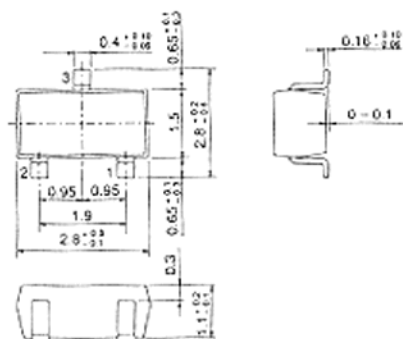


2SC2735

SILICON NPN EPITAXIAL

UHF/VHF LOCAL OSCILLATOR
VHF FREQUENCY CONVERTER



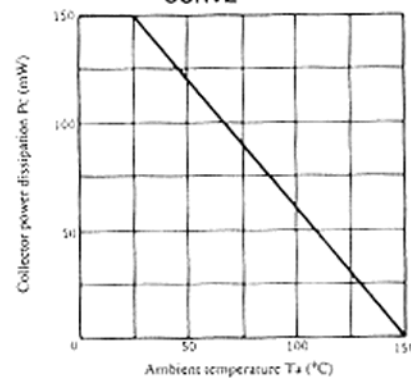
1. Emitter
2. Base
3. Collector
(Dimensions in mm)

(MPAK)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SC2735	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

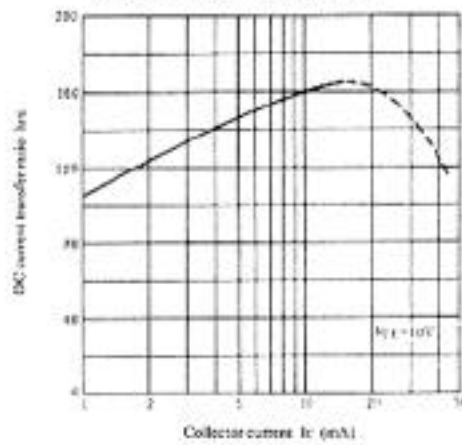


■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

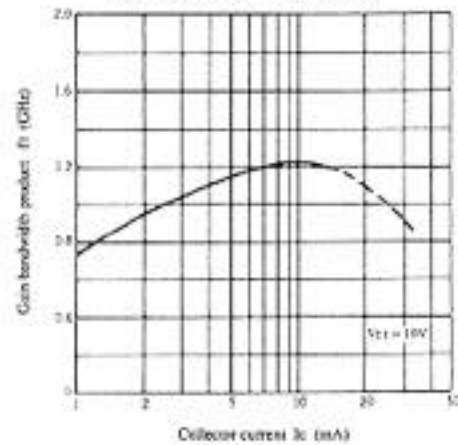
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Collector to base breakdown voltage	V _{(BR)CBO}	I _C = 10μA, I _E = 0	30	—	—	V
Collector to emitter breakdown voltage	V _{(BR)CEO}	I _C = 1mA, R _{BE} = ∞	20	—	—	V
Emitter to base breakdown voltage	V _{(BR)EBO}	I _E = 10μA, I _C = 0	3	—	—	V
Collector cutoff current	I _{CBO}	V _{CB} = 10V, I _E = 0	—	—	0.5	μA
Collector to emitter saturation voltage	V _{CE(sat)}	I _C = 20mA, I _B = 4mA	—	—	1.0	V
DC current transfer ratio	h _{FE}	V _{CE} = 10V, I _C = 10mA	40	—	—	
Collector output capacitance	C _{ob}	V _{CB} = 10V, I _C = 0, f = 1MHz	—	0.85	1.5	pF
Gain bandwidth product	f _T	V _{CE} = 10V, I _C = 10mA	600	1200	—	MHz
Oscillating output voltage	V _{osc1}	V _{CC} = 12V, I _C = 7mA, f _{osc} = 300MHz	—	210	—	mV
	V _{osc2}	V _{CC} = 12V, I _C = 7mA, f _{osc} = 930MHz	—	130	—	mV
Conversion gain	CG	V _{CC} = 12V, I _C = 2mA, f = 200MHz f _{osc} = 230MHz (0dBm)	—	21	—	dB
Noise figure	NF	V _{CC} = 12V, I _C = 2mA, f = 200MHz f _{osc} = 230MHz (0dBm)	—	6.5	—	dB

* Marking is "JC".

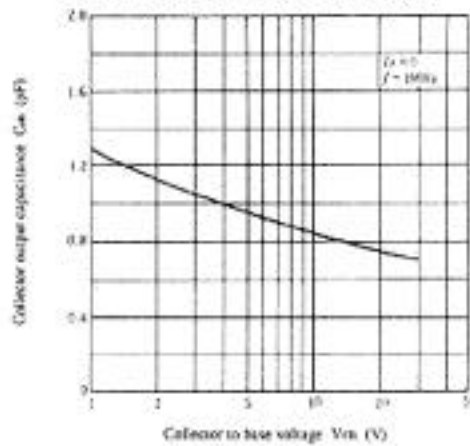
**DC CURRENT TRANSFER RATIO
VS. COLLECTOR CURRENT**



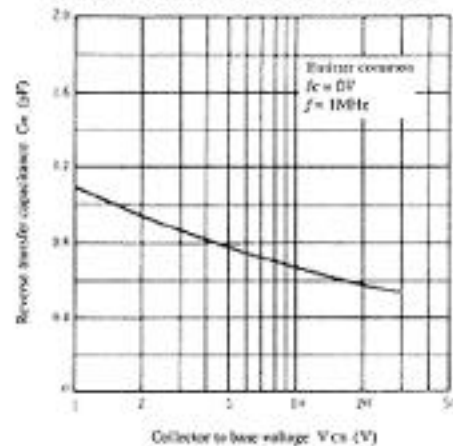
**GAIN BANDWIDTH PRODUCT
VS. COLLECTOR CURRENT**



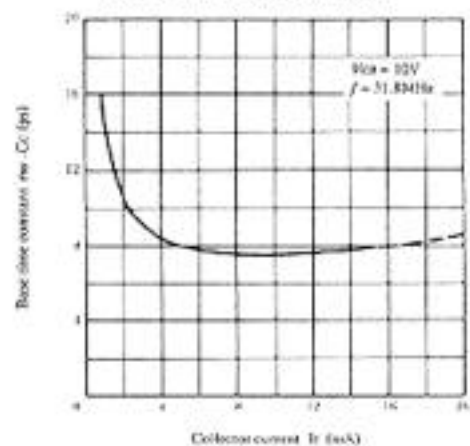
**COLLECTOR OUTPUT CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE**



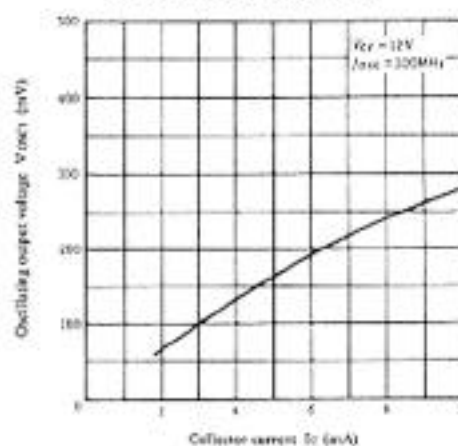
**REVERSE TRANSFER CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE**



**BASE TIME CONSTANT
VS. COLLECTOR CURRENT**

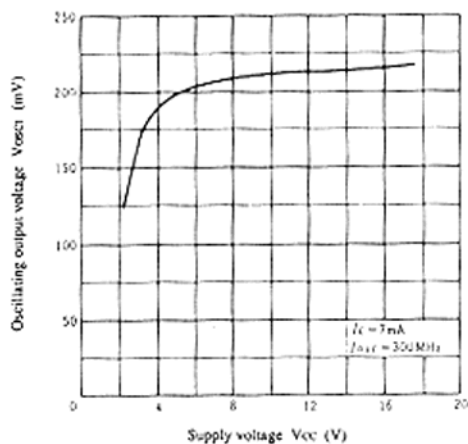


**OSCILLATING OUTPUT VOLTAGE
VS. COLLECTOR CURRENT**

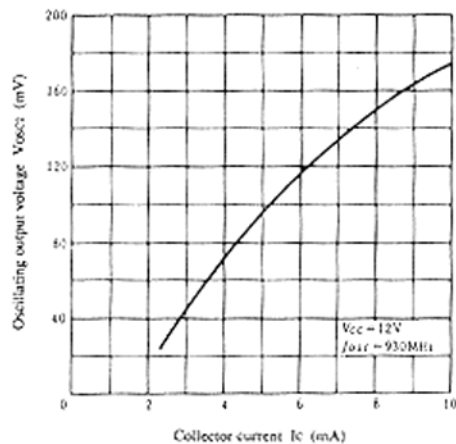


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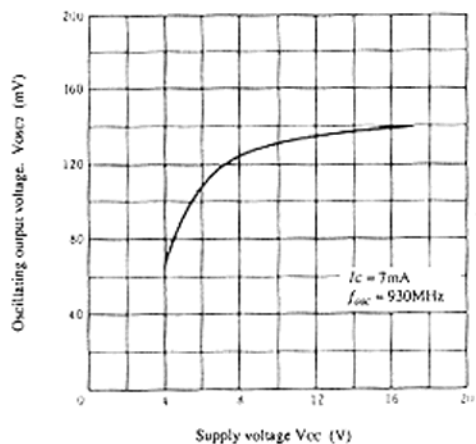
**OSCILLATING OUTPUT VOLTAGE
VS. SUPPLY VOLTAGE**



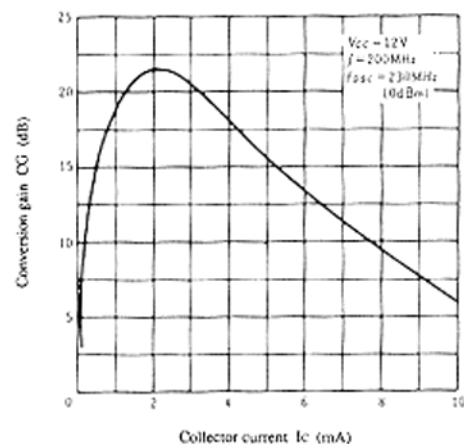
**OSCILLATING OUTPUT VOLTAGE
VS. COLLECTOR CURRENT**



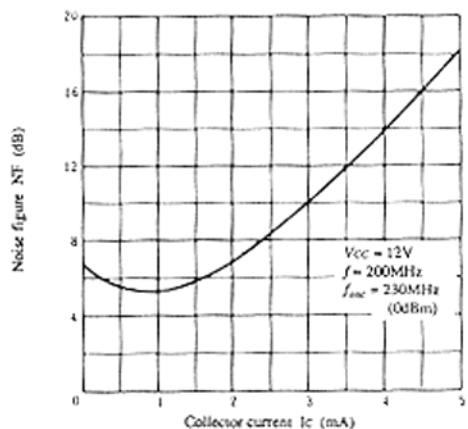
**OSCILLATING OUTPUT VOLTAGE
VS. SUPPLY VOLTAGE**



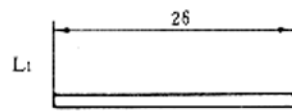
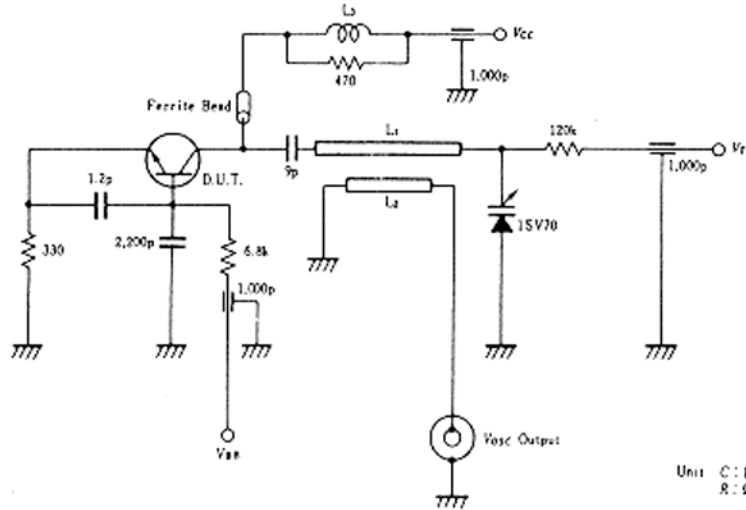
CONVERSION GAIN VS. COLLECTOR CURRENT



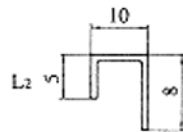
NOISE FIGURE VS. COLLECTOR CURRENT



Vosc2 UHF OSCILLATING OUTPUT VOLTAGE TEST CIRCUIT



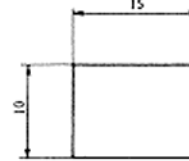
L1



L2

(Dimensions in mm)

Dimensions of Cavity



(Dimensions in mm)

L1 : Polyurethane Coated Copper Wire ϕ 1.0mm

L2 : Polyurethane Coated Copper Wire ϕ 0.8mm

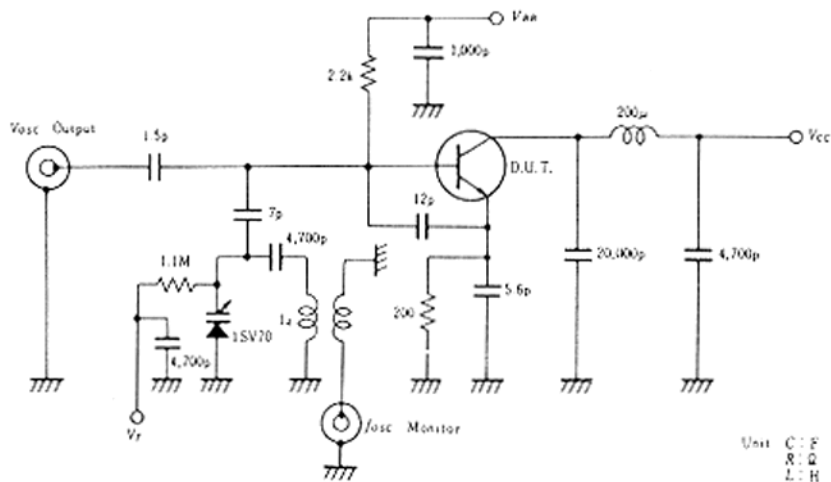
L3 : ϕ 0.3mm Enameled Copper wire, 10 Turns with 470 Ω (1/4W) Resistor.

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

Test Equipment: YHP 4271A Vector Voltmeter

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Vosc1 VHF OSCILLATING OUTPUT VOLTAGE TEST CIRCUIT

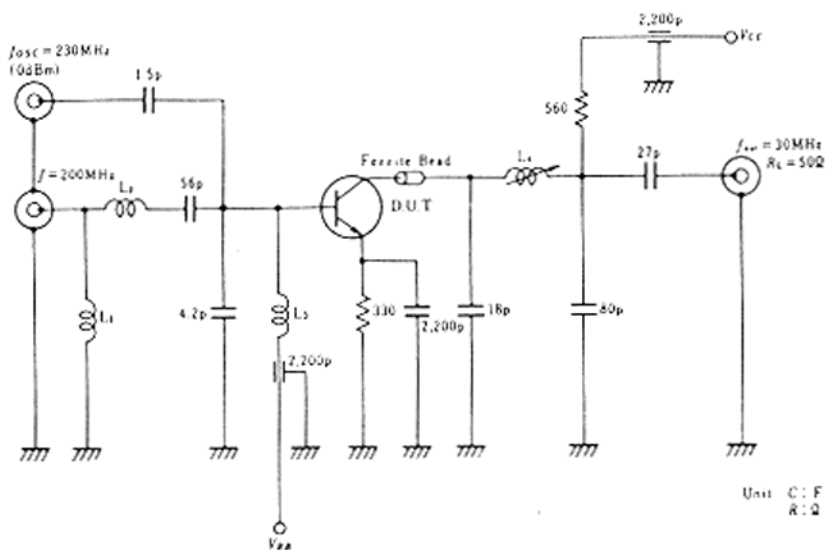


L1 : Inside dia ϕ 3mm, ϕ 0.3mm Enameled Copper Wire 12 Turns

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

Test Equipment: YHP 4271A Vector Voltmeter

VHF CONVERSION GAIN - NOISE FIGURE TEST CIRCUIT



L1 : Inside dia ϕ 5mm, ϕ 0.5mm Enameled Copper wire 4 Turns

L2 : Inside dia ϕ 4mm, ϕ 0.5mm Enameled Copper wire 4 Turns

L3 : Inside dia ϕ 3mm, ϕ 0.2mm Enameled Copper wire 6 Turns

L4 : Outside dia ϕ 5mm Bobbin, ϕ 0.2mm Enameled Copper wire 16 Turns, using Ferrite bead.