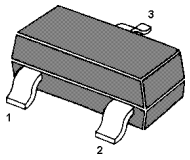
NPN Silicon Epitaxial Planar Transistor

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.



1.Base 2.Emitter 3.Collector
SOT-23 Plastic Package

HFE	MARKING
Q	R23
R	R24
S	R25

Absolute Maximum Ratings (T_a = 25 °C)

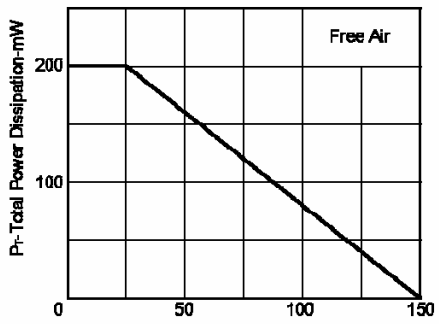
Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	20	V
Collector Emitter Voltage	V_{CEO}	12	V
Emitter Base Voltage	V_{EBO}	3	V
Collector Current	I_C	100	mA
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	- 65 to + 150	°C

Characteristics (T_a = 25 °C)

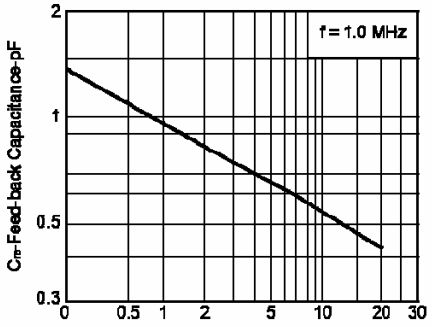
Parameter			Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 10 V, I_C = 20 mA	Current Gain Group	Q	h_{FE}	50	-	100	-
		R	h_{FE}	80	-	160	-
		S	h_{FE}	125	-	250	-
Collector Cutoff Current at V_{CB} = 10 V			I_{CBO}	-	-	1	μA
Emitter Cutoff Current at V_{EB} = 1 V			I_{EBO}	-	-	1	μA
Gain Bandwidth Product at V_{CE} = 10 V, I_C = 20 mA			f_T	-	3	-	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.

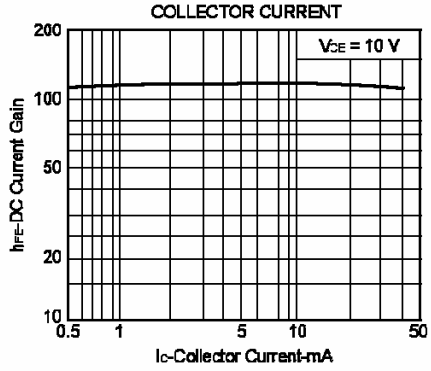
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



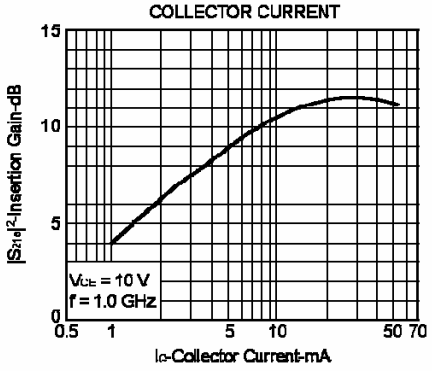
FEED-BACK CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



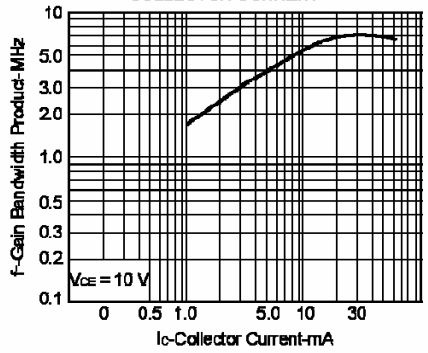
DC CURRENT GAIN vs. COLLECTOR CURRENT



INSERTION GAIN vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



INSERTION GAIN, MAXIMUM GAIN vs. FREQUENCY