

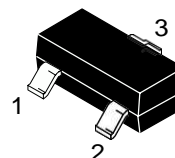
SOT-23 Plastic-Encapsulate Transistors

TRANSISTOR (NPN)

Features:

Low noise amplifier at VHF, UHF and CATV band.
 Low Noise and High Gain
 High Power Gain

SOT-23



1. BASE
 2. EMITTER
 3. COLLECTOR

MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CB0}	Collector- Base Voltage	20	V
V _{CE0}	Collector-Emitter Voltage	12	V
V _{EB0}	Emitter-Base Voltage	3.0	V
I _c	Collector Current -Continuous	0.1	A
P _c	Collector Power Dissipation	0.2	W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55-150	°C

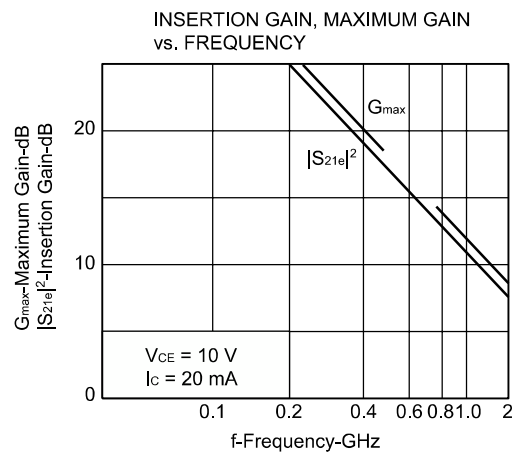
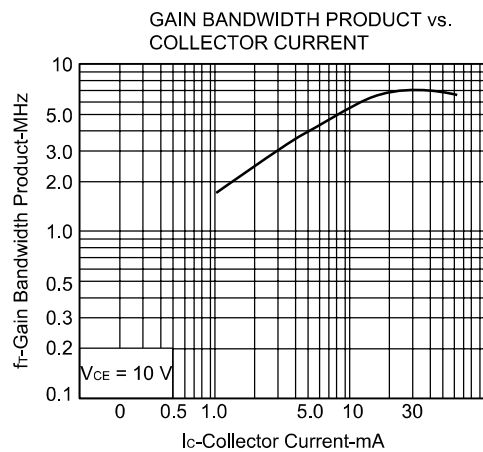
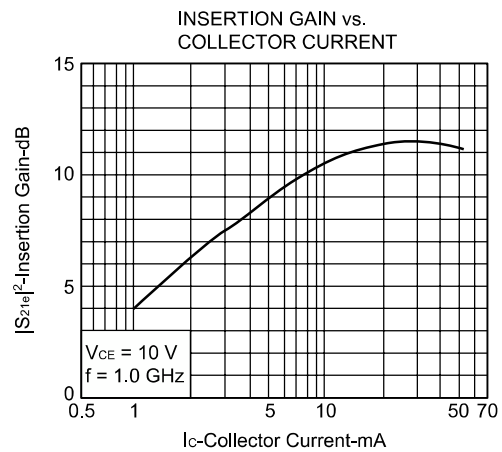
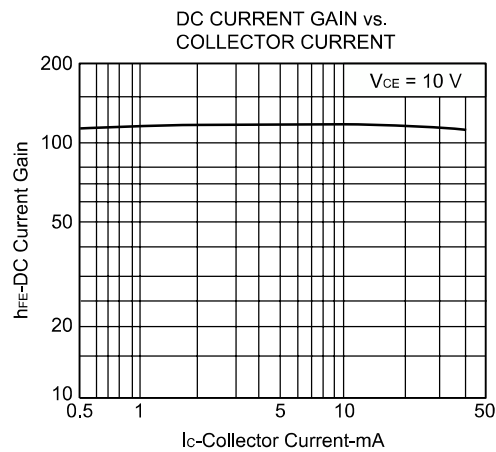
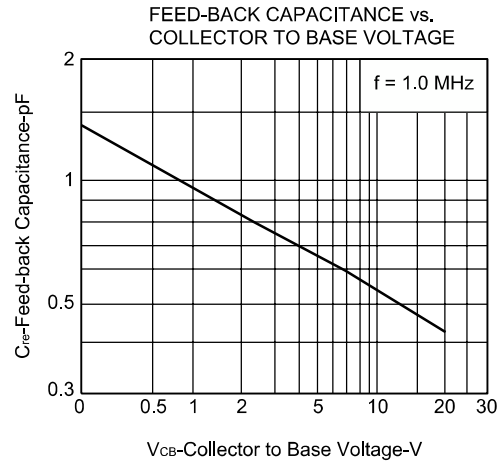
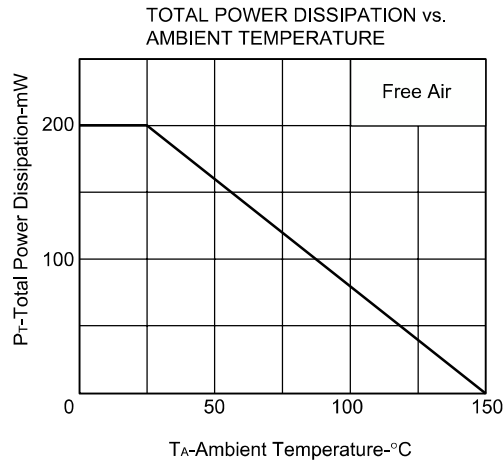
ELECTRICAL CHARACTERISTICS (T_{amb}=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V _{(BR)CBO}	I _c =100uA, I _E =0	20			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _c = 1mA, I _B =0	12			V
Collector cut-off current	I _{CBO}	V _{CB} =10V, I _E =0			1	uA
Emitter cut-off current	I _{EBO}	V _{EB} =3V, I _c =0			1	uA
DC current gain	h _{FE}	V _{CE} =10V, I _c = 20mA	50		250	
Transition frequency	f _T	V _{CE} =10V, I _c = 20mA		7		GHz
Noise figure	NF	V _{CE} =10V, I _c = 7mA, f = 1GHz		1.1	2	dB
Reverse transfer capacitance	C _{re}	V _{CB} =10V, I _E = 0, f = 1MHz		0.55	1	pF

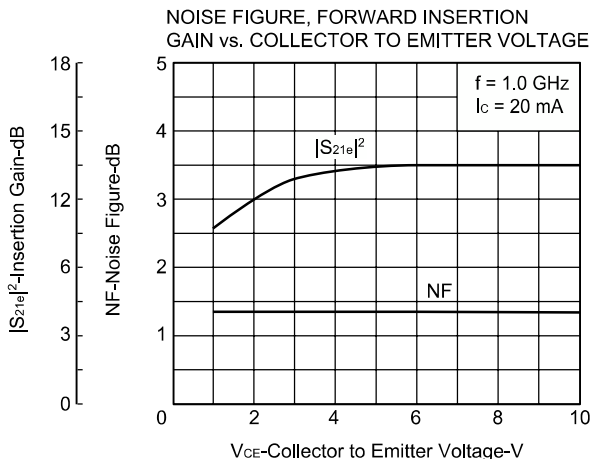
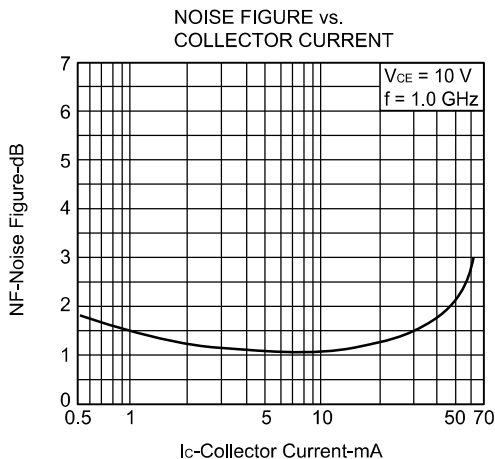
CLASSIFICATION OF h_{FE}

Marking	R23	R24	R25
Rank	Q	R	S
Range	50-100	80-160	100-250

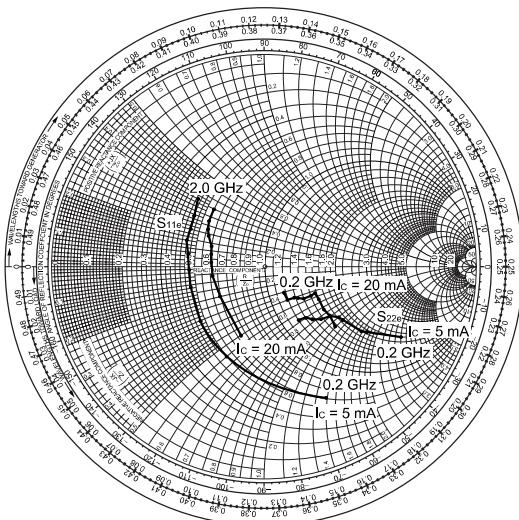
■ Typical Characteristics



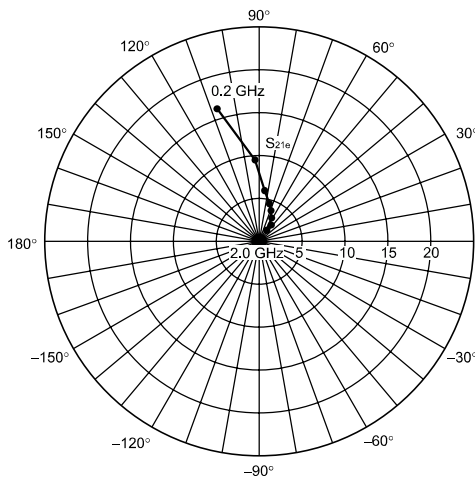
■ Typical Characteristics



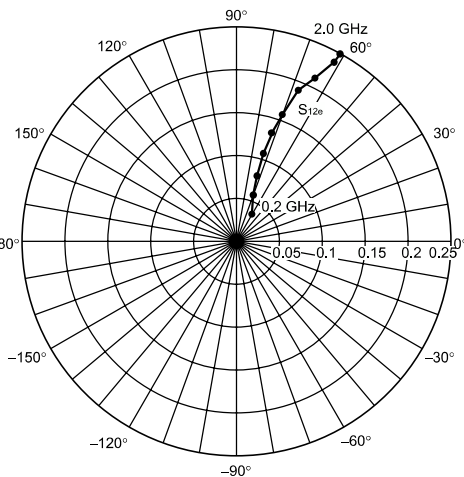
S_{11e} , S_{22e} -FREQUENCY
 CONDITION $V_{CE} = 10\text{ V}$
 200 MHz Step



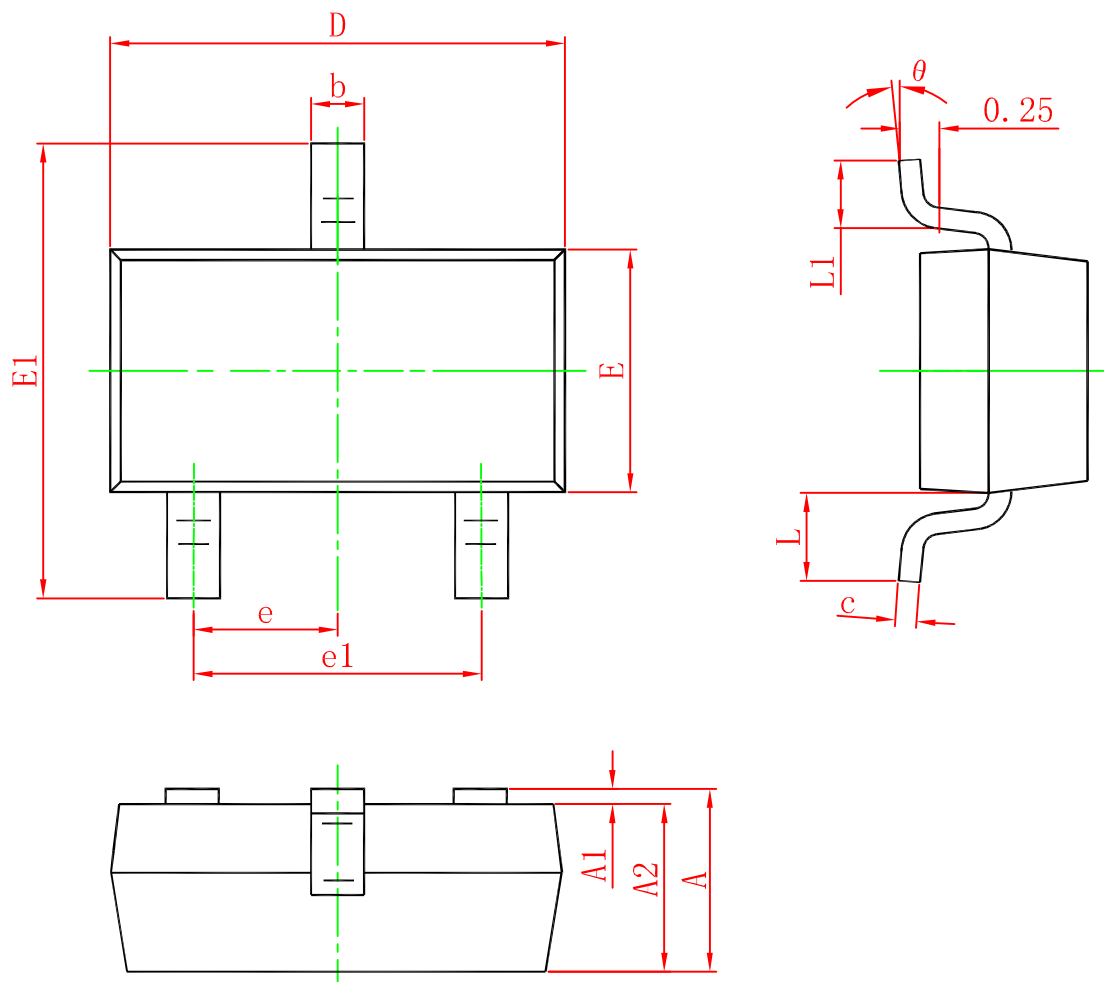
S_{21e} -FREQUENCY
 CONDITION $V_{CE} = 10\text{ V}$
 $I_C = 20\text{ mA}$



S_{12e} -FREQUENCY
 CONDITION $V_{CE} = 10\text{ V}$
 $I_C = 20\text{ mA}$



SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°