SOT-23 Plastic-Encapsulate Transistors

Features

- Low Noise and High Gain
- High Power Gain
- High Stability and High Reliability

RoHS COMPLIANT

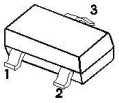
Mechanical Data

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

Marking: **SOT-23**

According to hFE

Pin definition



1. BASE
2. EMITTER
3. COLLECTOR

Maximum Ratings & Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	12	V
Emitter -Base Voltage	V_{EBO}	3	V
Collector Current-Continuous	I_C	100	mA
Collector Power Dissipation	P_C	200	mW
Operating junction temperature range	T_J	150	°C
Storage temperature range	T_{STG}	-55-+150	°C
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	℃/W

Electrical Specifications (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
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
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100uA, I_C=0	3			V
Collector cut-off current	I_{CBO}	V_{CB}=10V, I_E=0			1	uA
Emitter cut-off current	I_{EBO}	V_{EB}=1V, I_C=0			1	uA
DC current gain	$h_{FE(1)}$	V_{CE}=10V, I_C=20mA	50		250	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=50mA, I_B=5mA			0.3	V
Base -emitter saturation voltage	$V_{BE(sat)}$	I_C=50mA, I_B=5mA			1.15	V
Transition frequency	f_T	V_{CE}=10V, I_C=20mA		7		MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0,f=1MHZ		0.8	1	pF
Noise figure	N_F	V_{CE}=10V,I_C=7mA,R_g=10kΩ, f=1GHz		1.65	2	dB

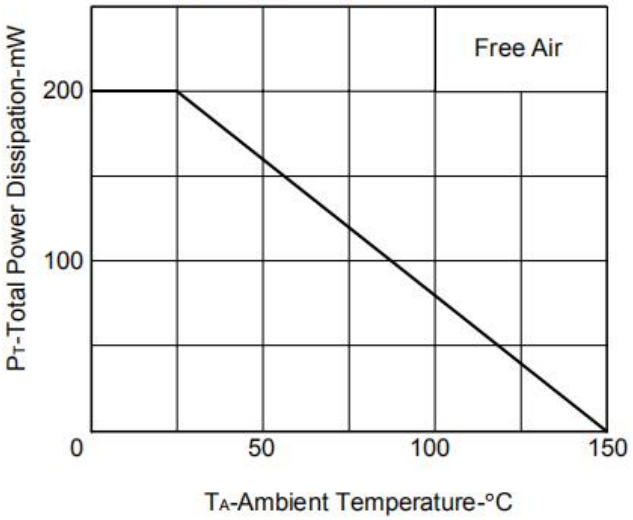
ClassIsIcatIon OF $h_{FE(1)}$

RANGE	50-100	80-160	125-250
MARKING	R23	R24	R25

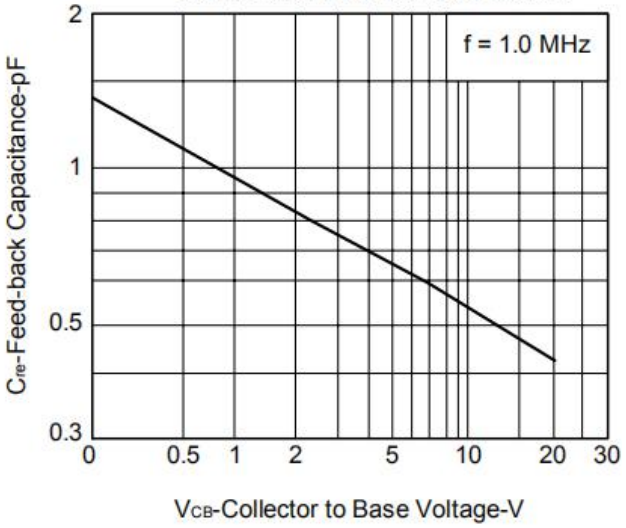
Ratings and Characteristics Curves

(T_A = 25℃ unless otherwise noted)

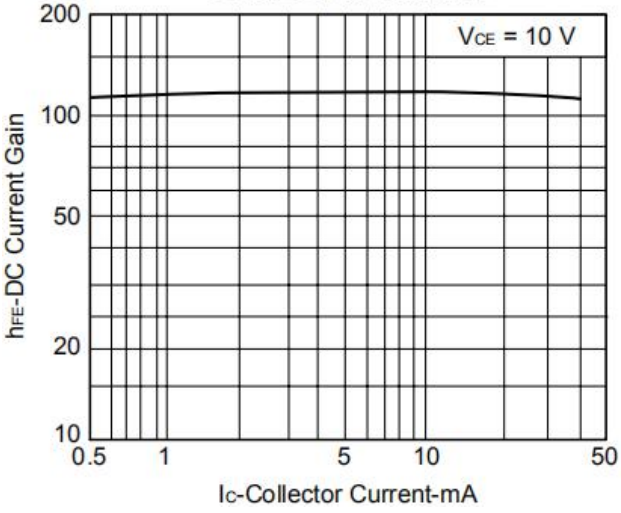
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



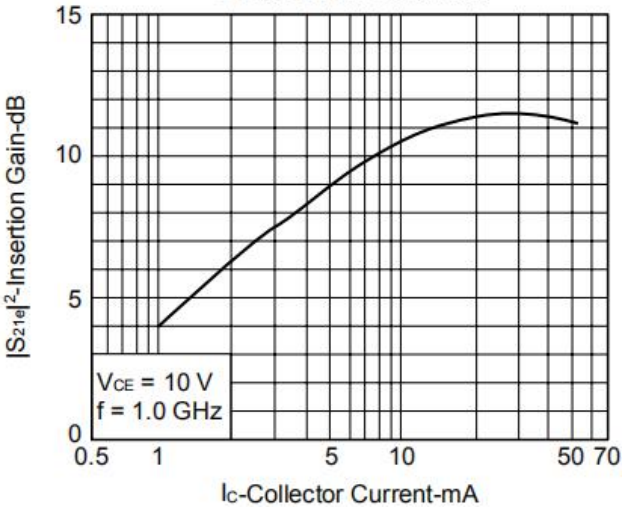
FEED-BACK CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



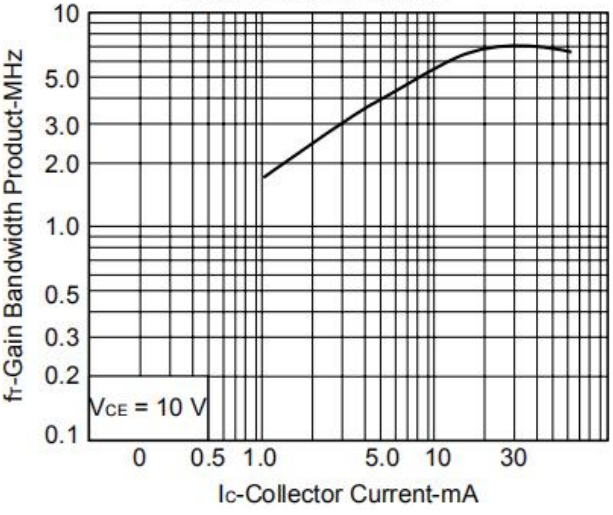
DC CURRENT GAIN vs. COLLECTOR CURRENT



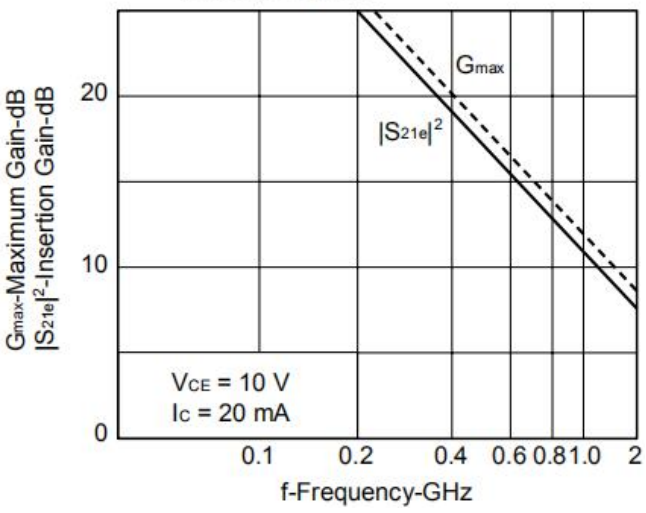
INSERTION GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT

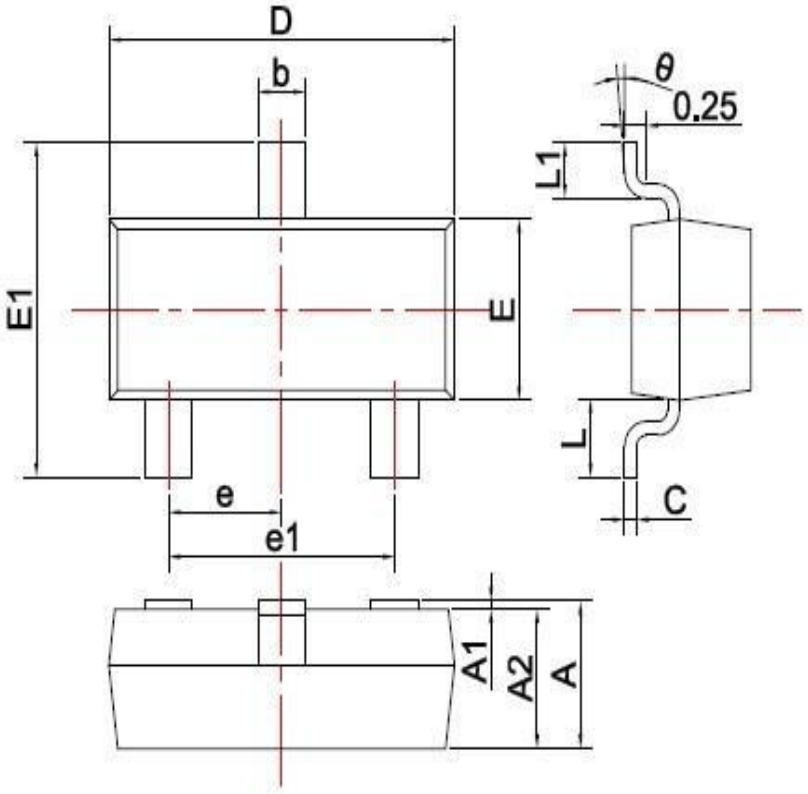


INSERTION GAIN, MAXIMUM GAIN vs. FREQUENCY



Package Outline Dimensions

millimeters



SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Revision History

Document Version	Date of release	Description of changes
Rev.A	2020.02.16	First issue

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