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# 2SC2734

Silicon NPN Epitaxial

# HITACHI

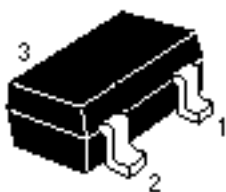
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## Application

- UHF frequency converter
- Local oscillator, wide band amplifier

## Outline

MPAK



1. Emitter
2. Base
3. Collector

## 2SC2734

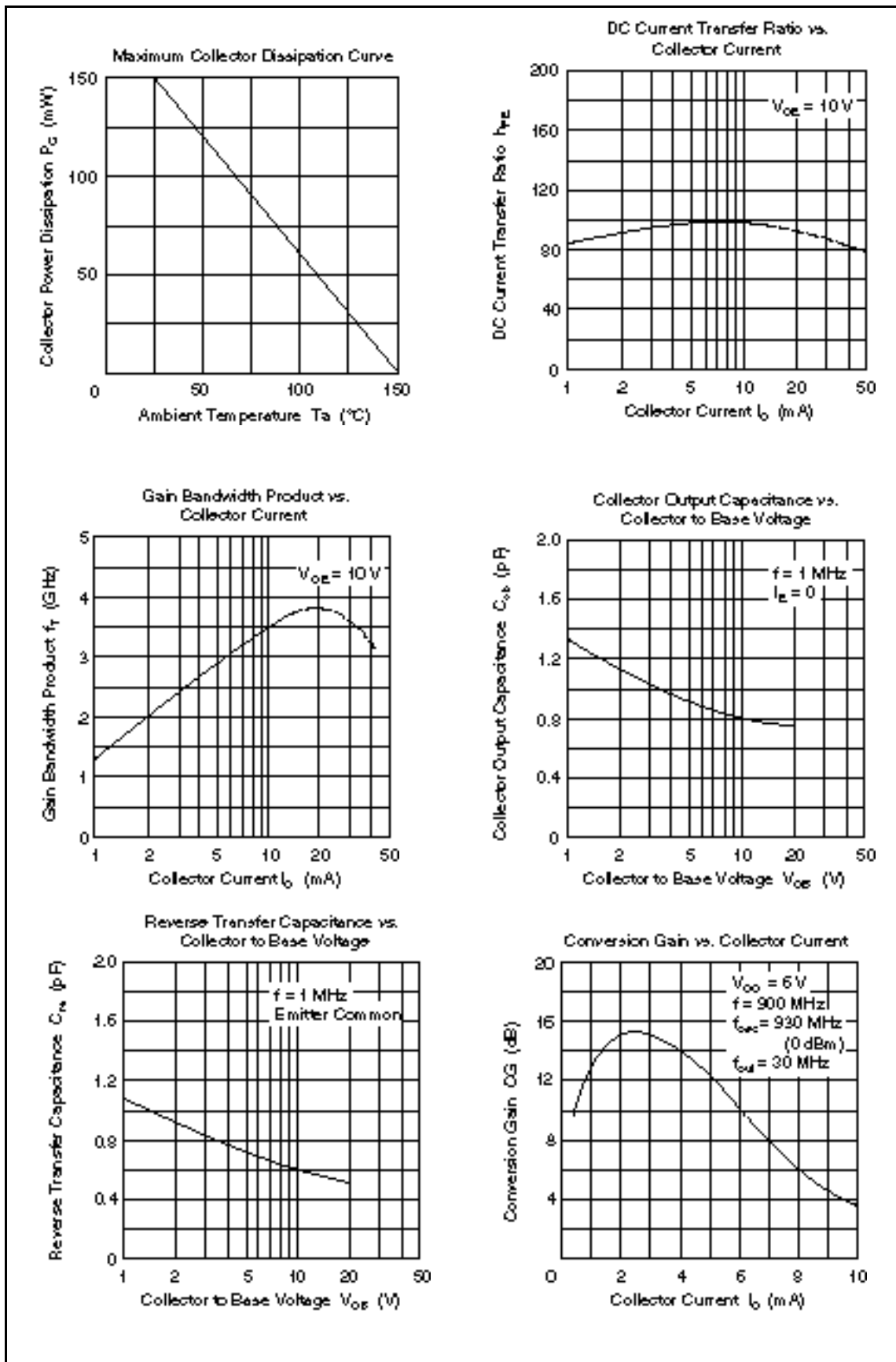
### Absolute Maximum Ratings (Ta = 25°C)

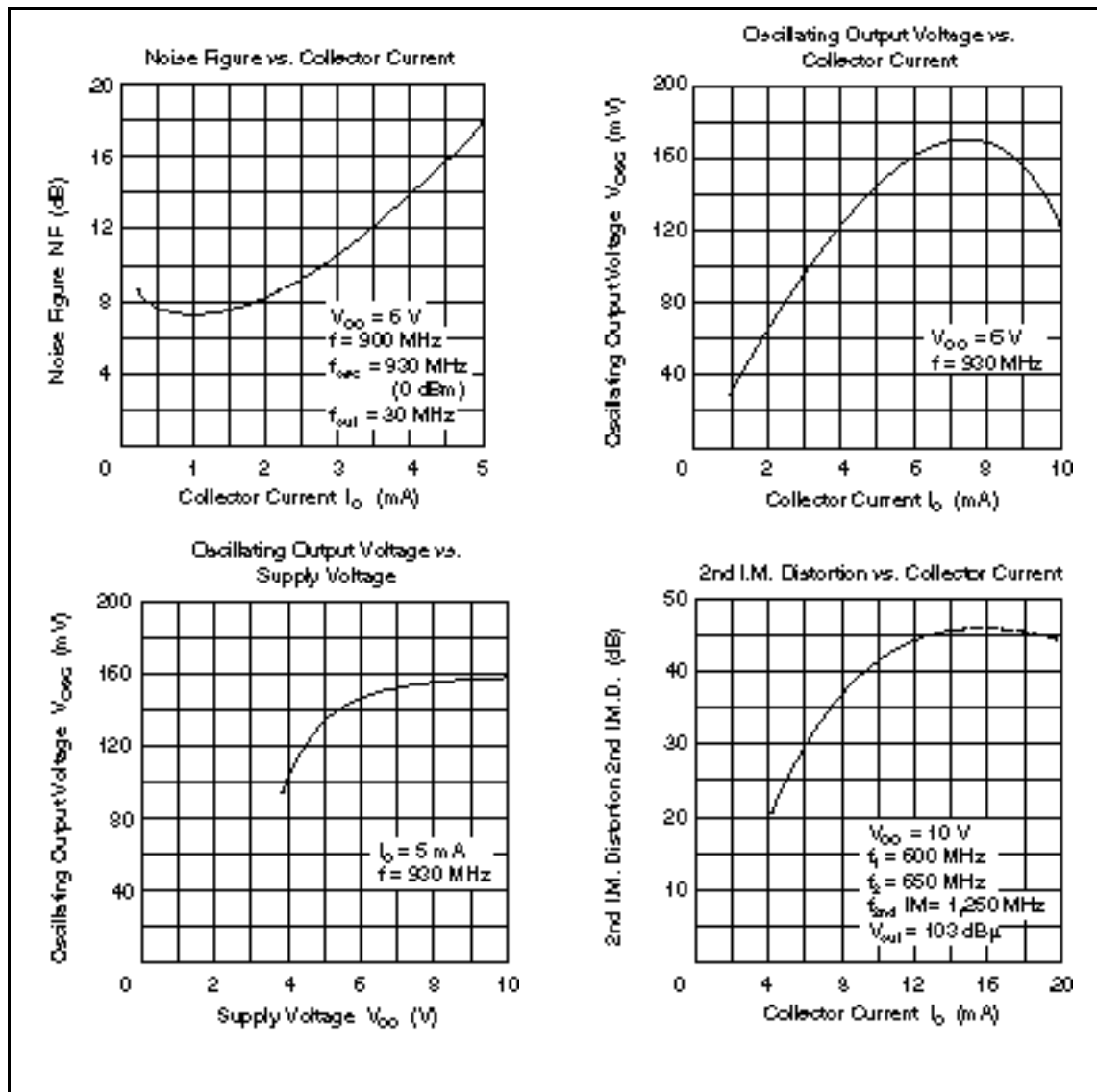
Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	20	V
Collector to emitter voltage	$V_{CEO}$	11	V
Emitter to base voltage	$V_{EBO}$	3	V
Collector current	$I_C$	50	mA
Collector power dissipation	$P_C$	150	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

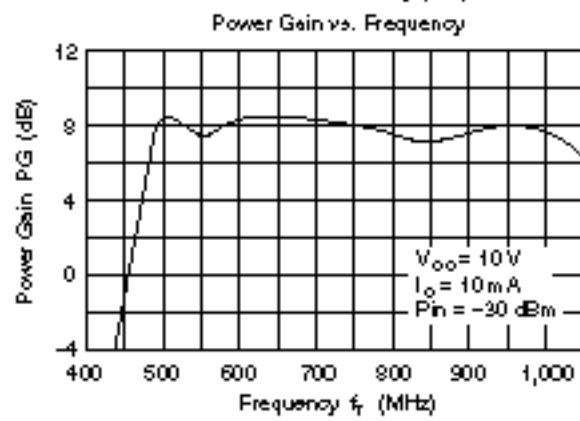
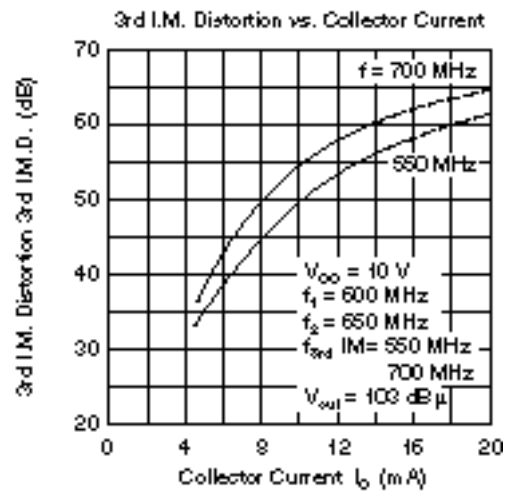
### Electrical Characteristics (Ta = 25°C)

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

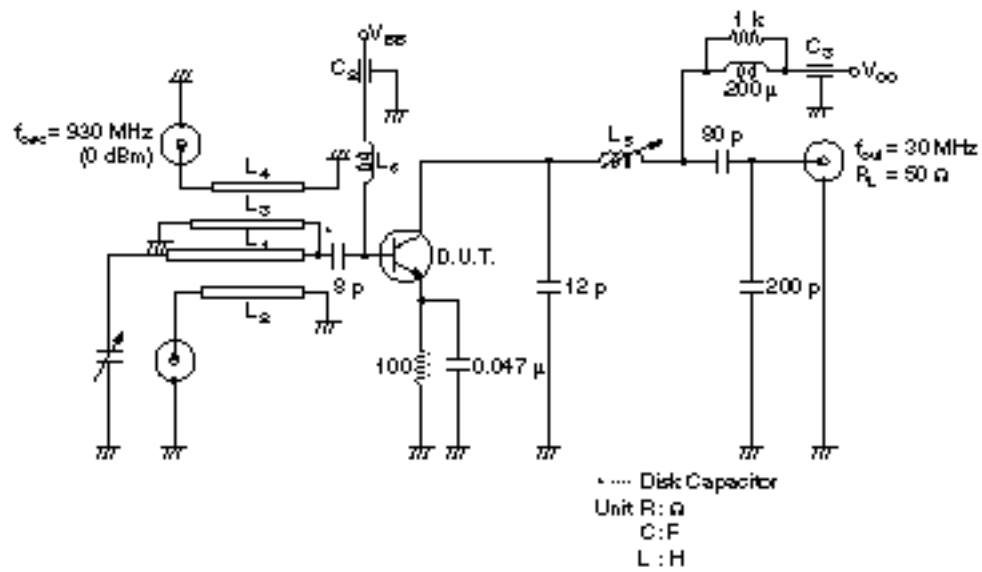
Note: Marking is "GC".







Conversion Gain, Noise Figure Test Circuit

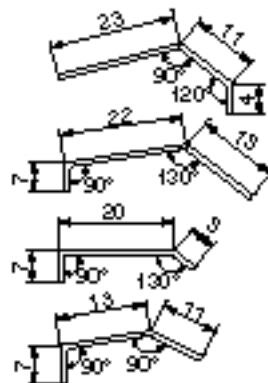


$L_1$  :  $\phi 1 \text{ mm}$  Enameled Copper wire

$L_2$  :  $\phi 1 \text{ mm}$  Enameled Copper wire

$L_3$  :  $\phi 1 \text{ mm}$  Enameled Copper wire

$L_4$  :  $\phi 1 \text{ mm}$  Enameled Copper wire



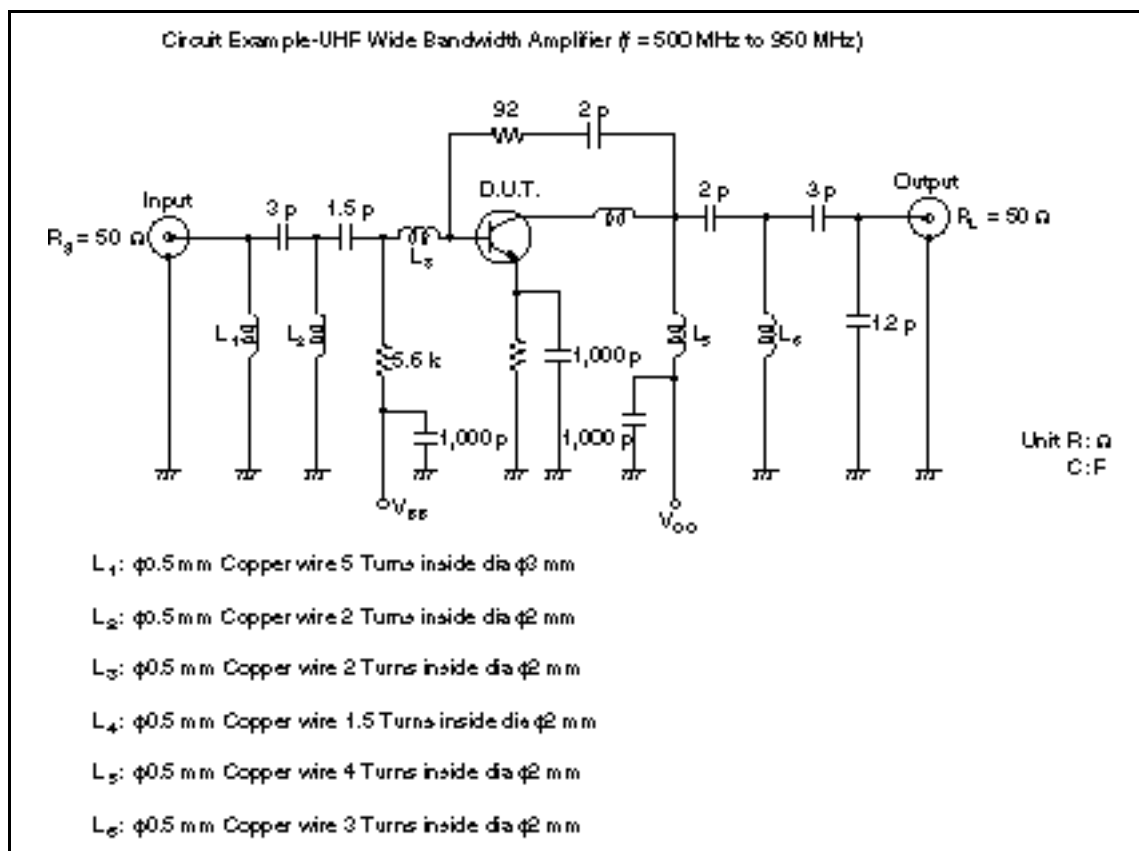
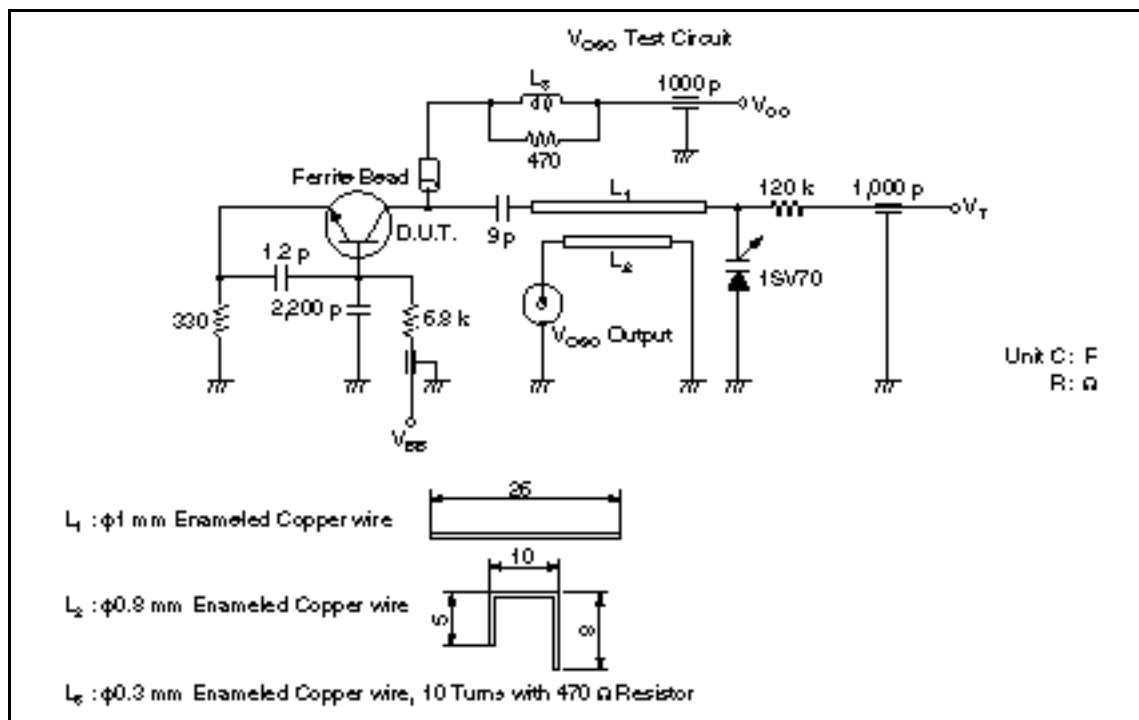
Unit : mm

$L_5$  : Bobbin  $\phi 6 \text{ mm}$  inside dia,  $\phi 0.2 \text{ mm}$  20 Turns Enameled Copper wire

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

$C_1$  : 20 pF max. Air Trimmer Condenser

$C_2, C_3$  : 1000 pF Air Core Capacitor



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