

2SC3127

Silicon NPN Epitaxial

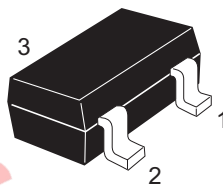
REJ03G0711-0300
(Previous ADE-208-1080A)
Rev.3.00
Aug.10.2005

Application

UHF/VHF wide band amplifier

Outline

RENESAS Package code: PLSP0003ZB-A
(Package name: MPAK)



- 1. Emitter
- 2. Base
- 3. Collector

Note: Marking for 2SC3127 is "ID-".

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	20	V
Collector to emitter voltage	V_{CEO}	12	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Electrical Characteristics

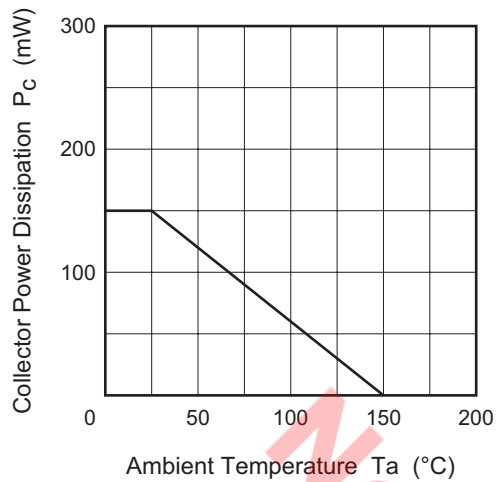
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	20	—	—	V	$I_C = 10\ \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	12	—	—	V	$I_C = 1\ mA, R_{BE} = \infty$
Emitter cutoff current	I_{EBO}	—	—	10	μA	$V_{EB} = 3\ V, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 12\ V, I_E = 0$
DC current transfer ratio	h_{FE}	30	90	200		$V_{CE} = 5\ V, I_C = 20\ mA$
Collector output capacitance	C_{ob}	—	0.9	1.5	pF	$V_{CB} = 5\ V, I_E = 0, f = 1\ MHz$
Gain bandwidth product	f_T	3.5	4.5	—	GHz	$V_{CE} = 5\ V, I_C = 20\ mA$
Power gain	PG	—	10.5	—	dB	$V_{CE} = 5\ V, I_C = 20\ mA, f = 900\ MHz$
Noise figure	NF	—	2.2	—	dB	$V_{CE} = 5\ V, I_C = 5\ mA, f = 900\ MHz$

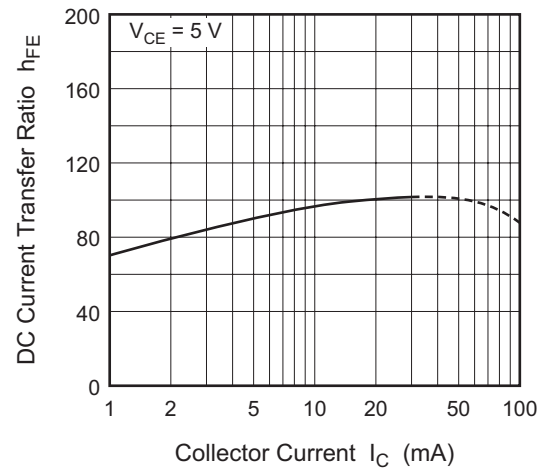
Not recommend
for new design

Main Characteristics

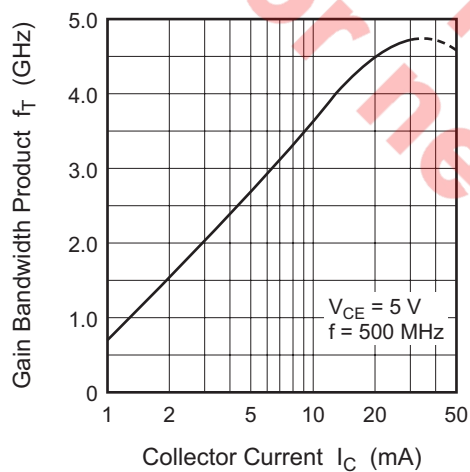
Maximum Collector Dissipation Curve



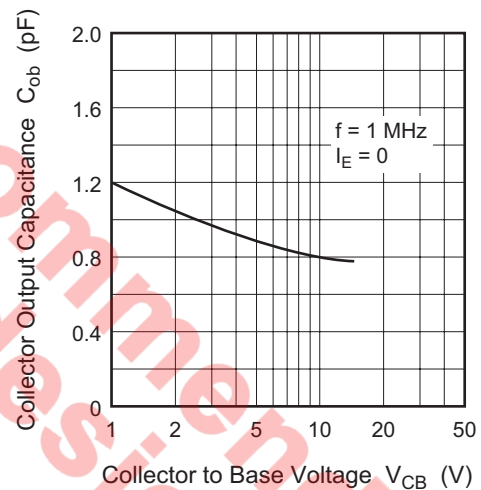
DC Current Transfer Ratio vs. Collector Current



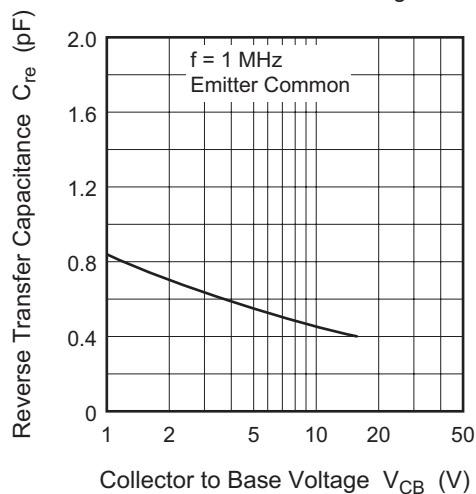
Gain Bandwidth Product vs. Collector Current



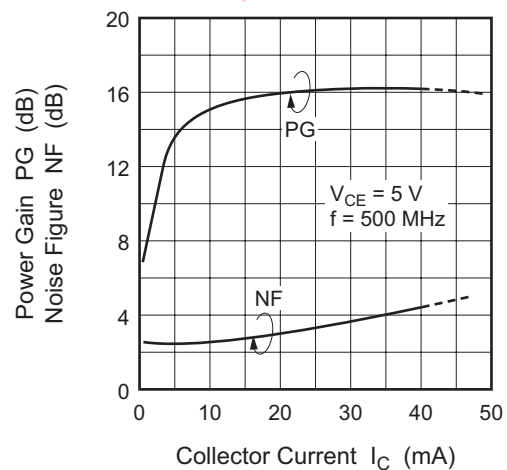
Collector Output Capacitance vs. Collector to Base Voltage



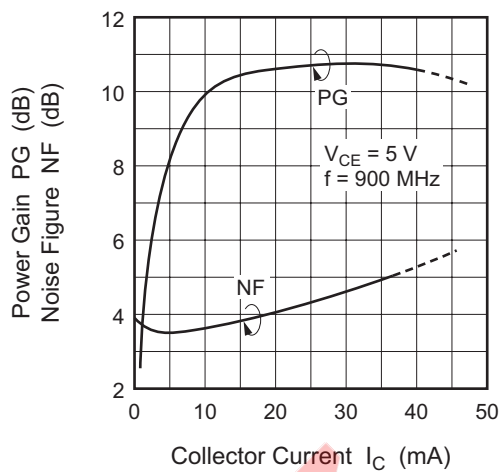
Reverse Transfer Capacitance vs. Collector to Base Voltage



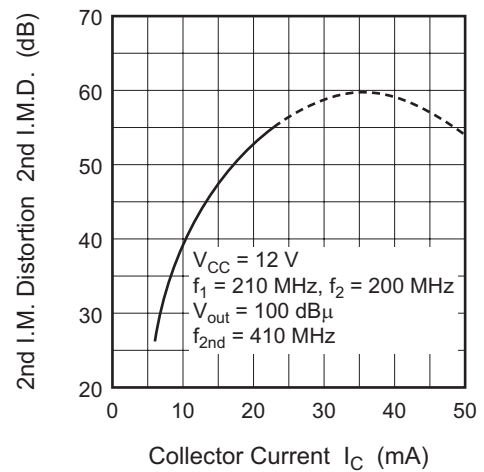
Power Gain and Noise Figure vs. Collector Current



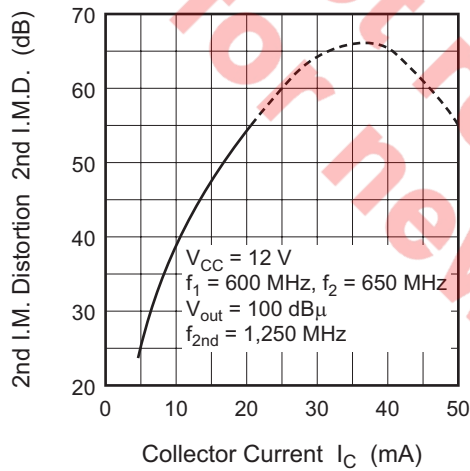
Power Gain and Noise Figure vs. Collector Current



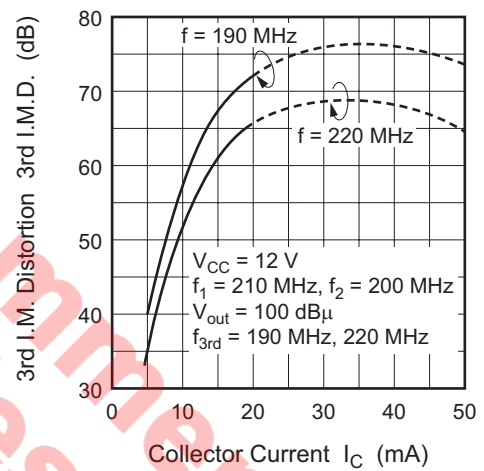
2nd I.M. Distortion vs. Collector Current



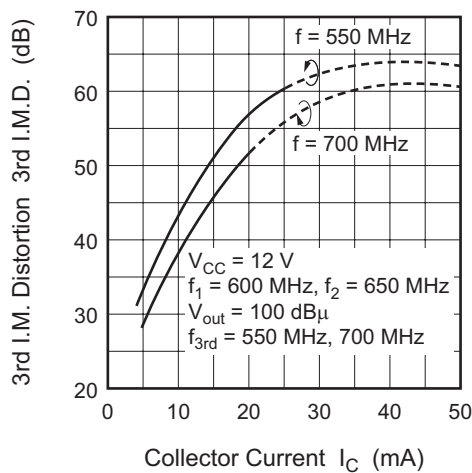
2nd I.M. Distortion vs. Collector Current



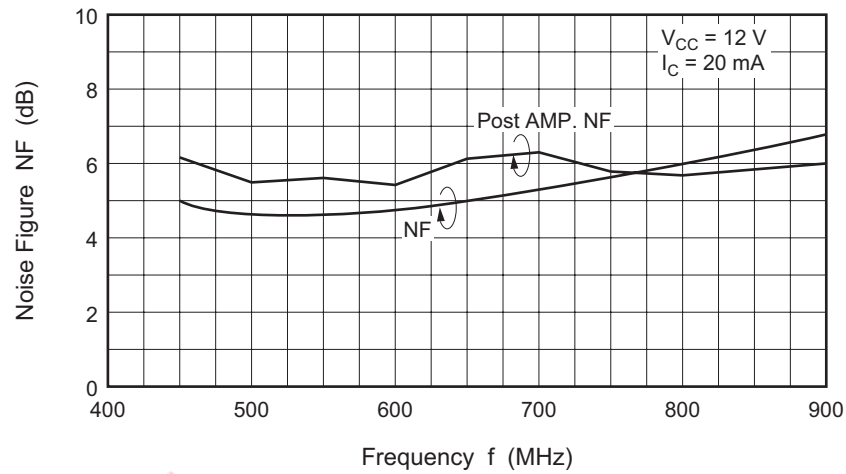
3rd I.M. Distortion vs. Collector Current



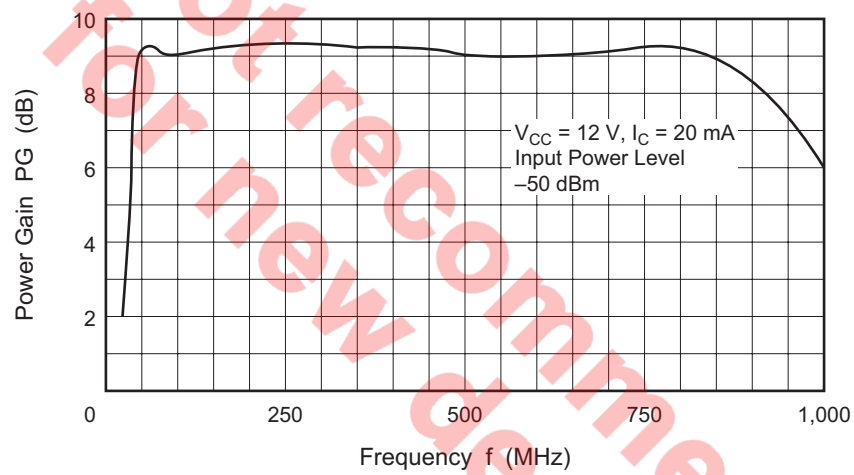
3rd I.M. Distortion vs. Collector Current



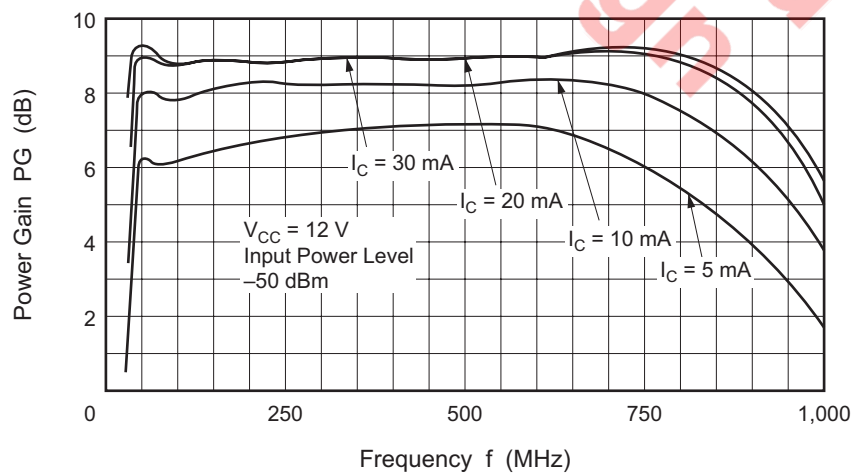
Noise Figure vs. Frequency



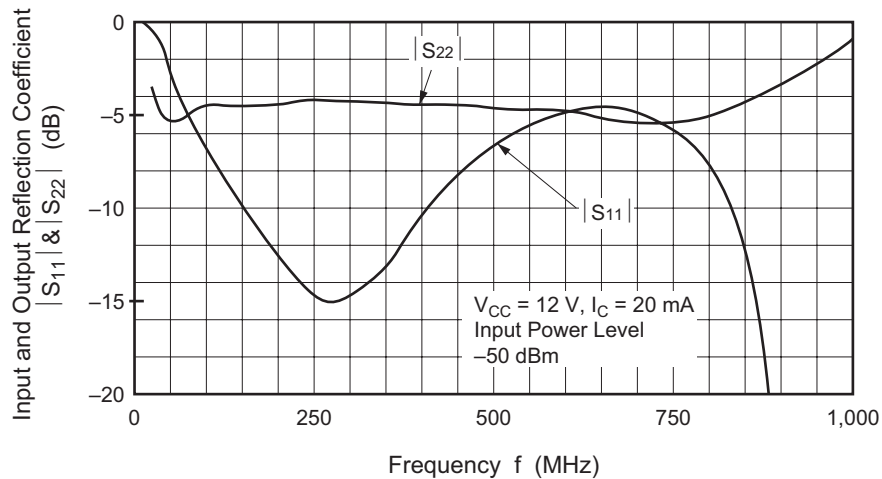
Power Gain vs. Frequency



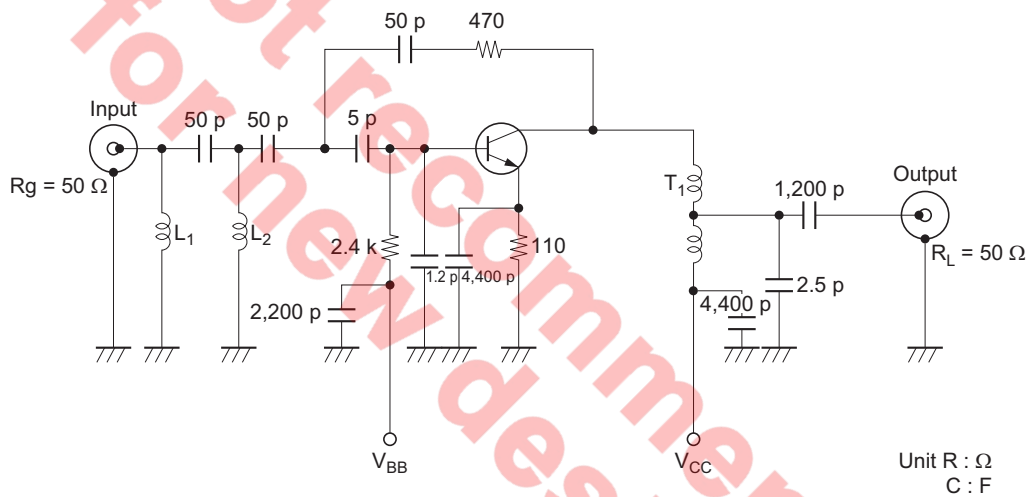
Power Gain vs. Frequency



Input and Output Reflection Coefficient vs. Frequency



Vhf to Uhf Wide Band Amp. Circuit



Parts Specification

L_1 : Inside dia $\phi 3.0$ mm, $\phi 0.4$ mm Polyurethane Coated Copper wire 12 Turns.

L_2 : Inside dia $\phi 3.5$ mm, $\phi 0.5$ mm Polyurethane Coated Copper wire 9 Turns.

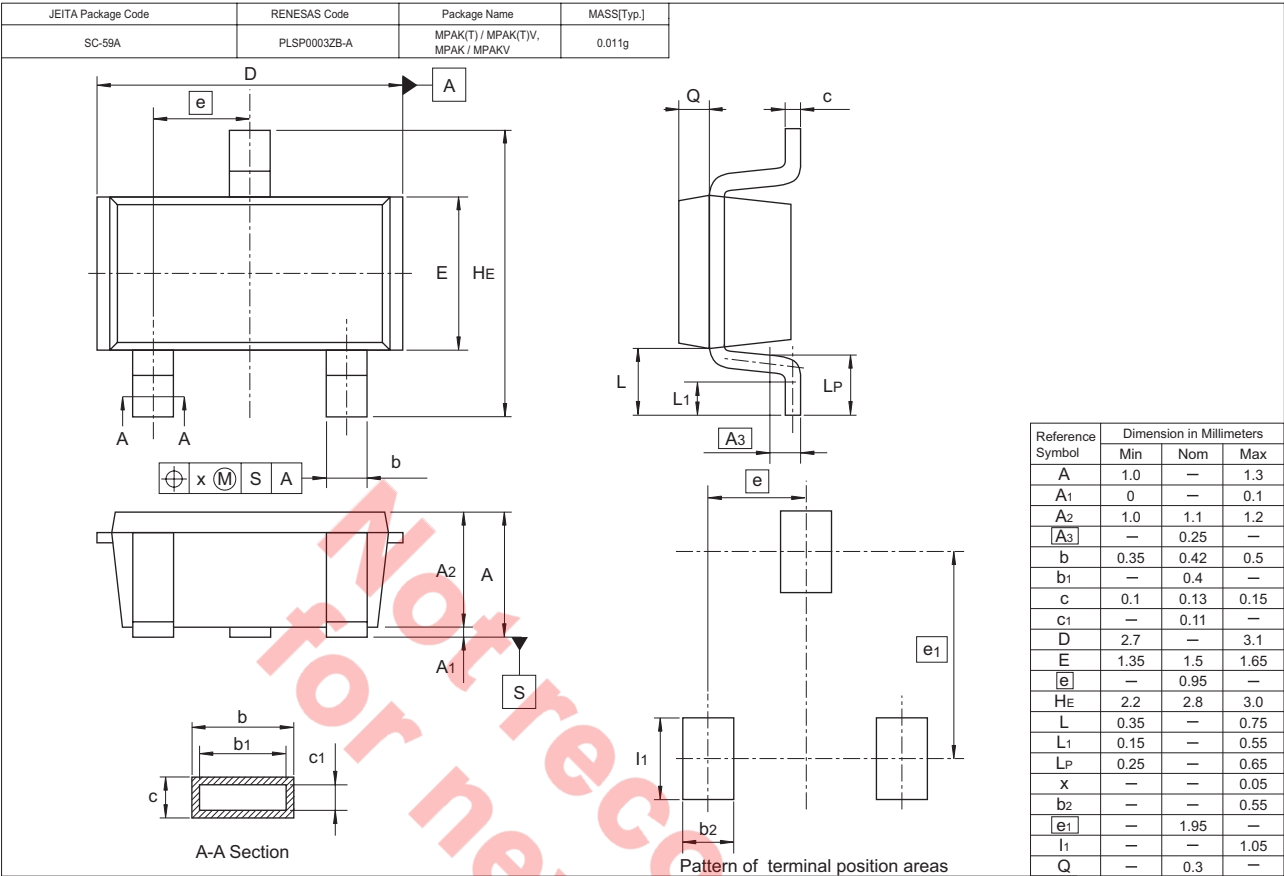
T_1 : Balance wind used Ferrite Core

Outside dia $\phi 4.0$ mm, Inside dia $\phi 2.0$ mm

$\phi 0.1$ mm Polyurethane Coated Copper wire 3 Turns.

Ratio Input to Output is 2 : 1

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SC3127ID-TL-E	3000	φ 178 mm Reel, 8 mm Emboss Taping

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