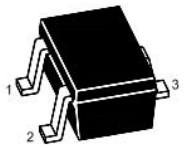
NPN Silicon Epitaxial Planar Transistor

for microwave low noise amplifier at VHF, UHF and CATV band

The transistor is subdivided into three groups, Q, R and S, according to its DC current gain.

HFE	MARKING
Q	R23
R	R24
S	R25



1.Base 2.Emitter 3.Collector
SOT-323 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

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	I_C	100	mA
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	- 65 to + 150	°C

Characteristics (T_a = 25 °C)

Parameter			Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 10 V, I_C = 20 mA	Current Gain Group	Q	h_{FE}	50	-	100	-
		R	h_{FE}	80	-	160	-
		S	h_{FE}	125	-	250	-
Collector Cutoff Current at V_{CB} = 10 V			I_{CBO}	-	-	1	µA
Emitter Cutoff Current at V_{EB} = 1 V			I_{EBO}	-	-	1	µA
Gain Bandwidth Product at V_{CE} = 10 V, I_C = 20 mA			f_T	-	7	-	GHz
Feed-Back Capacitance at V_{CB} = 10 V, f = 1 MHz			C_{re} [1)]	-	0.55	1	pF
Noise Figure at V_{CE} = 10 V, I_C = 7 mA, f = 1 GHz			NF	-	1.1	2	dB

1) The emitter terminal and the case shall be connected to the guard terminal of the three-terminal capacitance bridge.

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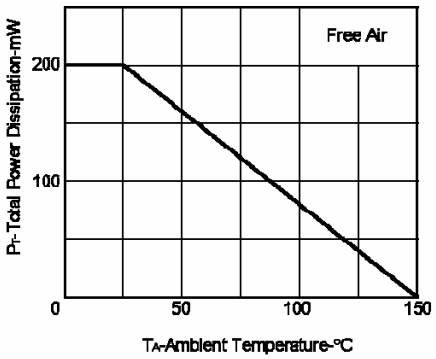
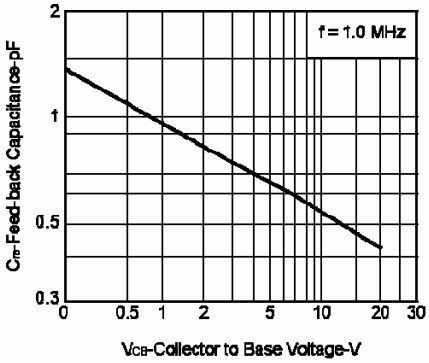
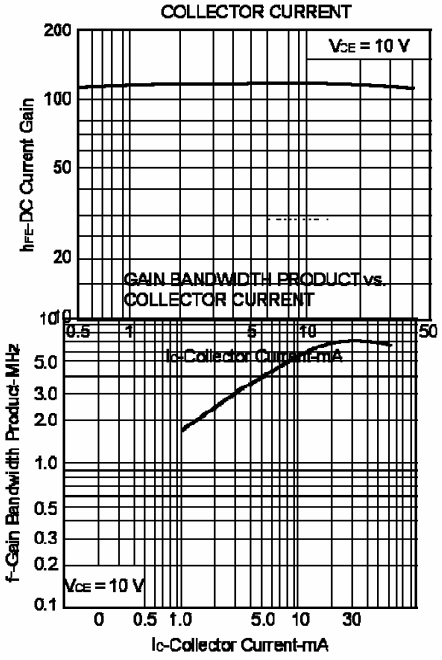
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



FEED-BACK CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE

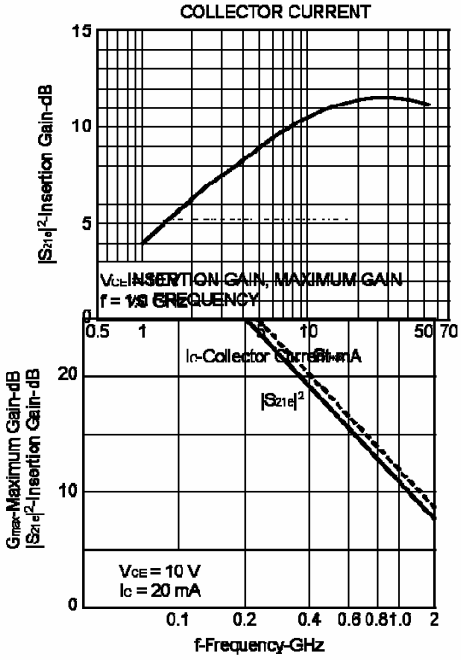


DC CURRENT GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT

INSERTION GAIN vs. COLLECTOR CURRENT



VCE-INSERTION GAIN, MAXIMUM GAIN
f = f-FREQUENCY

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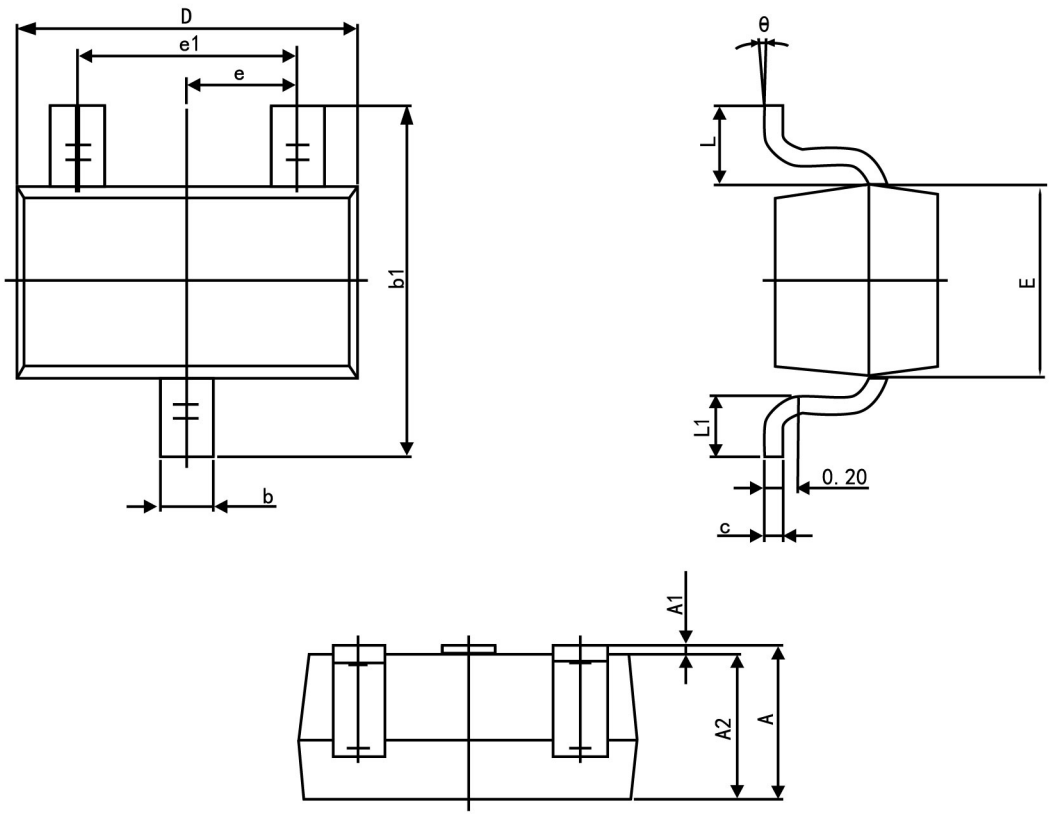
SOT-323 Package Outline Dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.200	0.400
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	**0°**	8°

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