MSG33002

SiGe HBT type

For low-noise RF amplifier

■ Features

- Compatible between high breakdown voltage and high cutoff frequency
- Low-noise, high-gain amplification
- Suitable for high-density mounting and downsizing of the equipment for Ultraminiature package
 0.8 mm × 1.2 mm (height 0.52 mm)

■ Absolute Maximum Ratings $T_a = 25$ °C

Parameter	Symbol	Rating	Unit	
Collector-base voltage (Emitter open)	V _{CBO}	9	V	
Collector-emitter voltage (Base open)	V _{CEO}	6	V	
Emitter-base voltage (Collector open)	V_{EBO}	1	V	
Collector current	I_C	60	mA	
Collector power dissipation*	P _C	100	mW	
Junction temperature	T_{j}	125	°C	
Storage temperature	T _{stg}	-55 to +125	°C	

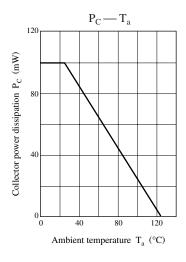
Note) *: Copper plate at the collector is $5.0~\text{cm}^2$ on substrate at $10~\text{mm} \times 12~\text{mm} \times 0.8~\text{mm}$.

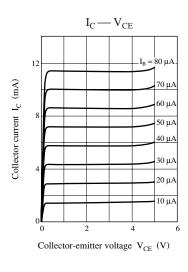
Marking Symbol: 5T

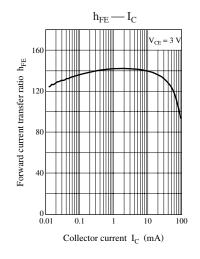
■ Electrical Characteristics $T_a = 25$ °C ± 3 °C

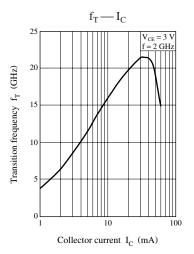
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 9 \text{ V}, I_{E} = 0$			1	μΑ
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 6 \text{ V}, I_{B} = 0$			1	μΑ
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 1 \text{ V}, I_{C} = 0$			1	μΑ
Forward current transfer ratio	h _{FE}	$V_{CE} = 3 \text{ V}, I_{C} = 6 \text{ mA}$	100		220	_
Transition frequency	f_T	$V_{CE} = 3 \text{ V}, I_{C} = 20 \text{ mA}, f = 2 \text{ GHz}$		19		GHz
Forward transfer gain	S _{21e} 2	$V_{CE} = 3 \text{ V}, I_{C} = 20 \text{ mA}, f = 2 \text{ GHz}$	7.5	10.5		dB
Noise figure	NF	$V_{CE} = 3 \text{ V}, I_{C} = 6 \text{ mA}, f = 2 \text{ GHz}$		1.4	2.0	dB
Collector output capacitance	C _{ob}	$V_{CB} = 3 \text{ V}, I_{E} = 0, f = 1 \text{ MHz}$		0.4	0.7	pF
(Common base, input open circuited)						

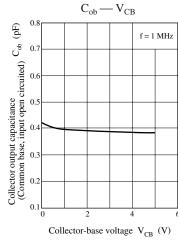
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

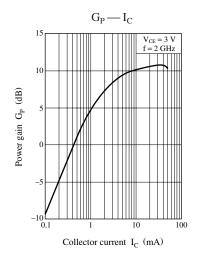


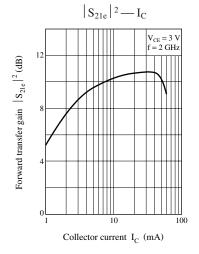


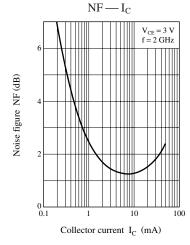


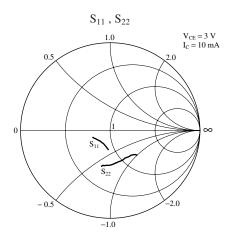


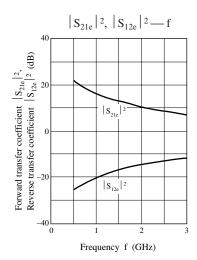












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