

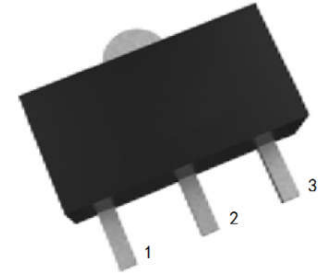
NPN SILICON RF TRANSISTOR

Feature

High gain: $|S_{21e}|_2$ TYP. Value is 10dB @ $V_{CE}=10V, I_C=20mA, f=1GHz$
 Low noise: NF TYP. Value is 1.7dB @ $V_{CE}=10V, I_C=7mA, f=1GHz$
 fr (TYP.): TYP. Value is 6.5GHz @ $V_{CE}=10V, I_C=20mA, f=1GHz$

PIN DEFINITION:

1: (Base) 2: (Collector) 3: (Emitter)



SOT-89

Absolute Maximum Ratings $T_A=25^{\circ}C$ Unless Otherwise noted

PARAMETER	SYMBLE	MAXIMUM VALUE	UNIT
Collector-base breakdown voltage	V_{CBO}	20	V
Collector-emitter breakdown voltage	V_{CEO}	12	V
Emitter-base breakdown voltage	V_{EBO}	3	V
Collector current	I_C	100	mA
*Collector Power Dissipation	*PD	1.2	W
Junction Temperature	T_j	150	$^{\circ}C$
Storage Temperature	T_{stg}	-65 ~ +150	$^{\circ}C$

*With heat dissipation panel

hFE Classification

Classification	A	B	C	D	E
Marking	RH	RF	RE		
hFE	60~100	90~140	130~180	170~250	250~300

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REV.07

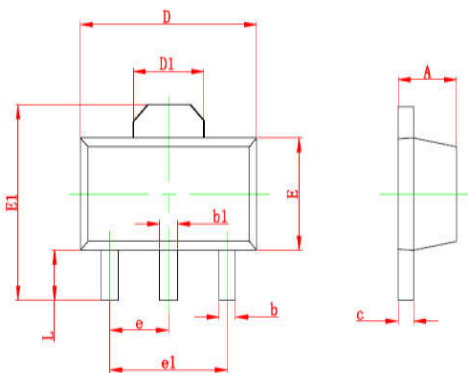


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ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

PARAMETER	SYMBLE	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector-base breakdown voltage	V _{CB0}	20			v	I _C =1.0μA
Collector- Emitter breakdown voltage	V _{CEO}	12			V	I _C =100μA
Collector cut-off current	I _{CB0}			0.1	μA	V _{CB} =10V
Emitter cut-off current	I _{EB0}			0.1	μA	V _{EB} =1V
DC current gain	h _{FE}	60	150	300		V _{CE} =10V,I _C =20mA
Transit frequency	f _T		6.5		GHz	V _{CE} =10V,I _C =20mA
Output feedback capacitance	C _{re}		0.65		pF	V _{CB} =10V,I _E =0mA,f=1MHz
Power gain	S _{21e} ²	9	10		dB	V _{CE} =10V,I _C =20mA,f=1GHz
Noise factor	NF		2.6	3.2	dB	V _{CE} =10V,I _C =40mA,f=1GHz
			1.7	2.3		V _{CE} =10V,I _c =7mA,f=1GHz

Package & Dimension :



SOT-89

SYMBOL	MIN (mm)	MAX (mm)
A	1.4	1.6
b	0.32	0.52
b1	0.4	0.58
c	0.35	0.44
D	4.4	4.6
D1	1.55	
E	2.3	2.6
E1	3.94	4.25
e	1.5	
e1	3	
L	0.9	1.2



Fig01: TA & PC

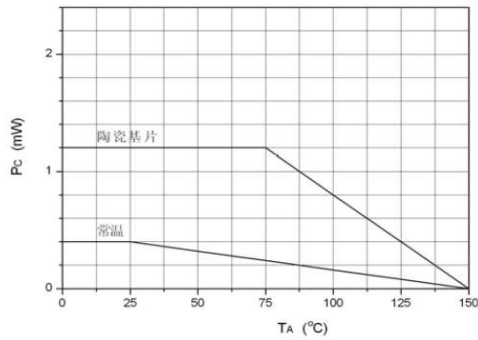


Fig02: Vcb & Cre

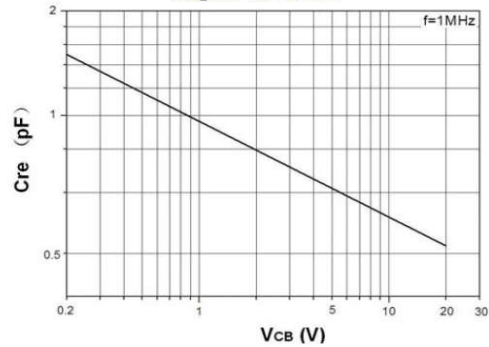


Fig03: hFE & Ic

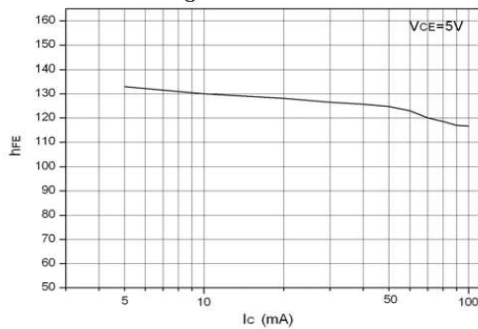


Fig04: fr & Ic

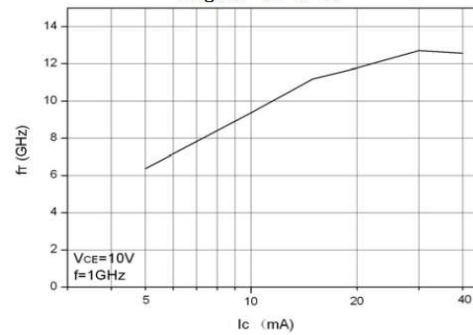


Fig05: |S21e|^2 & f

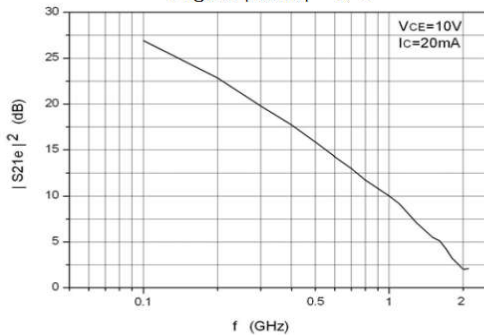


Fig06: |S21e|^2 & Ic

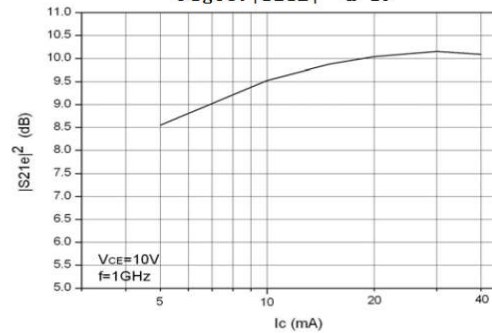


Fig07: NF & Ic

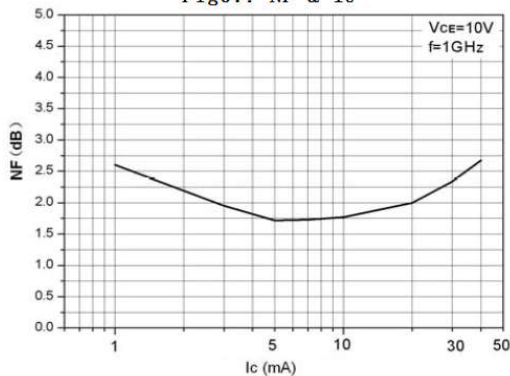
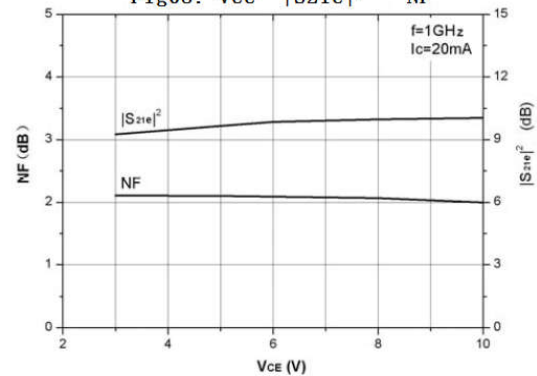


Fig08: vce |S21e|^2 NF



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