
2SC535

Silicon NPN Epitaxial Planar

HITACHI

Application

VHF amplifier, mixer, local oscillator

Outline

TO-92 (2)



1. Emitter
2. Collector
3. Base

2SC535

Absolute Maximum Ratings (Ta = 25°C)

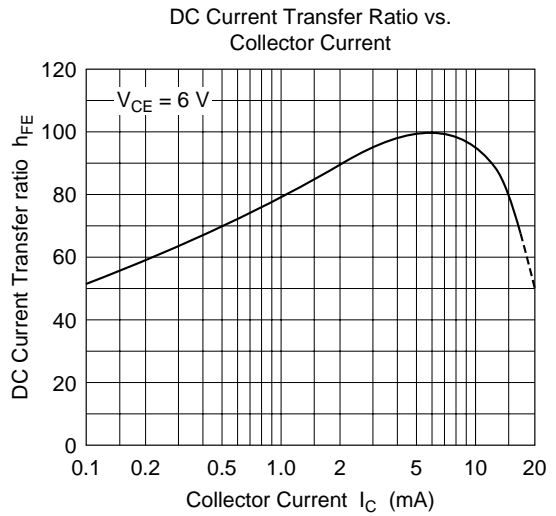
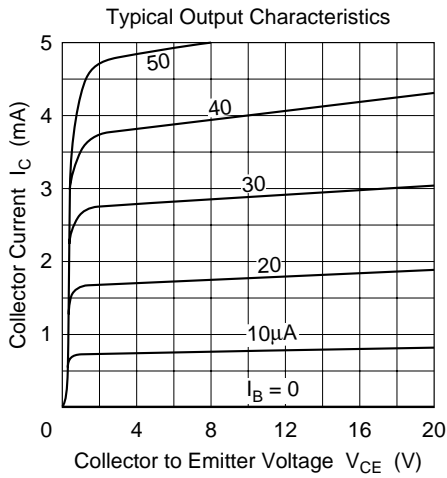
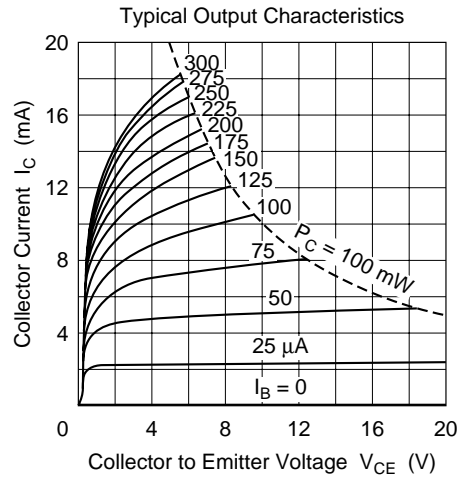
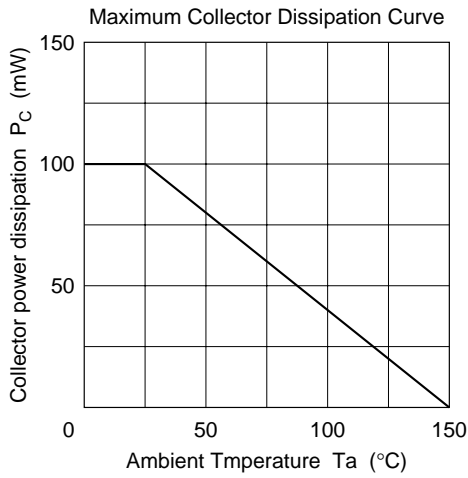
Item	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	20	V
Emitter to base voltage	V_{EBO}	4	V
Collector current	I_C	20	mA
Collector power dissipation	P_C	100	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

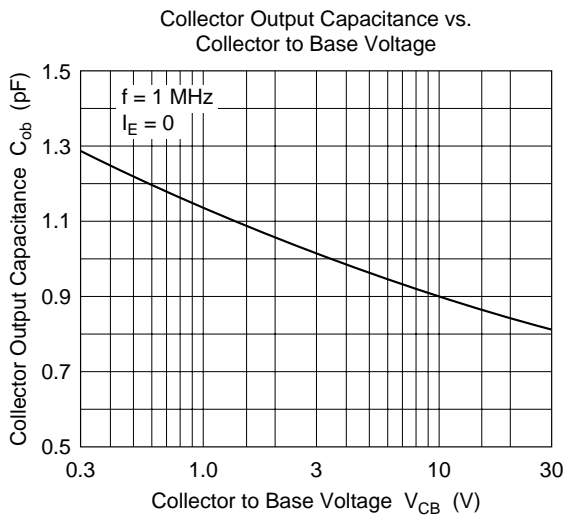
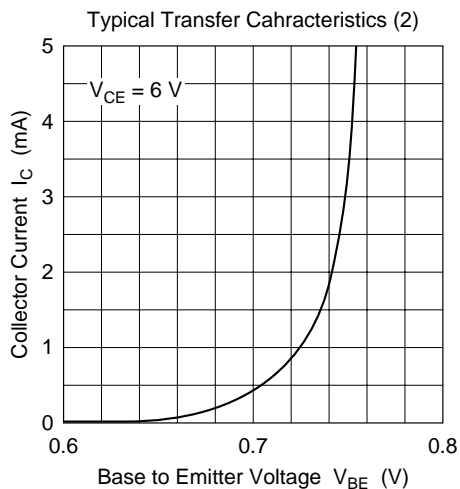
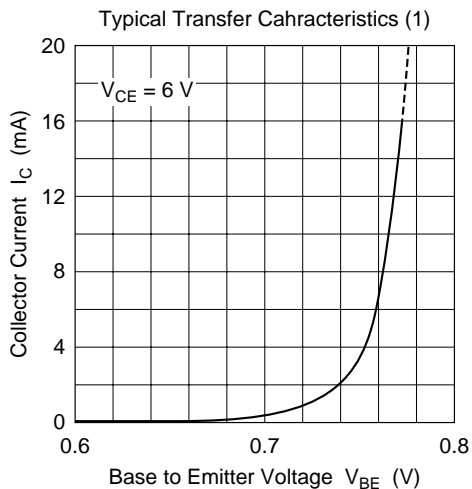
Electrical Characteristics (Ta = 25°C)

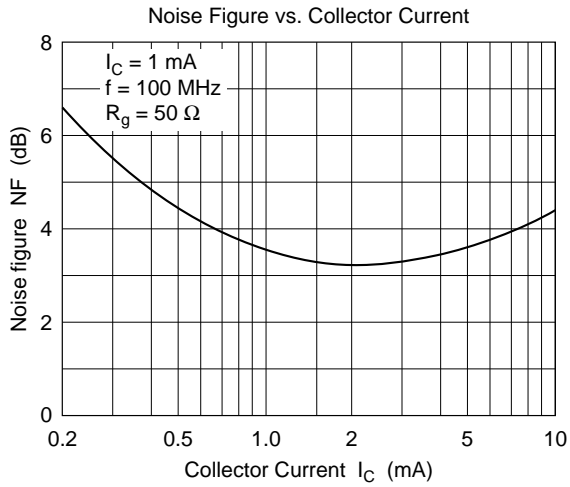
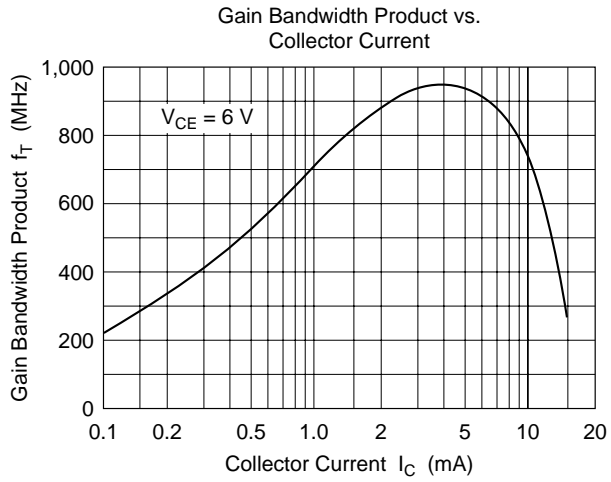
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	4	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10 \text{ V}, I_E = 0$
DC current transfer ratio	h_{FE}^{*1}	60	—	200		$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}$
Base to emitter voltage	V_{BE}	—	0.72	—	V	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.17	—	V	$I_C = 20 \text{ mA}, I_B = 4 \text{ mA}$
Gain bandwidth product	f_T	450	940	—	MHz	$V_{CE} = 6 \text{ V}, I_C = 5 \text{ mA}$
Collector output capacitance	C_{ob}	—	0.9	1.2	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Power gain	PG	17	20	—	dB	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}$
Noise figure	NF	—	3.5	5.5	dB	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}, R_g = 50 \Omega$
Input admittance (typ)	y_{ie}	1.3 + j5.3			mS	$V_{CE} = 6 \text{ V}, I_C = 1 \text{ mA}, f = 100 \text{ MHz}$
Reverse transfer admittance (typ)	y_{re}	-0.078 - j0.41			mS	
Foward transfer admittance (typ)	y_{fe}	32 - j10			mS	
Output admittance (typ)	y_{oe}	0.08 + j0.82			mS	

Note: 1. The 2SC535 is grouped by h_{FE} as follows.

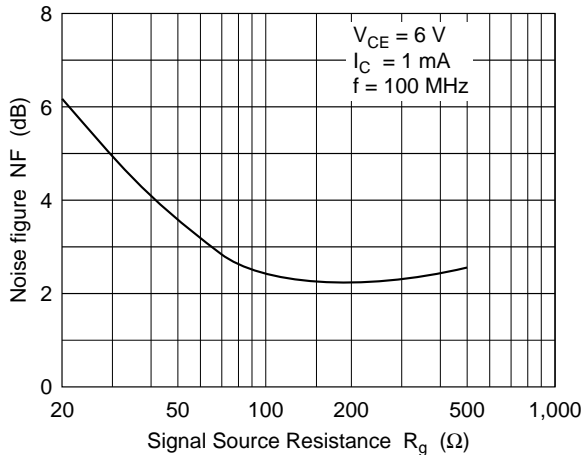
B	C
60 to 120	100 to 200



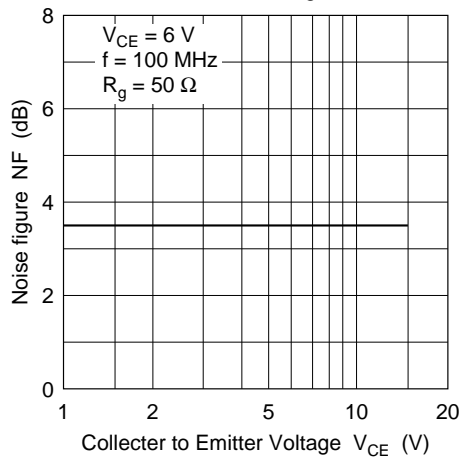




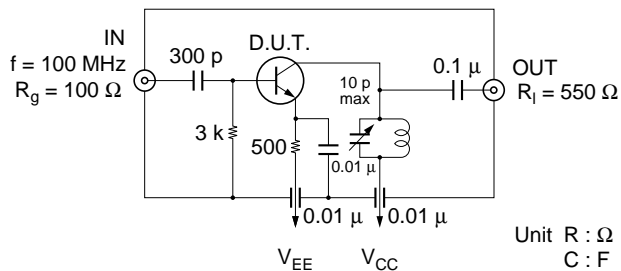
Noise Figure vs. Signal Source Resistance



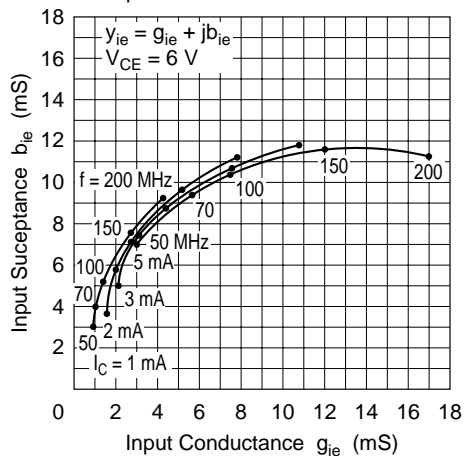
Noise Figure vs. Collector to Emitter Voltage



100 MHz Power Gain Test Circuit

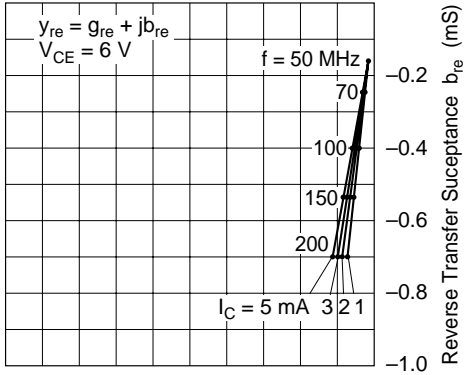


Input Admittance Characteristics



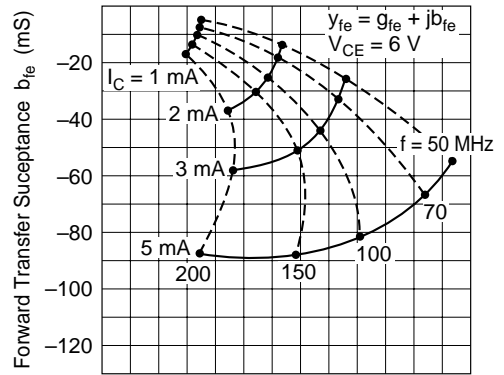
Reverse Transfer Admittance Characteristics

Reverse Transfer Conductance g_{re} (mS)
 -0.20 -0.16 -0.12 -0.08 -0.04 0

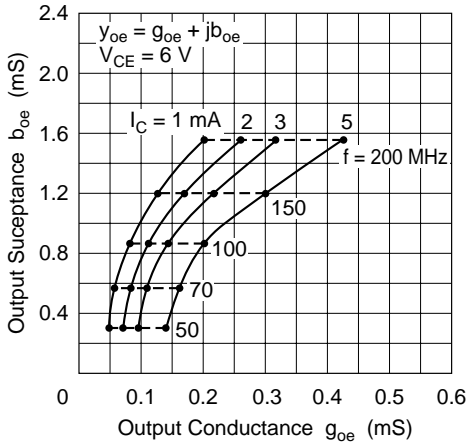


Forward Transfer Admittance Characteristics

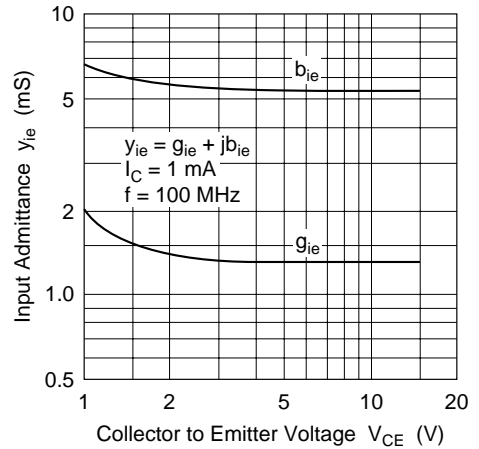
Forward Transfer Conductance g_{fe} (mS)
 0 20 40 60 80 100 120

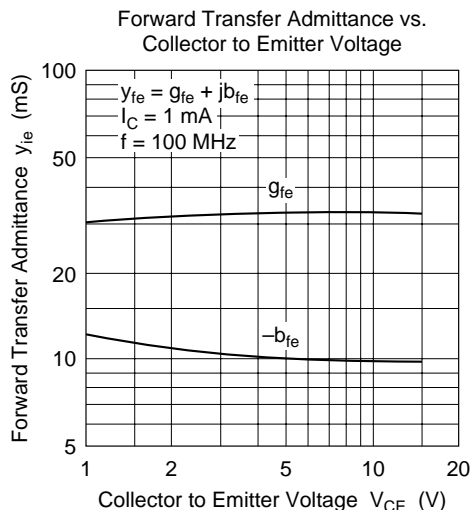
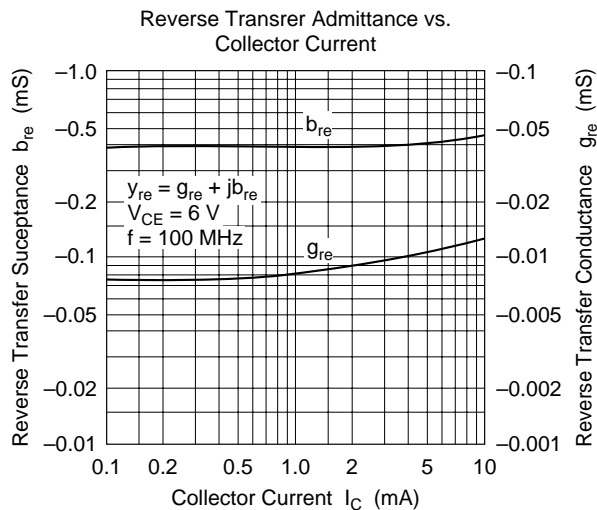
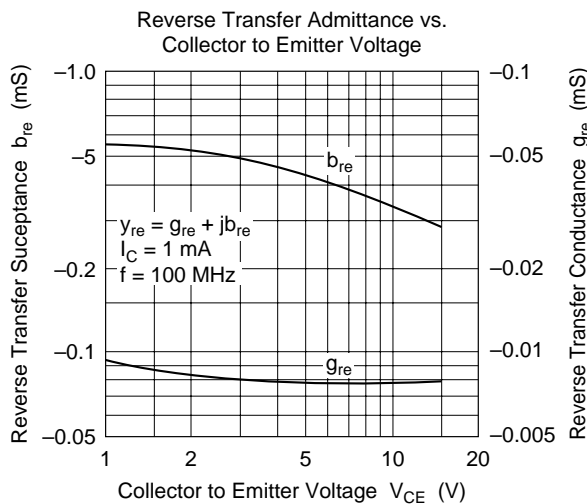
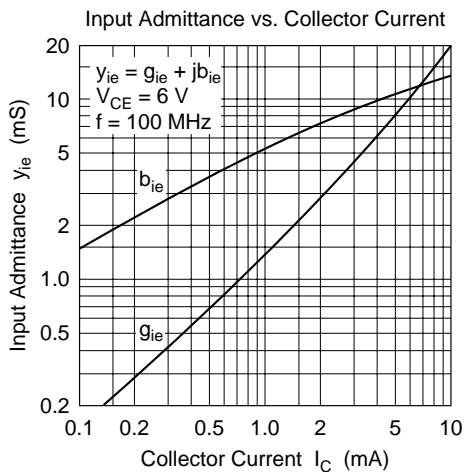


Output Admittance Characteristics

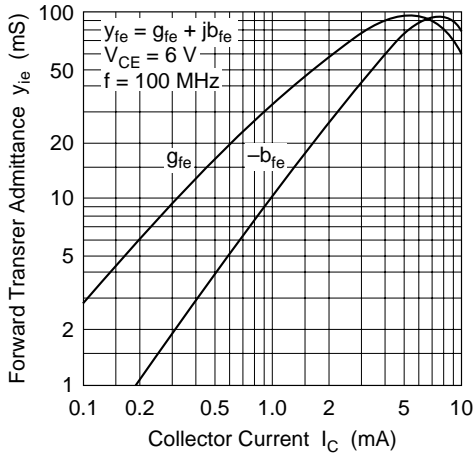


Input Admittance vs. Collector to Emitter Voltage

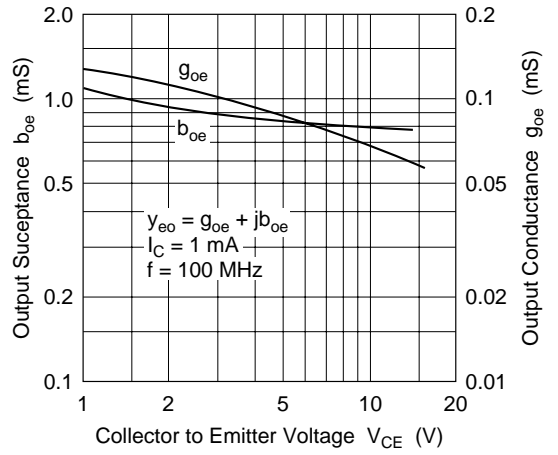




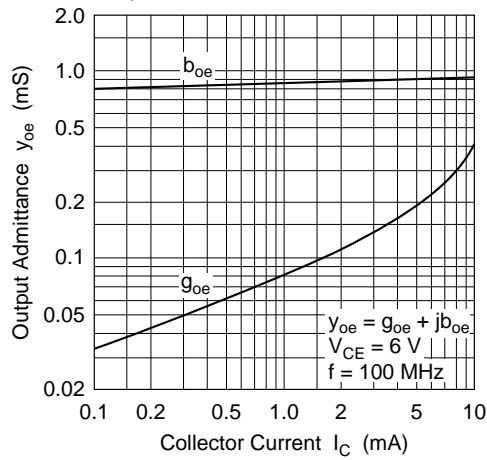
Forward Transfer Admittance vs. Collector Current

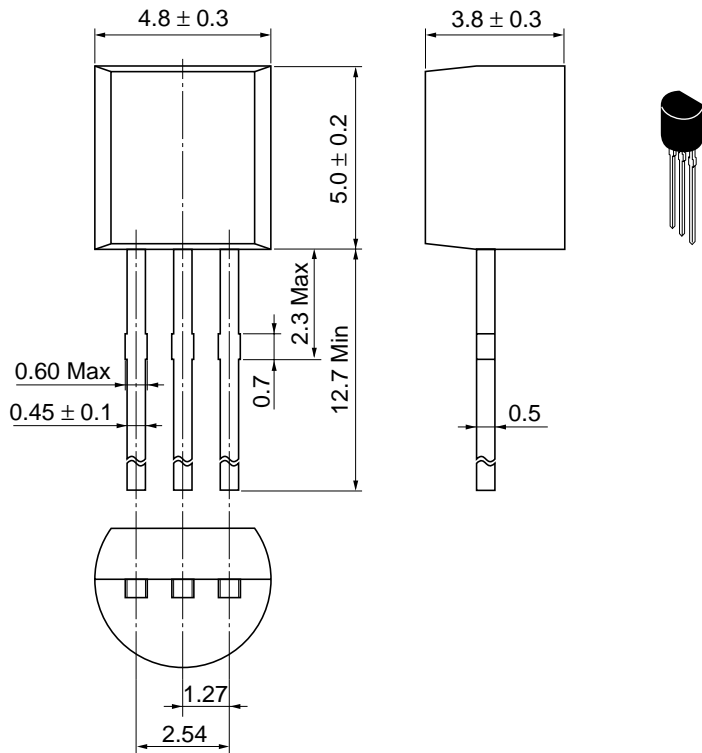


Output Admittance vs. Collector to Emitter Voltage



Output Admittance vs. Collector Current





Hitachi Code	TO-92 (2)
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.25 g

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