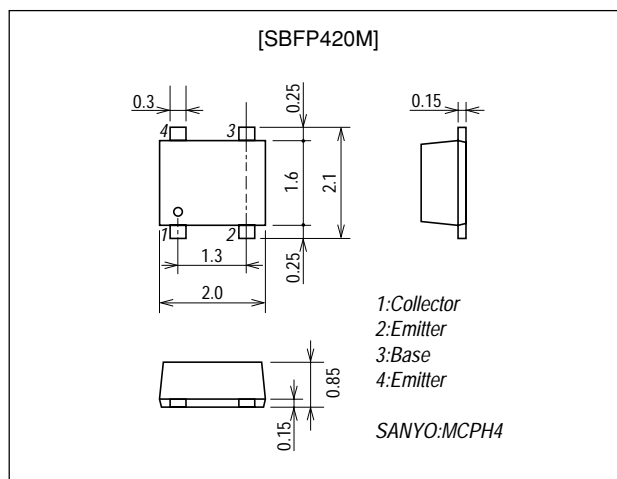
Preliminary

### Features

- Low noise : NF=1.1dB typ (f=1.8GHz).
- High cut-off frequency :  $f_T=18\text{GHz}$  typ ( $V_{CE}=1\text{V}$ ),  
:  $f_T=25\text{GHz}$  typ ( $V_{CE}=3\text{V}$ ).
- 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  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to- Base Voltage	$V_{CBO}$		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	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

### Electrical Characteristics at $T_a=25^\circ\text{C}$

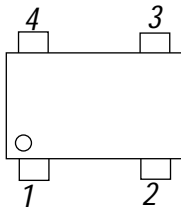
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=5\text{V}, I_E=0$			200	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=1.5\text{V}, I_C=0$			35	$\mu\text{A}$
DC Current Gain	$h_{FE}$	$V_{CE}=4\text{V}, I_C=20\text{mA}$	50		150	
Gain-Bandwidth Product	$f_T(1)$	$V_{CE}=1\text{V}, I_C=10\text{mA}$	13	18		GHz
	$f_T(2)$	$V_{CE}=3\text{V}, I_C=30\text{mA}$	18	25		GHz
Reverse Transfer Capacitance	$C_{re}$	$V_{CB}=2\text{V}, f=1\text{MHz}$		0.15	0.3	pF
Forward Transfer Gain	$ S_{21e} ^2(1)$	$V_{CE}=2\text{V}, I_C=5\text{mA}, f=1.8\text{GHz}$	12	15		dB
	$ S_{21e} ^2(2)$	$V_{CE}=2\text{V}, I_C=20\text{mA}, f=1.8\text{GHz}$	14	17		dB
Noise Figure	NF	$V_{CE}=2\text{V}, I_C=5\text{mA}, f=1.8\text{GHz}$		1.1		dB

Marking:MB

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## 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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