

2SC535

Silicon NPN Epitaxial Planar

REJ03G0683-0200
(Previous ADE-208-1047)
Rev.2.00
Aug.10.2005

Application

VHF amplifier, mixer, local oscillator

Outline

RENESAS Package code: PRSS0003DA-C
(Package name: TO-92 (2))



- 1. Emitter
- 2. Collector
- 3. Base

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)

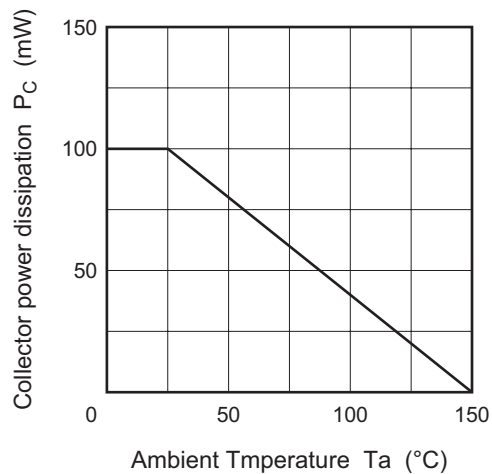
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10\ \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1\ mA, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	4	—	—	V	$I_E = 10\ \mu A, I_C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

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

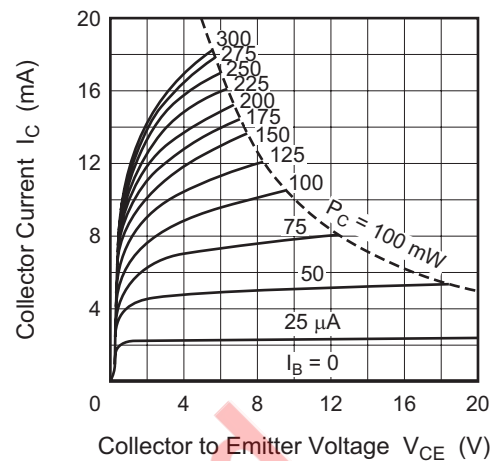
B	C
60 to 120	100 to 200

Main Characteristics

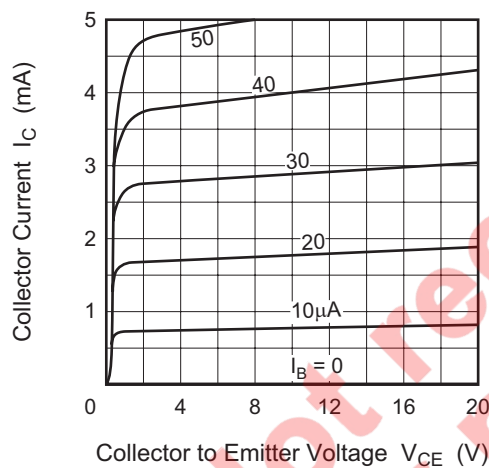
Maximum Collector Dissipation Curve



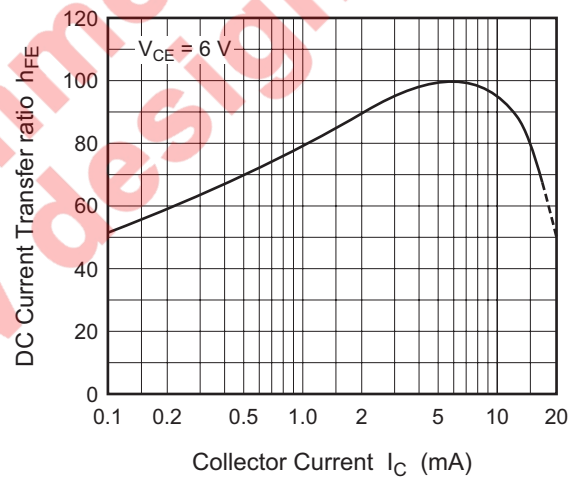
Typical Output Characteristics



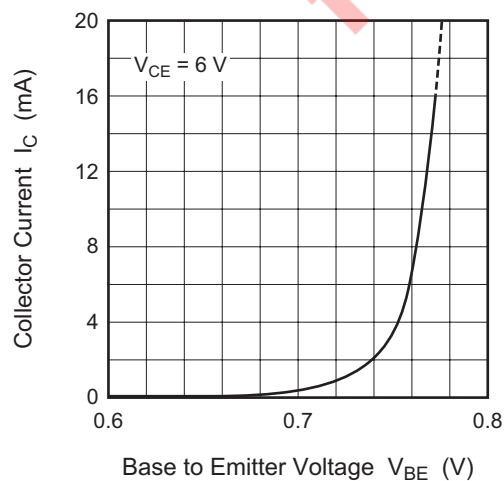
Typical Output Characteristics



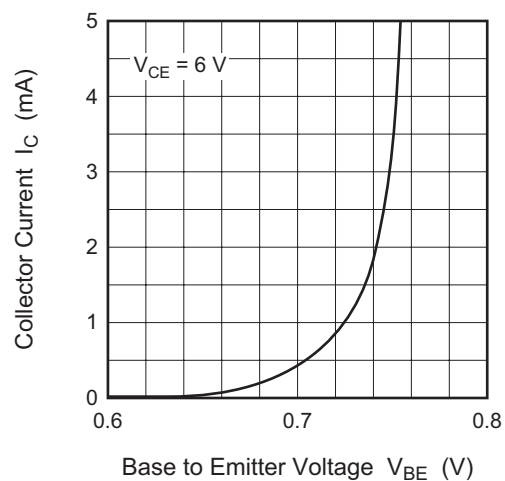
DC Current Transfer Ratio vs. Collector Current

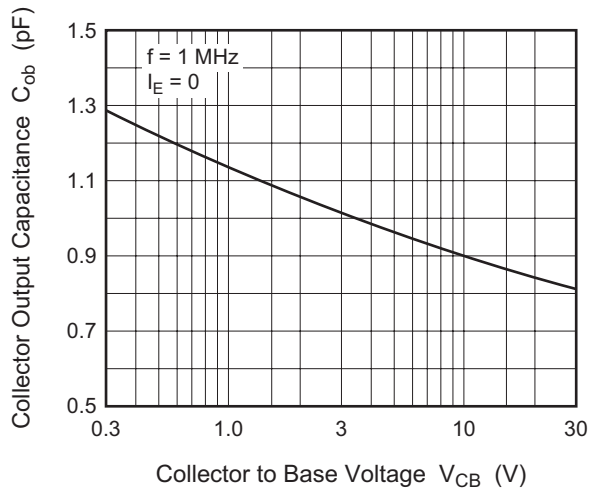
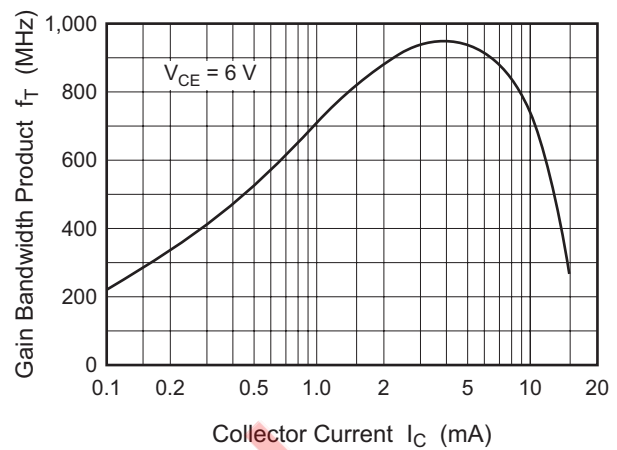


Typical Transfer Characteristics (1)

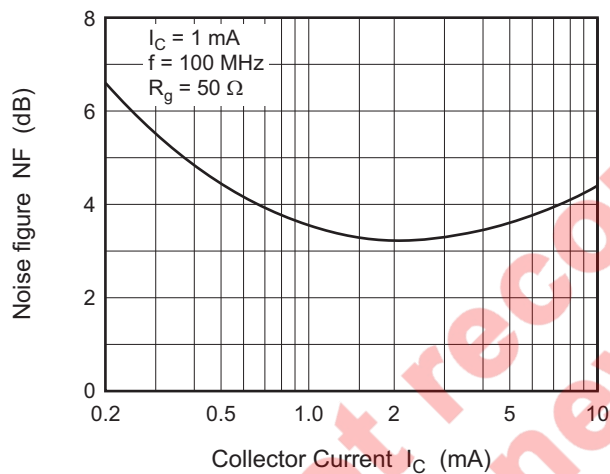


Typical Transfer Characteristics (2)

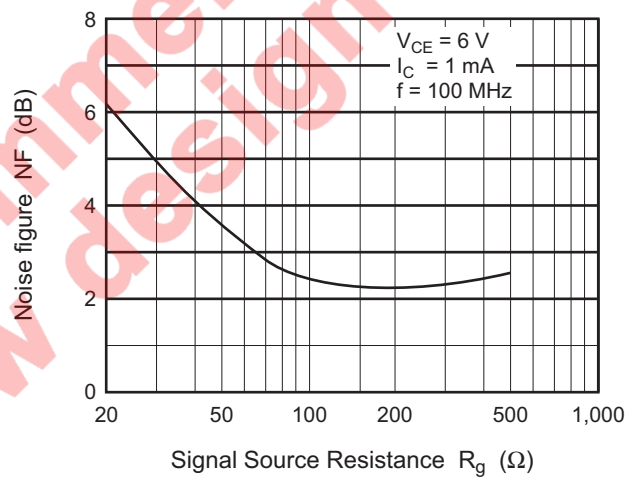
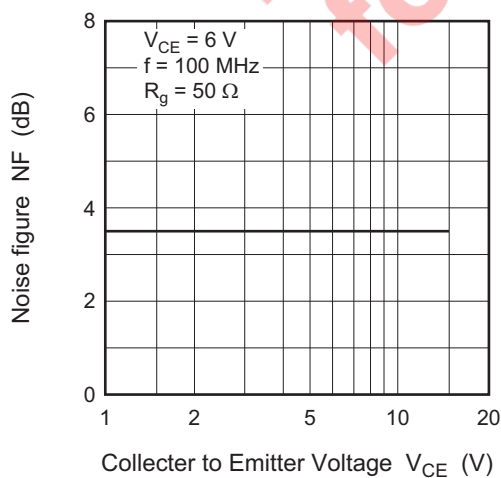


Collector Output Capacitance vs.
Collector to Base VoltageGain Bandwidth Product vs.
Collector Current

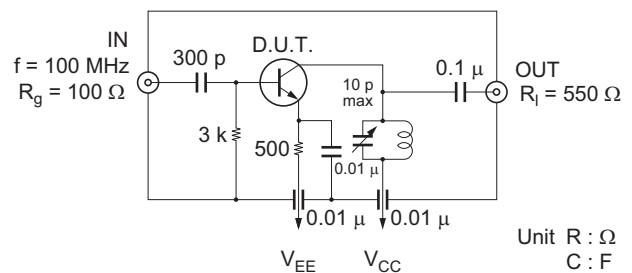
Noise Figure vs. Collector Current

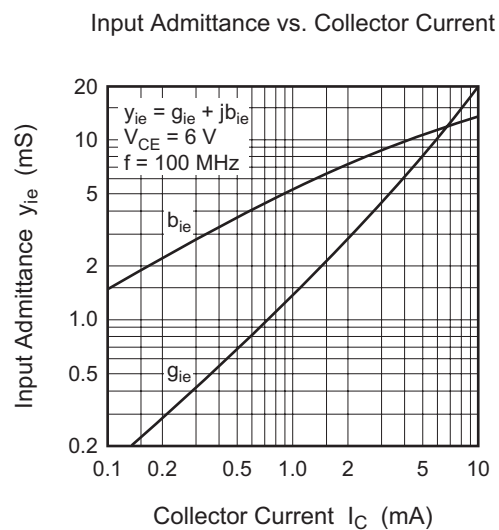
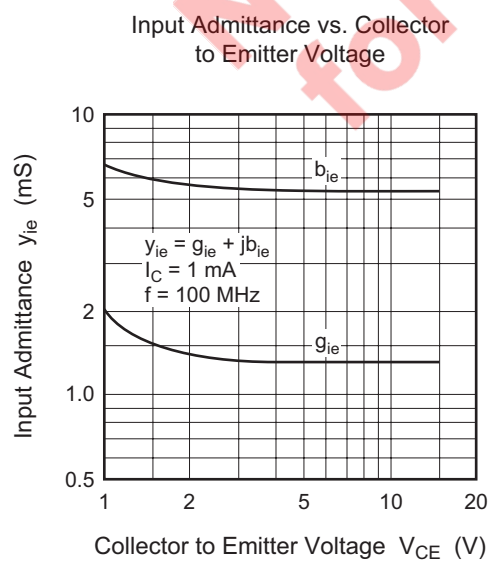
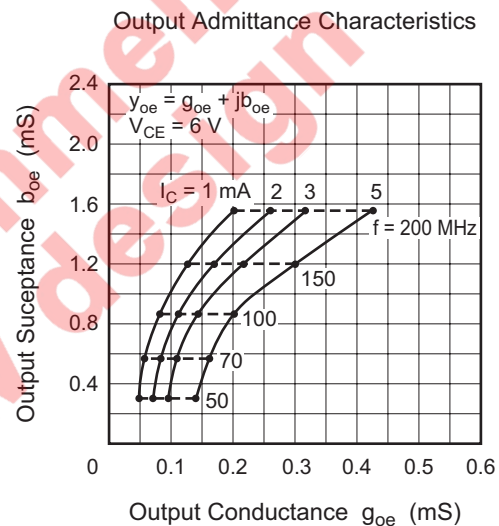
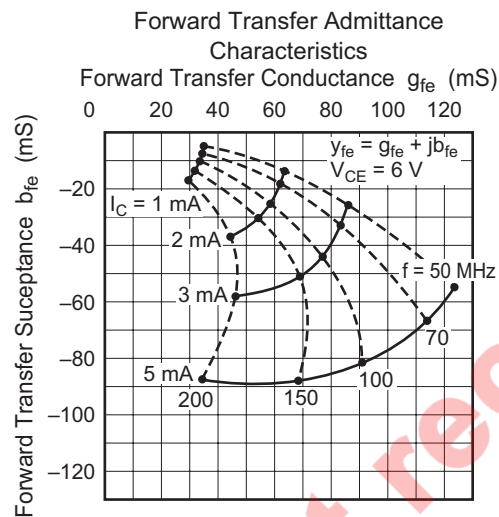
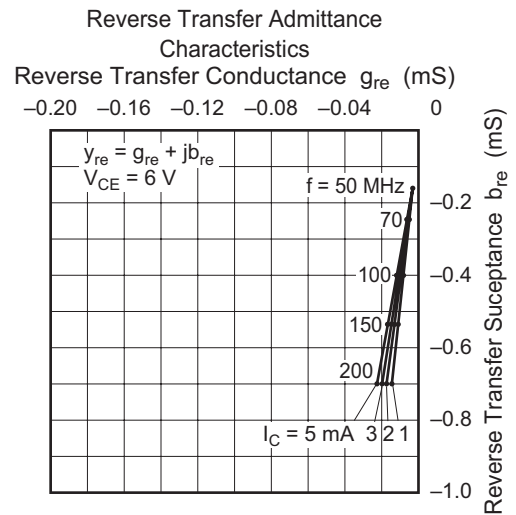
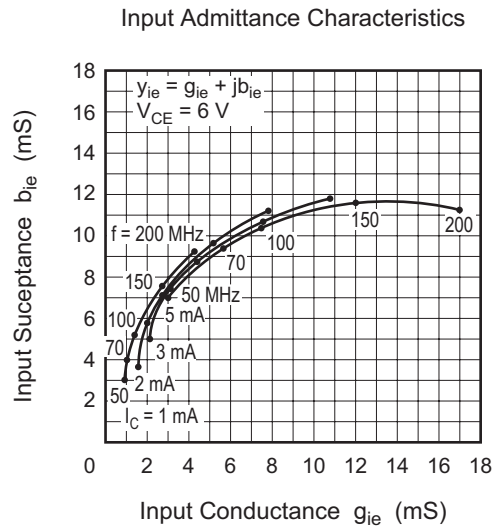


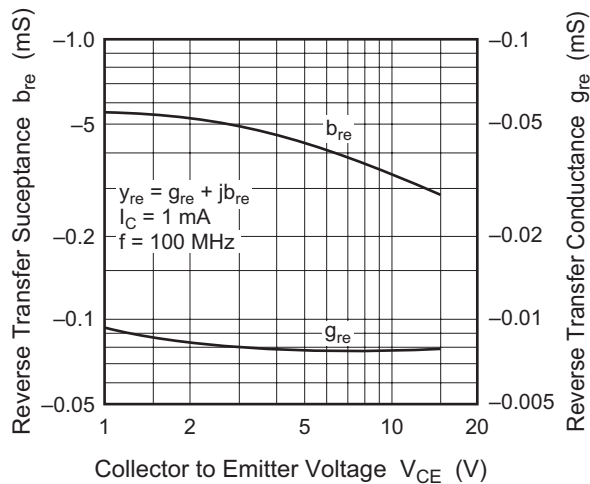
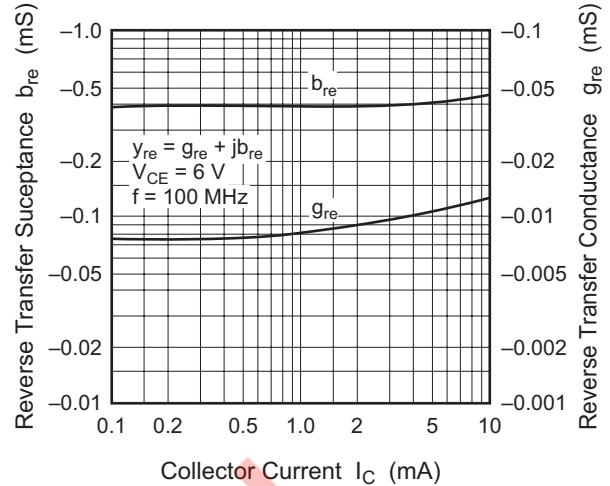
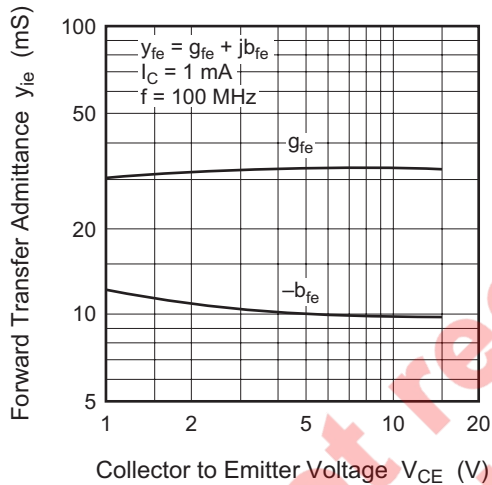
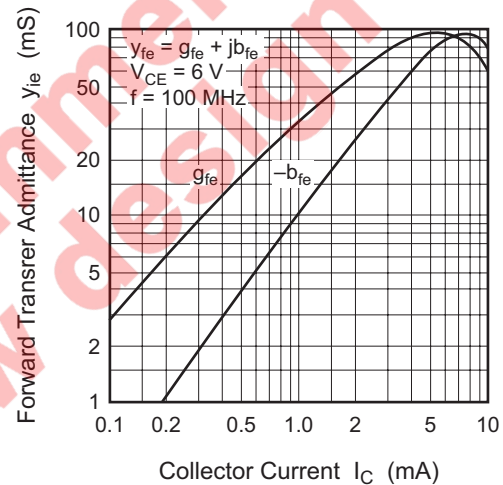
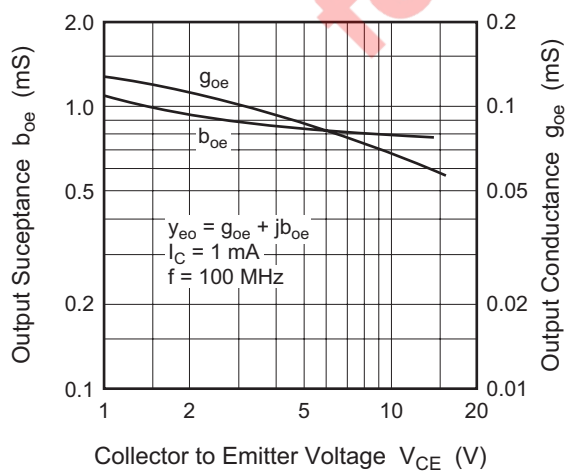
Noise Figure vs. Signal Source Resistance

Noise Figure vs. Collector to
Emitter Voltage

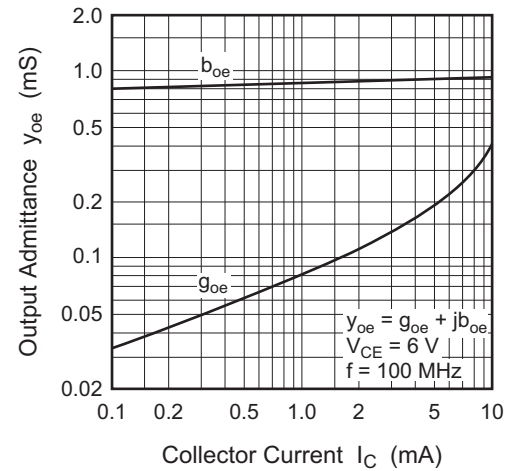
100 MHz Power Gain Test Circuit



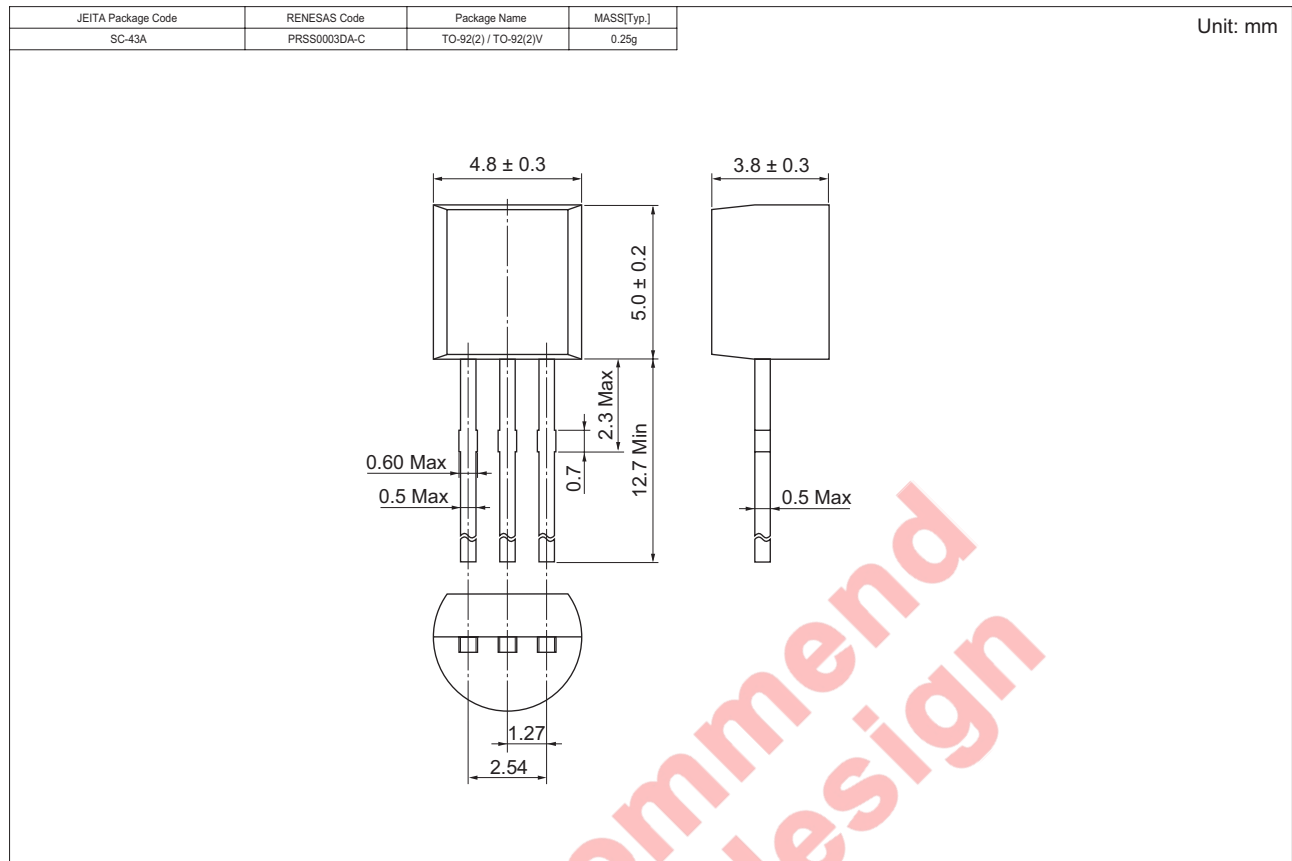


Reverse Transfer Admittance vs.
Collector to Emitter VoltageReverse Transrer Admittance vs.
Collector CurrentForward Transfer Admittance vs.
Collector to Emitter VoltageForward Transrer Admittance vs.
Collector CurrentOutput Admittance vs. Collector
to Emitter Voltage

Output Admittance vs. Collector Current



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SC535BTZ	2500	Hold Box, Radial Taping
2SC535CTZ		

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