To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

SILICON TRANSISTOR
2SC2759

UHF/VHF MIXER, UHF OSCILLATOR
NPN SILICON EPITAXIAL TRANSISTOR
MINI MOLD

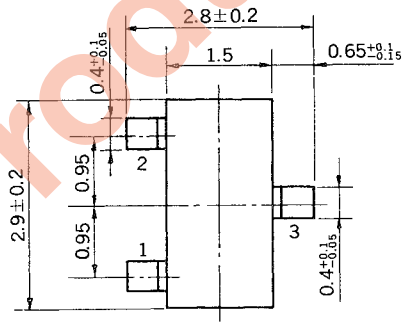
The 2SC2759 is specially designed for use as VHF and UHF mixer and UHF oscillators in a tuner of TV receiver. The 2SC2759 feature high conversion gain and low distortion for mixer application, stable oscillation and small frequency drift against any change of the supply voltage and ambient temperature for oscillator application.

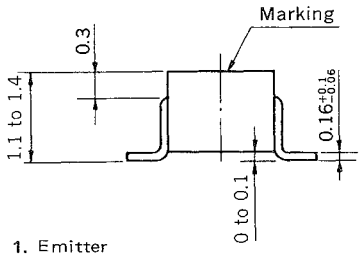
FEATURES

- Low noise. NF : 4.0 dB (TYP.)
- High conversion gain. G_{cb} : 12.5 dB (TYP.)
- Easy & economical mounting realizable with plastic mold package for Hybrid IC.

PACKAGE DIMENSIONS

in millimeters





1. Emitter
2. Base
3. Collector

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Collector to Base Voltage	V_{CBO}	30	V
Collector to Emitter Voltage	V_{CEO}	14	V
Emitter to Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	50	mA
Total Power Dissipation	P_T	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	− 55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			0.1	μA	V_{CB} = 15 V, I_E = 0
DC Current Gain	h_{FE}	40	100	180		V_{CE} = 10 V, I_E = −5.0 mA
Gain Bandwidth Product	f_T	1.5	2.3		GHz	V_{CE} = 10 V, I_C = 5.0 mA
Output Capacitance	C_{ob}			1.3	pF	V_{CB} = 10 V, I_E = 0, f = 1 MHz
Noise Figure	NF		4.0	5.0	dB	V_{CB} = 10 V, I_E = −5.0 mA, f = 900 MHz
Power Gain	G_{pb}	14	16		dB	V_{CB} = 10 V, I_E = −5.0 mA, f = 900 MHz
Conversion Gain	G_{cb}	10	12.5		dB	f_{RF} = 900 MHz, f_{LOC} = 930 MHz V_{CB} = 10 V, I_E = −5.0 mA Local level = 110 mV

h_{FE} Classification

Class	U21/P *	U22/Q *	U23/R *
Marking	U21	U22	U23
h_{FE}	40 to 80	60 to 120	90 to 180

* Old Specification / New Specification

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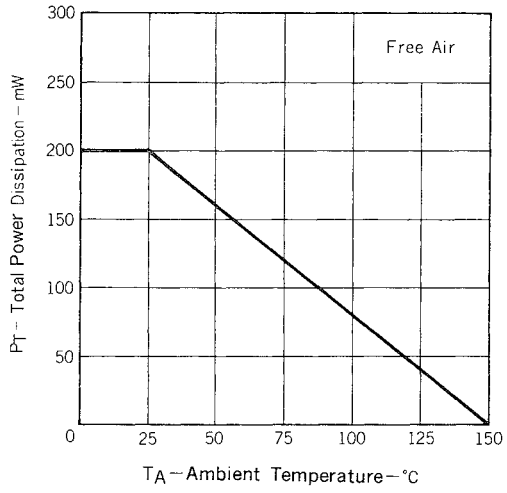
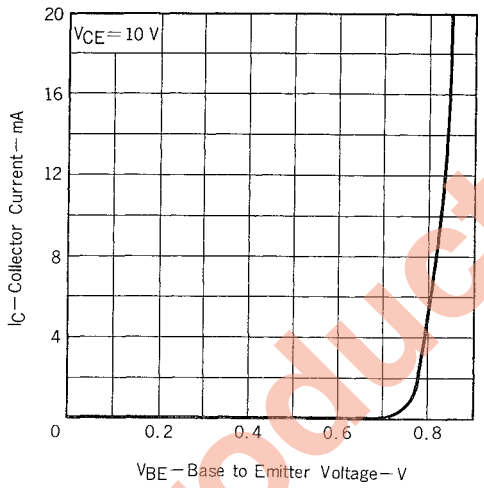
(Previous No. TC−1330)
Date Published July 1995 M
Printed in Japan

TYPICAL CHARACTERISTICS (T_A = 25 °C)

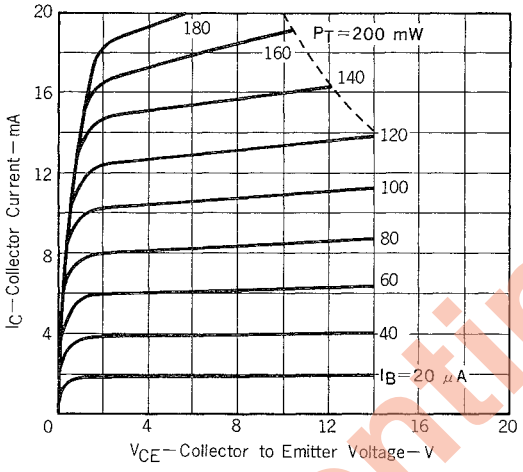
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



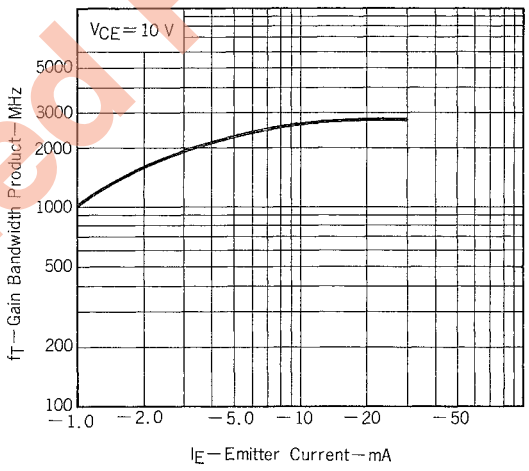
COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE



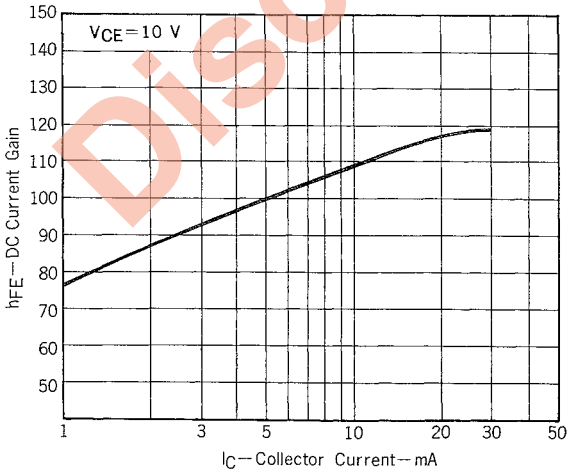
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



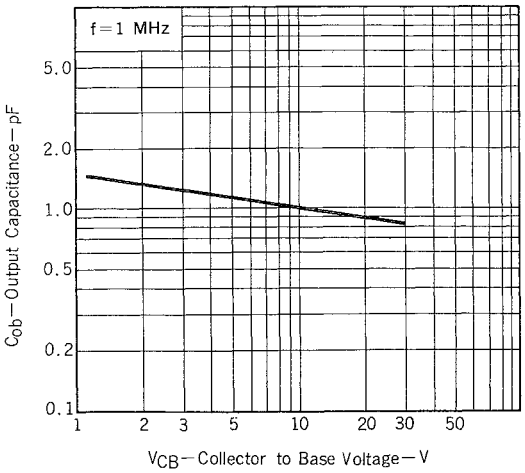
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



DC CURRENT GAIN vs. COLLECTOR CURRENT

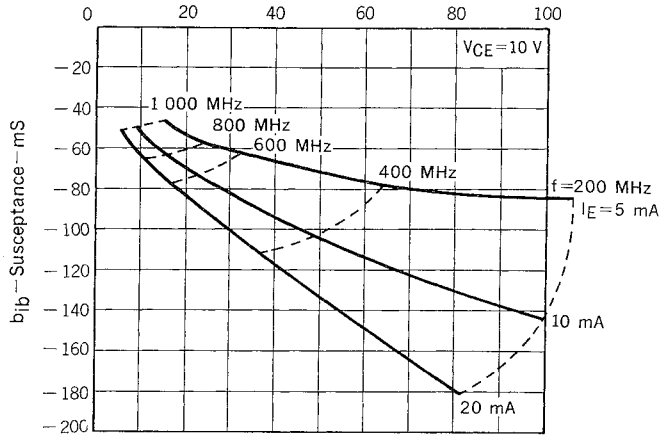


OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE

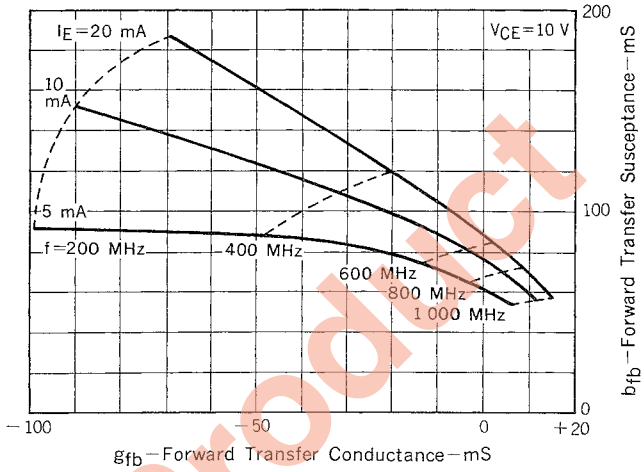


TYPICAL SMALL SIGNAL "Y" PARAMETERS (Common Base)

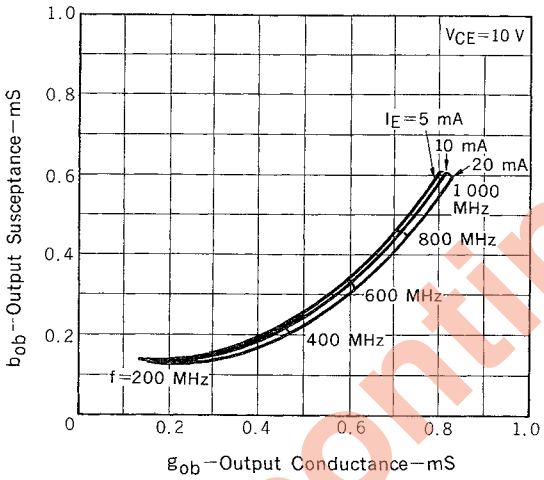
INPUT ADMITTANCE (Y_{ib})
vs. FREQUENCY



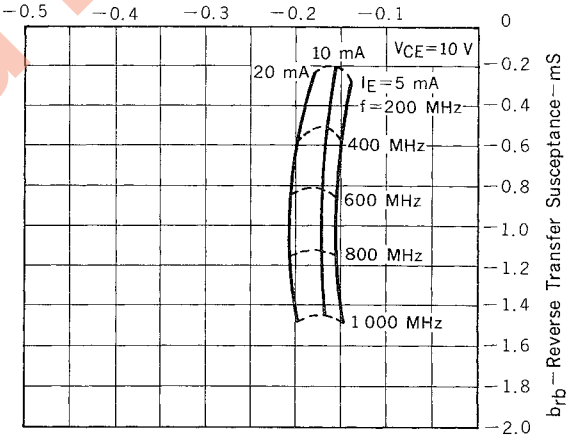
FORWARD TRANSFER ADMITTANCE (Y_{fb})
vs. FREQUENCY



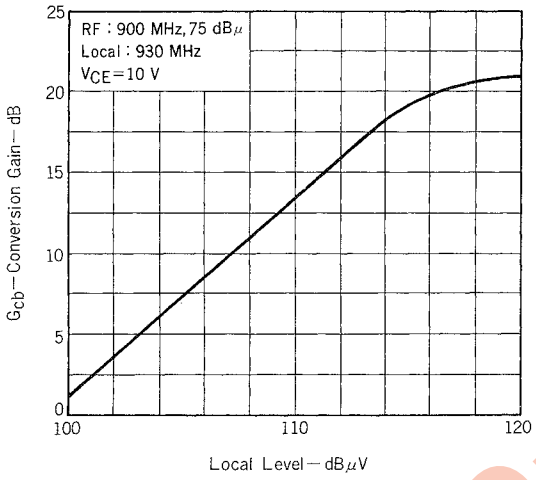
OUTPUT ADMITTANCE (Y_{ob})
vs. FREQUENCY



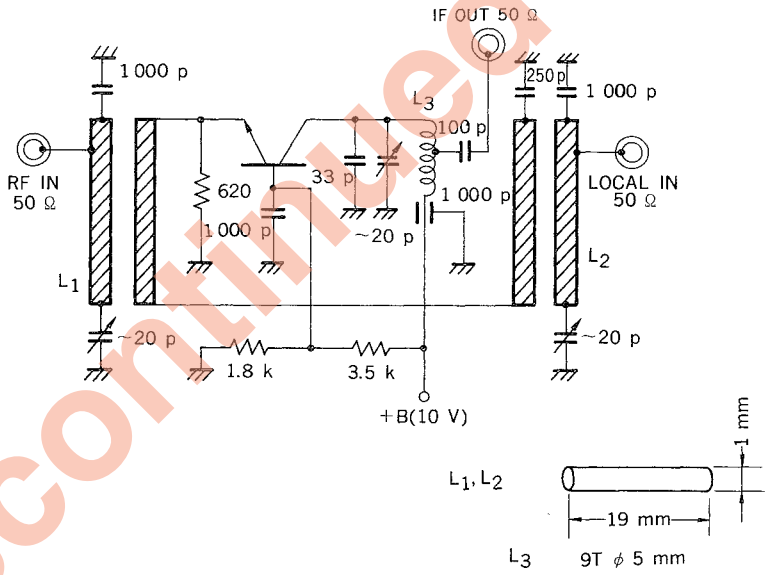
REVERSE TRANSFER ADMITTANCE (Y_{rb})
vs. FREQUENCY



CONVERSION GAIN vs. LOCAL OSCILLATOR LEVEL



900 MHz G_{cb} Test Circuit



[MEMO]

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