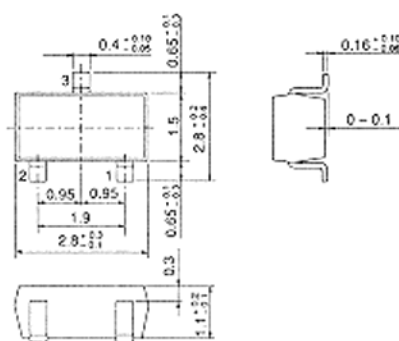


2SC2736

SILICON NPN EPITAXIAL

UHF/VHF FREQUENCY CONVERTER,
LOCAL OSCILLATOR



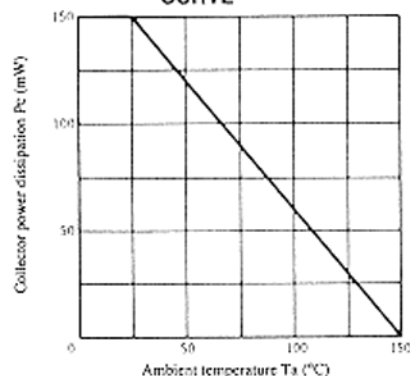
(MPAK)

1. Emitter
 2. Base
 3. Collector
- (Dimensions in mm)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SC2736	Unit
Collector to base voltage	V _{CB0}	30	V
Collector to emitter voltage	V _{CE0}	20	V
Emitter to base voltage	V _{EB0}	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

MAXIMUM COLLECTOR DISSIPATION CURVE



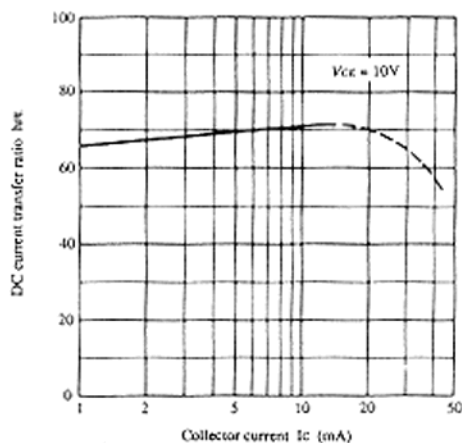
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Collector to base breakdown voltage	V _{(BR)CBO}	I _c = 10μA, I _E = 0	30	—	—	V
Collector to emitter breakdown voltage	V _{(BR)CEO}	I _c = 1mA, R _{BE} = ∞	20	—	—	V
Emitter to base breakdown voltage	V _{(BR)EBO}	I _E = 10μA, I _c = 0	3	—	—	V
Collector cutoff current	I _{CBO}	V _{CB} = 15V, I _c = 0	—	—	500	nA
Collector to emitter saturation voltage	V _{CE(sat)}	I _c = 10mA, I _B = 5mA	—	—	0.7	V
DC current transfer ratio	h _{FE}	V _{CE} = 10V, I _c = 5mA	30	—	200	
Collector output capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz	—	—	1.0	pF
Gain bandwidth product	f _r	V _{CE} = 10V, I _c = 5mA	1400	2200	—	MHz
Conversion gain	CG1	V _{CC} = 12V, I _c = 2mA, f = 200MHz f _{osc} = 230MHz (0dBm)	—	22.5	—	dB
	CG2	V _{CC} = 12V, I _c = 2mA, f = 900MHz f _{osc} = 930MHz (0dBm), f _{out} = 30MHz	—	10	—	dB
Noise figure	NF	V _{CC} = 12V, I _c = 2mA, f = 200MHz f _{osc} = 230MHz (0dBm)	—	4.0	—	dB
Oscillating output voltage	V _{osc1}	V _{CC} = 12V, I _c = 7mA, f _{osc} = 300MHz	—	300	—	mV
	V _{osc2}	V _{CC} = 12V, I _c = 7mA, f _{osc} = 930MHz	—	200	—	mV

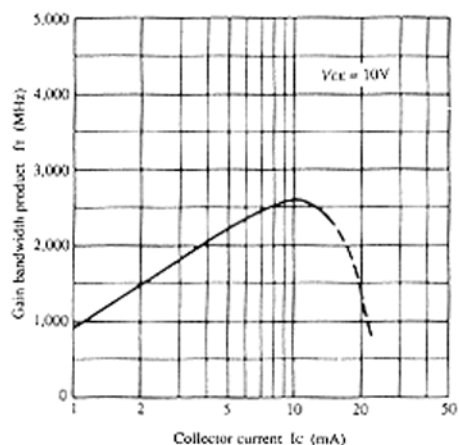
* Marking is "TC".

2SC2736

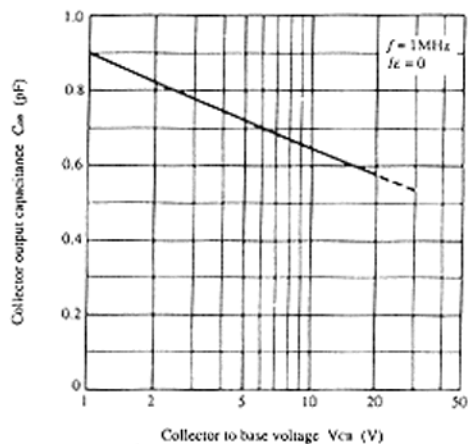
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



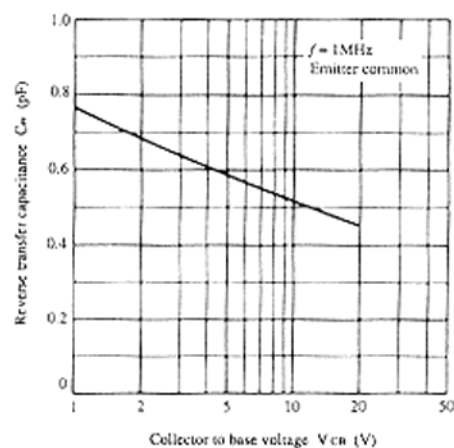
GAIN BANDWIDTH PRODUCT VS. COLLECTOR CURRENT



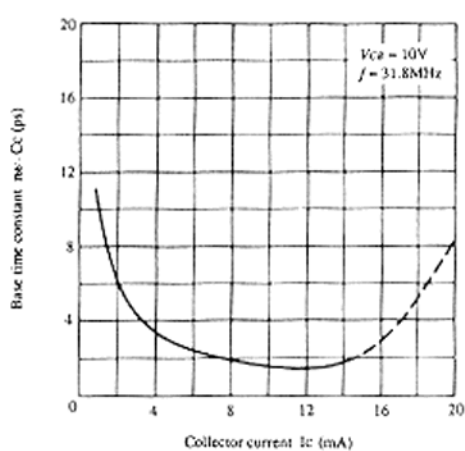
COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



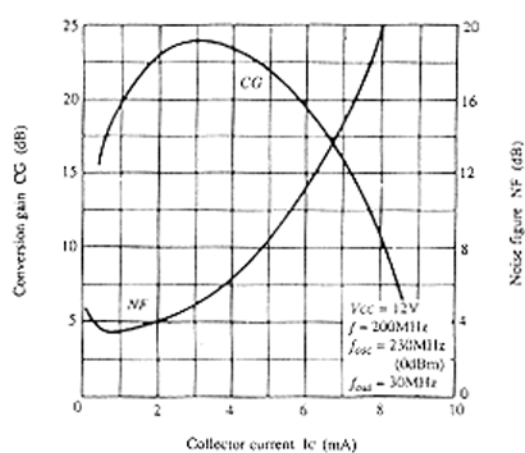
REVERSE TRANSFER CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



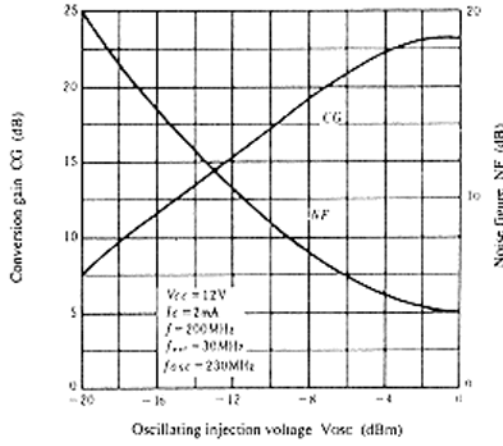
BASE TIME CONSTANT VS. COLLECTOR CURRENT



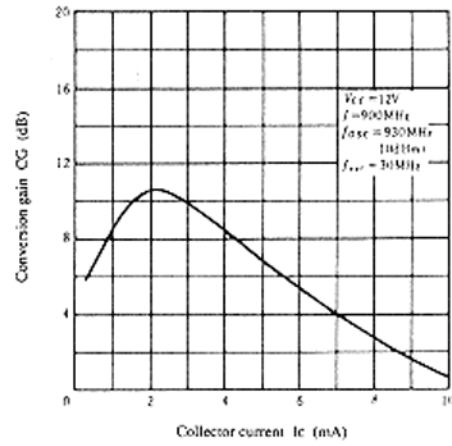
CONVERSION GAIN, NOISE FIGURE VS. COLLECTOR CURRENT



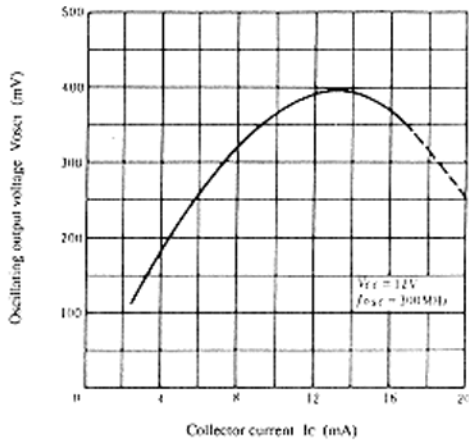
CONVERSION GAIN, NOISE FIGURE VS. OSCILLATING INJECTION VOLTAGE



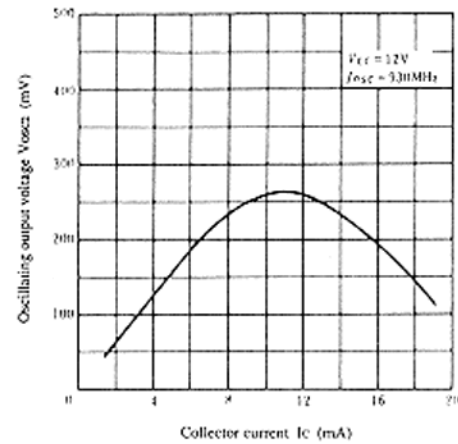
CONVERSION GAIN VS. COLLECTOR CURRENT



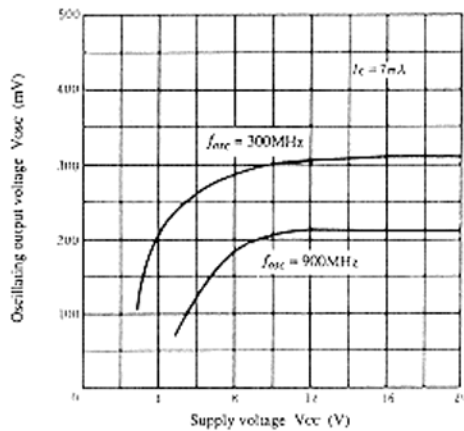
OSCILLATING OUTPUT VOLTAGE VS. COLLECTOR CURRENT



OSCILLATING OUTPUT VOLTAGE VS. COLLECTOR CURRENT

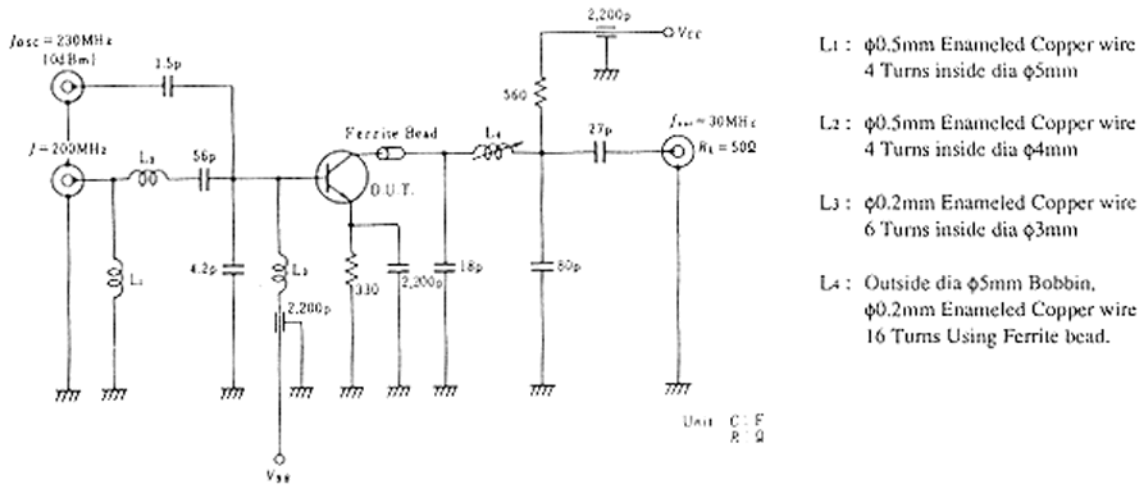


OSCILLATING OUTPUT VOLTAGE VS. SUPPLY VOLTAGE

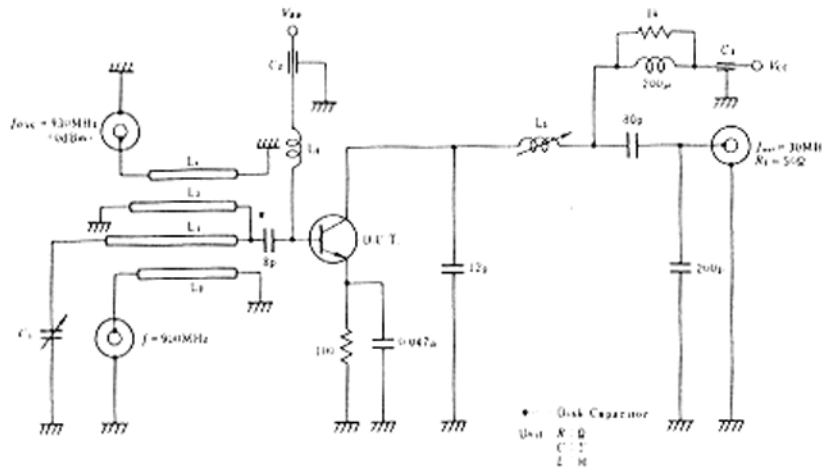


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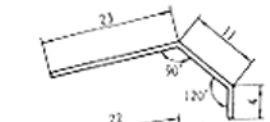
VHF CONVERSION GAIN(CG₁), NOISE FIGURE TEST CIRCUIT



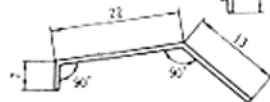
UHF CONVERSION GAIN(CG₂) TEST CIRCUIT



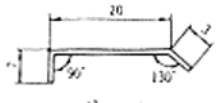
L1: $\phi 1\text{mm}$ Enameled Copper wire



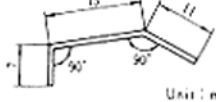
L2: $\phi 1\text{mm}$ Enameled Copper wire



L3: $\phi 1\text{mm}$ Enameled Copper wire



L4: $\phi 1\text{mm}$ Enameled Copper wire



Unit: mm

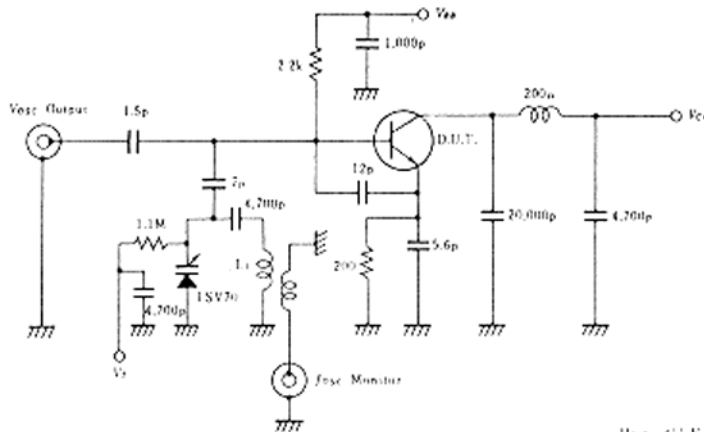
L5: Bobbin $\phi 5\text{mm}$ inside dia, $\phi 0.2\text{mm}$ Enameled Copper wire 20 Turns

L6: $\phi 0.5\text{mm}$ Enameled Copper wire 1 Turn inside dia $\phi 6\text{mm}$

C1: 20pF max Air Trimmer Condenser

C2, C3: 1000pF Air Core Capacitor

VHF OSCILLATING OUTPUT VOLTAGE (V_{osc1}) TEST CIRCUIT



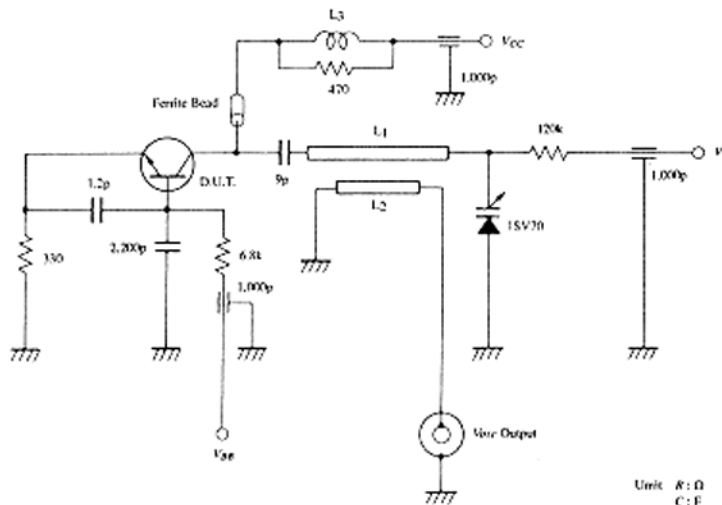
L1 : $\phi 0.3\text{mm}$ Enameled Copper wire
3 Turns inside dia $\phi 3\text{mm}$

Test Frequency
 $f_{osc} = 300\text{MHz}$

Test Equipment
YHP 4271A Vector Voltmeter

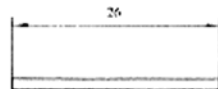
Unit C : F
R : Ω
L : H

UHF OSCILLATING OUTPUT VOLTAGE (V_{osc2}) TEST CIRCUIT

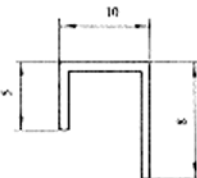


Unit R : Ω
C : F

L1 : Polyurethane Coated
Copper wire



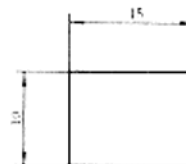
L2 : Polyurethane Coated
Copper wire



(Unit: mm)

L3 : $\phi 0.3\text{mm}$ Enamel copper
wire, 10 Turns with
 470Ω (1/4W) Resistor.

Dimensions of Cavity



Test Frequency
 $f_{osc} = 930\text{MHz}$

Test Equipment
YHP 4271A Vector Voltmeter