

2SC2734

Silicon NPN Epitaxial

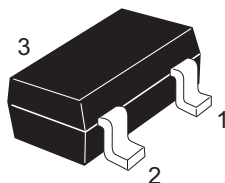
REJ03G0705-0200
(Previous ADE-208-1074)
Rev.2.00
Aug.10.2005

Application

- UHF frequency converter
- Local oscillator, wide band amplifier

Outline

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



1. Emitter
2. Base
3. Collector

Note: Marking is "GC".

Absolute Maximum Ratings

(Ta = 25°C)

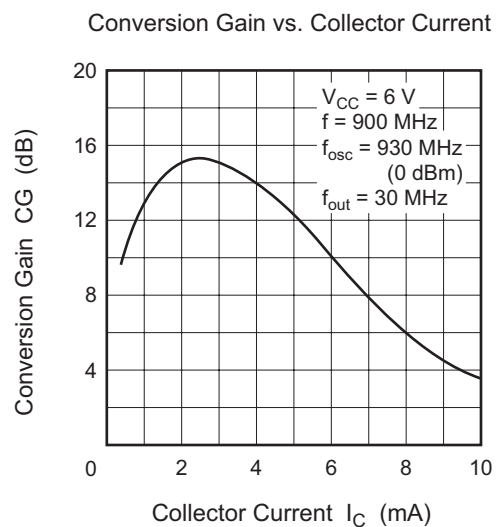
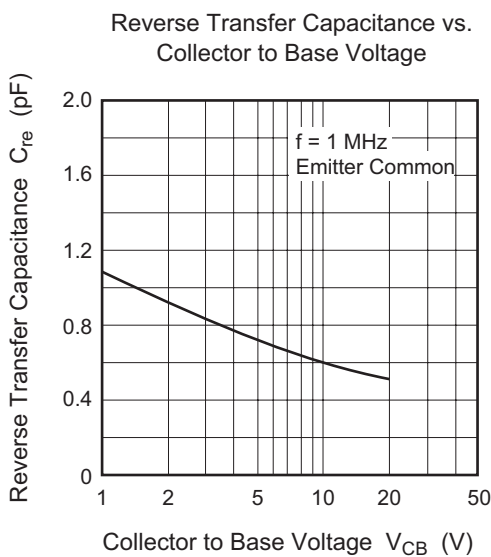
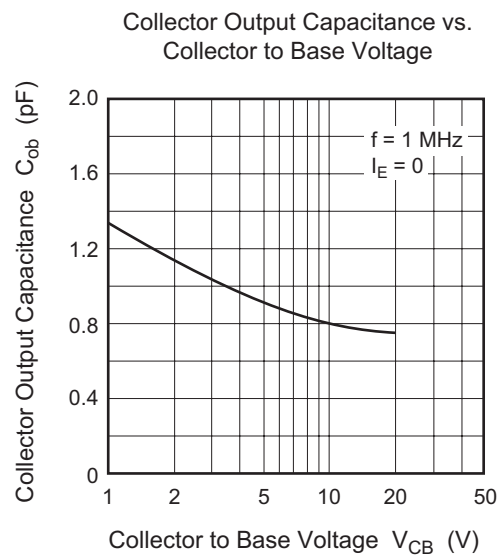
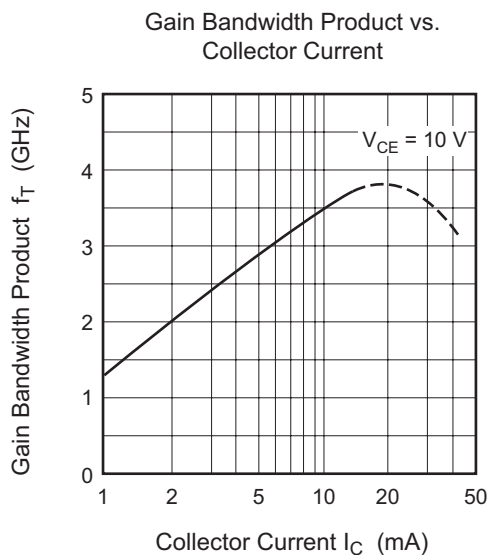
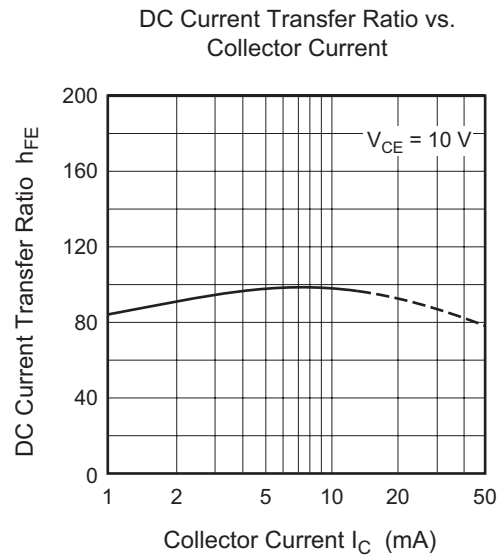
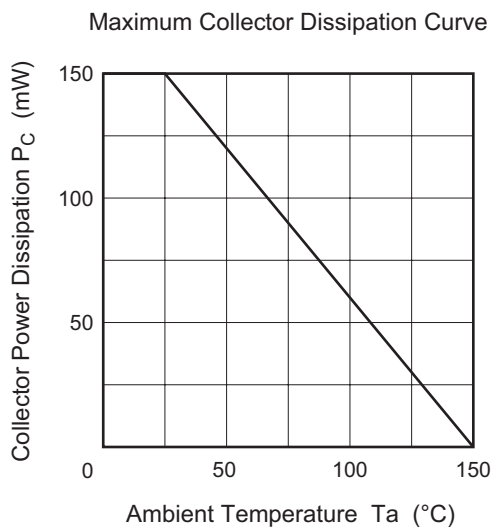
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	20	V
Collector to emitter voltage	V_{CEO}	11	V
Emitter to base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Electrical Characteristics

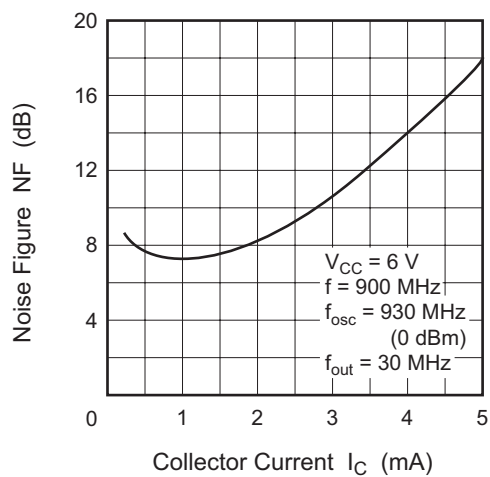
(Ta = 25°C)

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	$V_{(BR)CEO}$	11	—	—	V	$I_C = 1\ mA, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	3	—	—	V	$I_E = 10\ \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10\ V, I_E = 0$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	—	0.7	V	$I_C = 10\ mA, I_B = 5\ mA$
DC current transfer ratio	h_{FE}	20	90	200		$V_{CE} = 10\ V, I_C = 5\ mA$
Gain bandwidth product	f_T	1.4	3.5	—	GHz	$V_{CE} = 10\ V, I_C = 10\ mA$
Collector output capacitance	C_{ob}	—	0.9	1.5	pF	$V_{CB} = 10\ V, I_E = 0, f = 1\ MHz$
Conversion gain	CG	—	15	—	dB	$V_{CC} = 6\ V, I_C = 2\ mA,$ $f = 900\ MHz,$ $f_{OSC} = 930\ MHz\ (0dBm),$ $f_{out} = 30\ MHz$
Noise figure	NF	—	9	—	dB	$V_{CC} = 6\ V, I_C = 2\ mA,$ $f = 900\ MHz,$ $f_{OSC} = 930\ MHz\ (0dBm),$ $f_{out} = 30\ MHz$
Oscillating output voltage	V_{OSC}	—	140	—	mV	$V_{CC} = 6\ V, I_C = 5\ mA,$ $f = 930\ MHz$

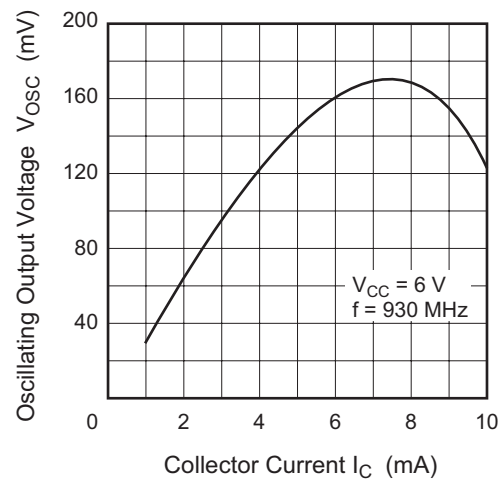
Main Characteristics



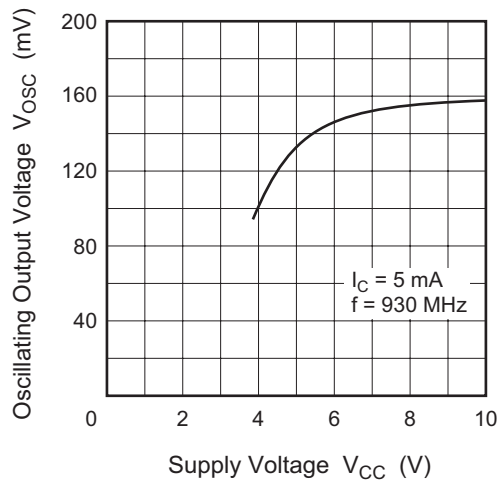
Noise Figure vs. Collector Current



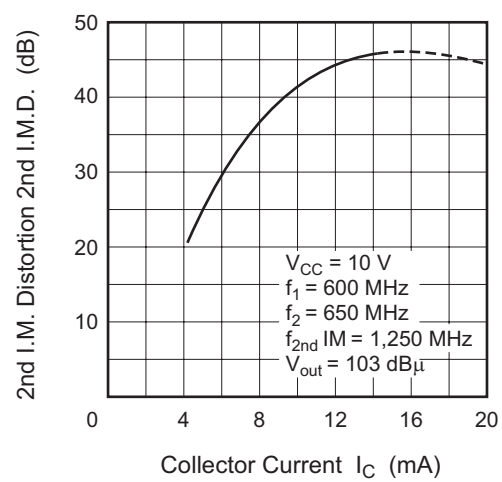
Oscillating Output Voltage vs. Collector Current



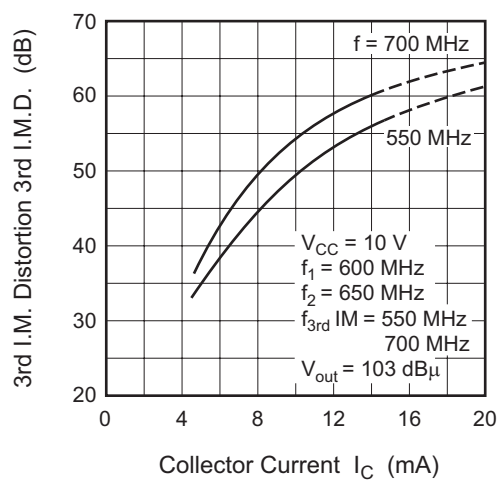
Oscillating Output Voltage vs. Supply Voltage



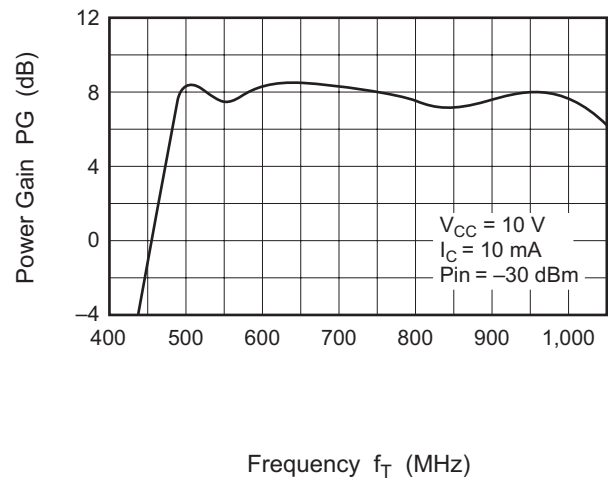
2nd I.M. Distortion vs. Collector Current



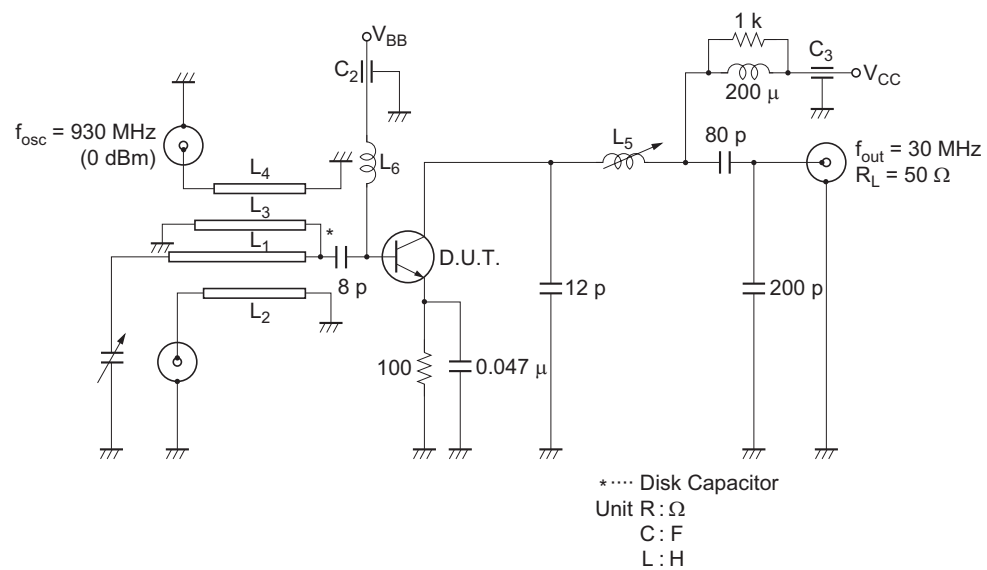
3rd I.M. Distortion vs. Collector Current



Power Gain vs. Frequency



Conversion Gain, Noise Figure Test Circuit

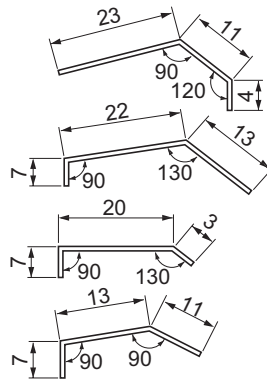


L_1 : $\phi 1$ mm Enameled Copper wire

L_2 : $\phi 1$ mm Enameled Copper wire

L_3 : $\phi 1$ mm Enameled Copper wire

L_4 : $\phi 1$ mm Enameled Copper wire



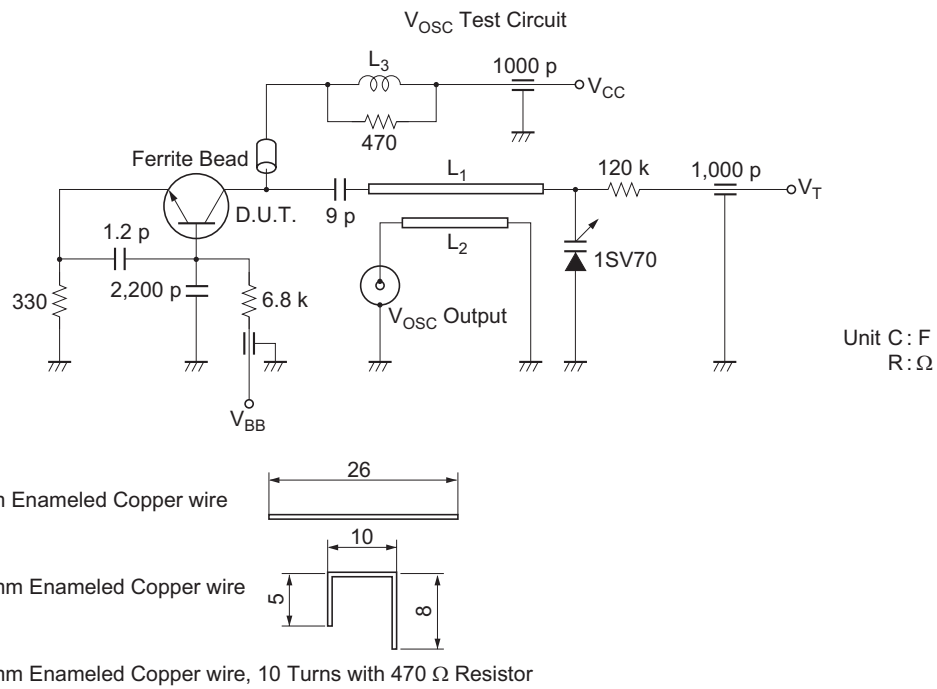
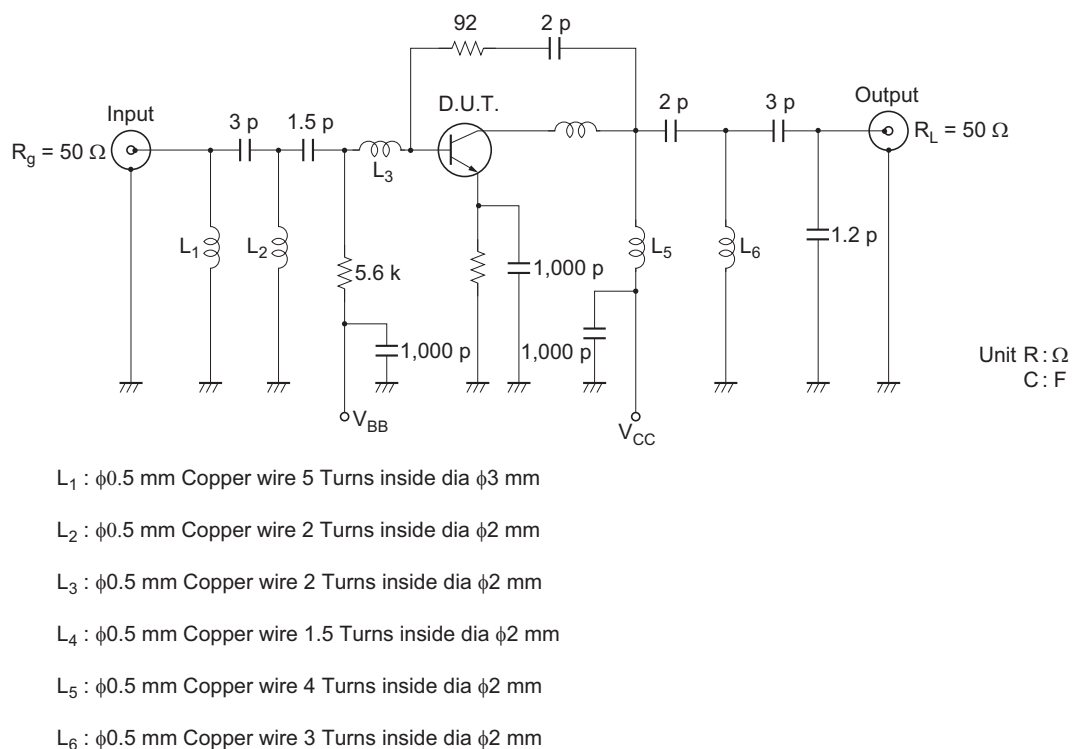
Unit : mm

L_5 : Bobbin $\phi 5$ mm inside dia, $\phi 0.2$ mm 20 Turns Enameled Copper wire

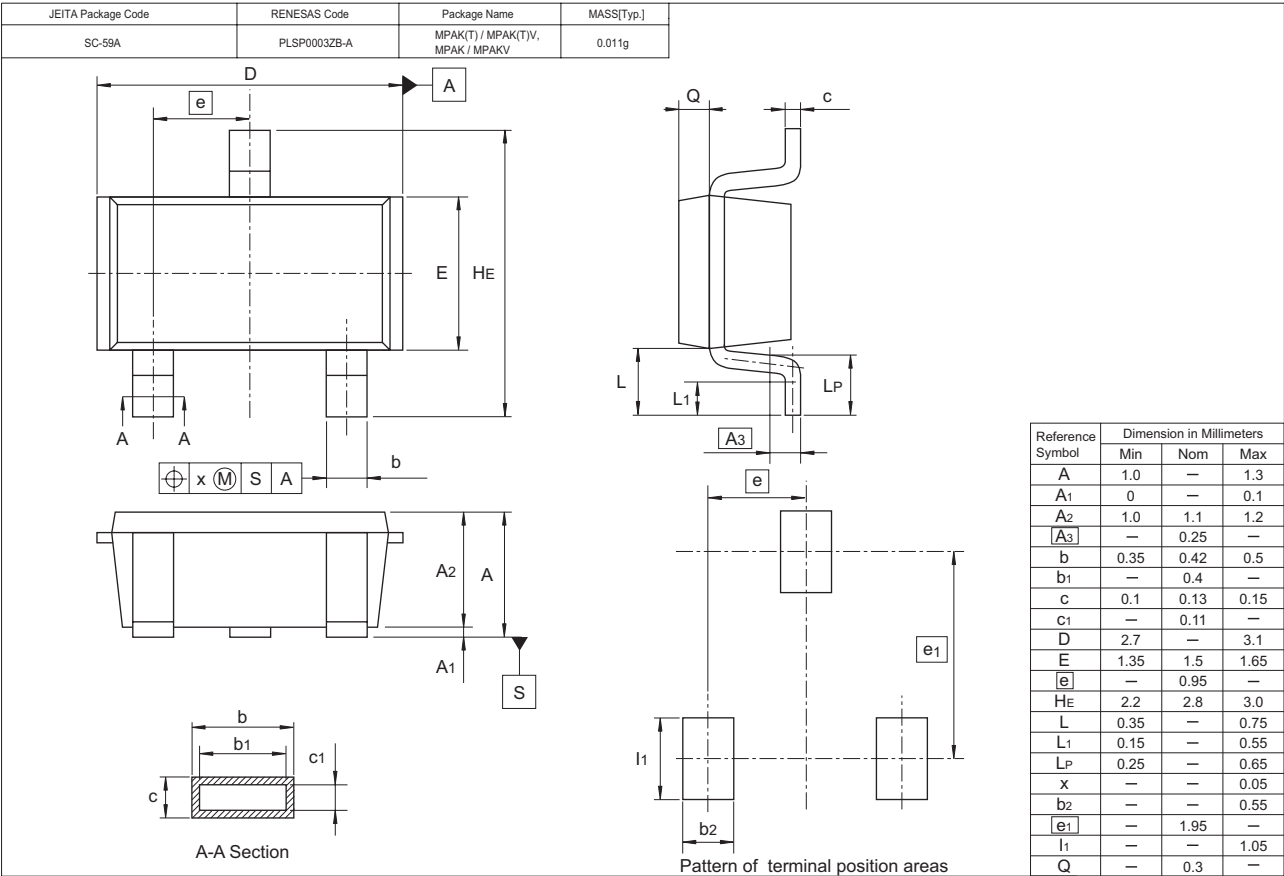
L_6 : $\phi 0.5$ mm Enameled Copper wire 1 Turn inside dia $\phi 6$ mm

C_1 : 20 pF max. Air Trimmer Condenser

C_2, C_3 : 1000 pF Air Core Capacitor

Circuit Example-UHF Wide Bandwidth Amplifier ($f = 500$ MHz to 950 MHz)

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SC2734GTL-E	3000	φ 178 mm Reel, 8 mm Emboss Taping

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