2SC4591

Silicon NPN Epitaxial

HITACHI

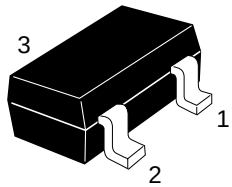
ADE-208-1111A (Z)
2nd. Edition
Mar. 2001

Application

UHF / VHF wide band amplifier

Outline

MPAK



1. Emitter
2. Base
3. Collector

Note: Marking is “XM–”.

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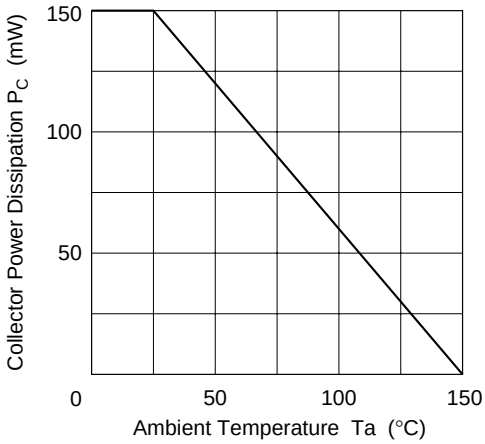
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	15	V
Collector to emitter voltage	V_{CEO}	9	V
Emitter to base voltage	V_{EBO}	1.5	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

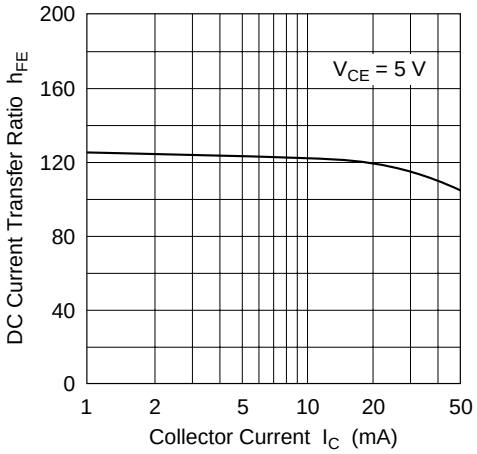
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	15	—	—	V	I_C = 10 µA, I_E = 0
Collector cutoff current	I_{CBO}	—	—	1	µA	V_{CB} = 12 V, I_E = 0
	I_{CEO}	—	—	1	mA	V_{CE} = 9 V, R_{BE} = ∞
Emitter cutoff current	I_{EBO}	—	—	10	µA	V_{EB} = 1.5 V, I_C = 0
DC current transfer ratio	h_{FE}	40	120	250	—	V_{CE} = 5 V, I_C = 20 mA
Collector output capacitance	Cob	—	0.8	1.5	pF	V_{CB} = 5 V, I_E = 0, f = 1MHz
Gain bandwidth product	f_T	6.5	9.0	—	GHz	V_{CE} = 5 V, I_C = 20 mA
Power gain	PG	9.5	12.5	—	dB	V_{CE} = 5 V, I_C = 20 mA, f = 900 MHz
Noise figure	NF	—	1.2	2.5	dB	V_{CE} = 5 V, I_C = 5 mA, f = 900 MHz

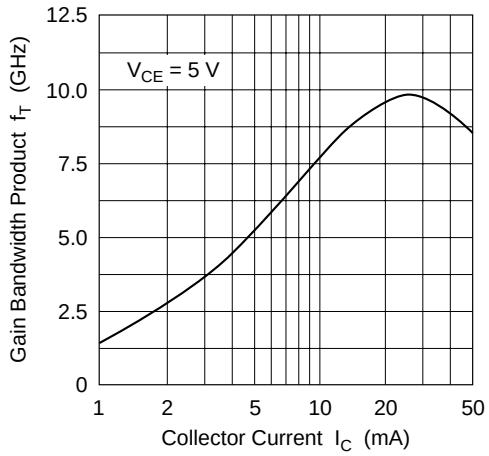
Maximum Collector Dissipation Curve



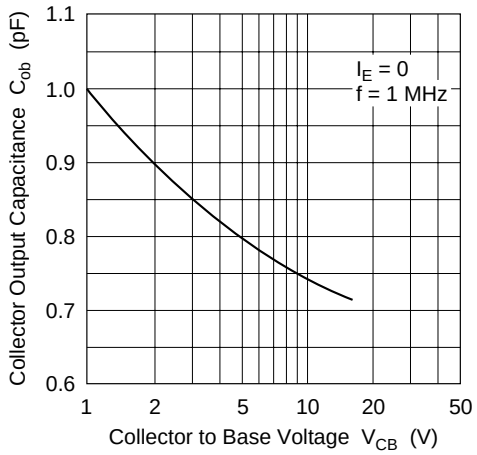
DC Current Transfer Ratio vs. Collector Current

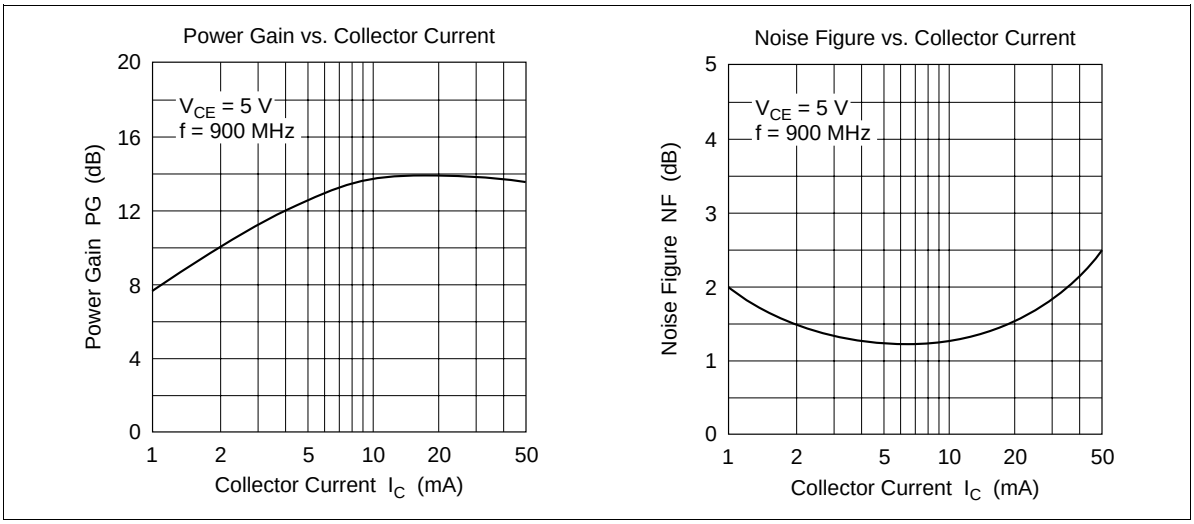


Gain Bandwidth Product vs. Collector Current



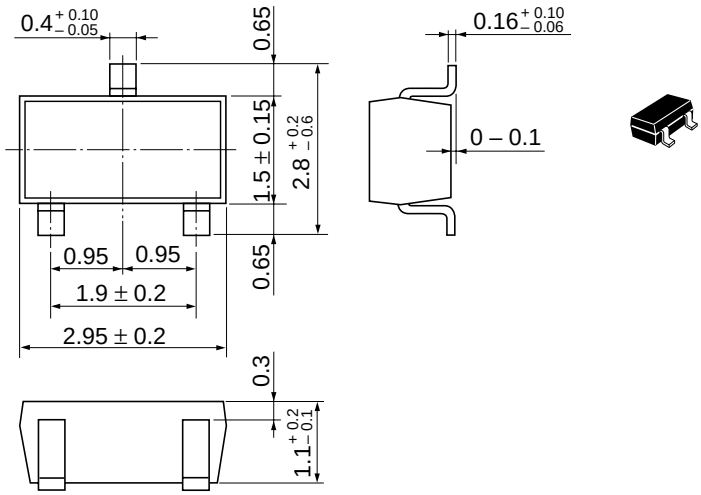
Collector Output Capacitance vs. Collector to Base Voltage




Power Gain vs. Collector Current
V_{CE} = 5 V
f = 900 MHz
Power Gain PG (dB)
Collector Current I_C (mA)
0
4
8
12
16
20
1
2
5
10
20
50
Noise Figure vs. Collector Current
V_{CE} = 5 V
f = 900 MHz
Noise Figure NF (dB)
Collector Current I_C (mA)
0
1
2
3
4
5
1
2
5
10
20
50

Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	MPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.011 g

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