

## 2SC1906

Silicon NPN Epitaxial Planar

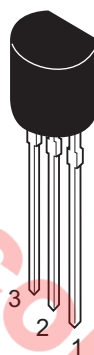
REJ03G0693-0200  
 (Previous ADE-208-1058)  
 Rev.2.00  
 Aug.10.2005

### 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	$V_{CEO}$	19	V
Emitter to base voltage	$V_{EBO}$	2	V
Collector current	$I_C$	50	mA
Emitter current	$I_E$	-50	mA
Collector power dissipation	$P_C$	300	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

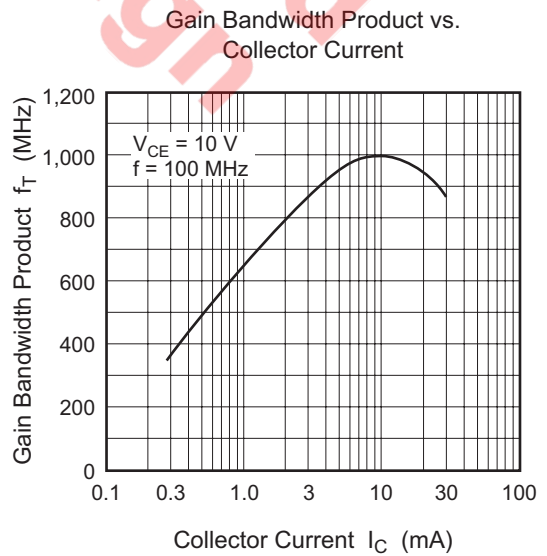
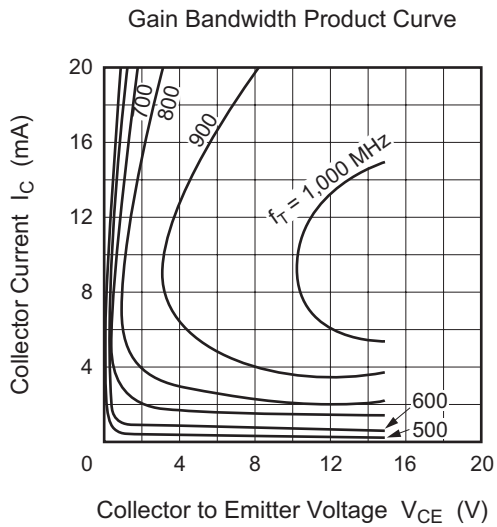
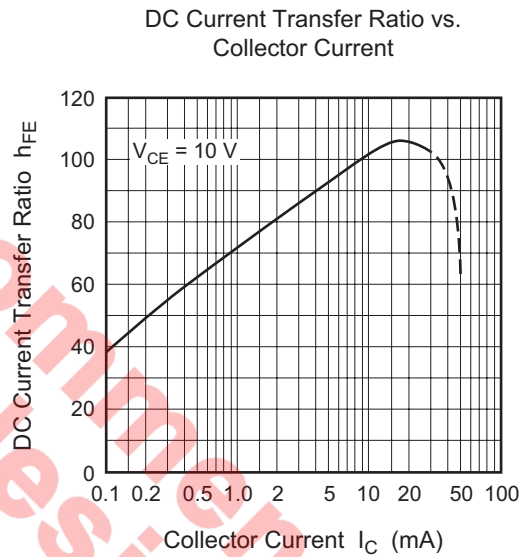
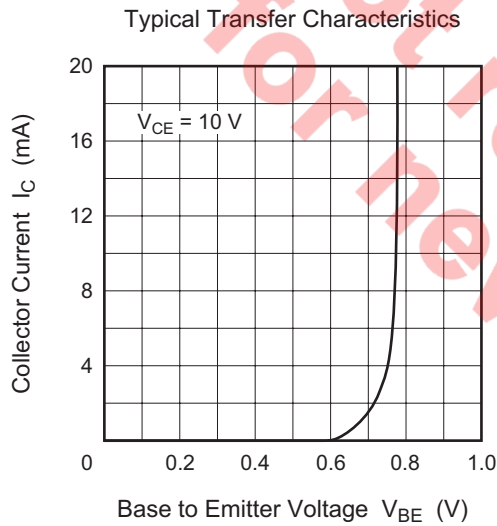
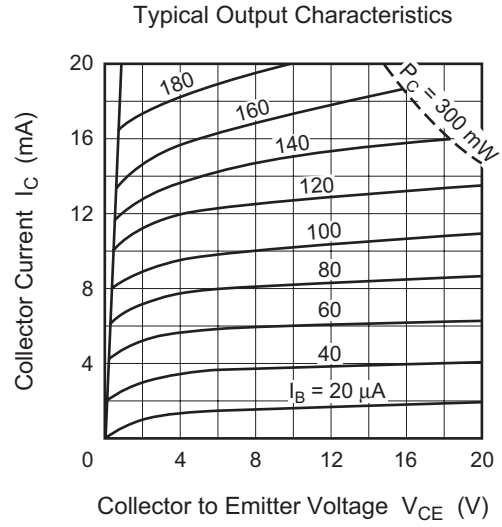
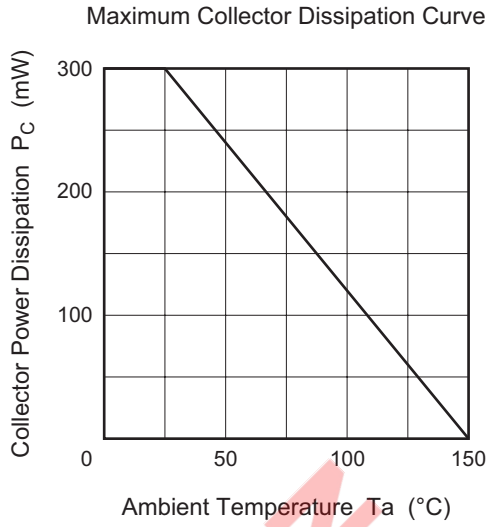
## Electrical Characteristics

(Ta = 25°C)

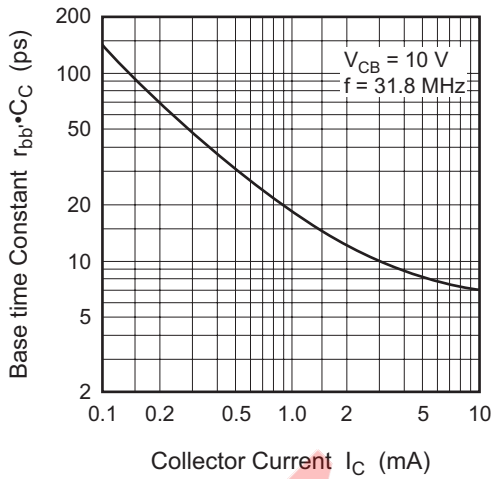
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10 \mu A, I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	19	—	—	V	$I_C = 3 \text{ mA}, R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	2	—	—	V	$I_E = 10 \mu A, I_C = 0$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu A$	$V_{CB} = 10 \text{ V}, I_E = 0$
DC current transfer ratio	$h_{FE}$	40	—	—		$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Gain bandwidth product	$f_T$	600	1000	—	MHz	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Collector output capacitance	$C_{ob}$	—	1.0	2.0	pF	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.2	1.0	V	$I_C = 20 \text{ mA}, I_B = 4 \text{ mA}$
Base time constant	$r_{bb'} \cdot C_C$	—	10	25	ps	$V_{CB} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 31.8 \text{ MHz}$
Power gain	PG	—	33	—	dB	$V_{CE} = 10 \text{ V}, I_C = 5 \text{ mA}$ f = 45 MHz
		—	18	—	dB	$V_{CE} = 10 \text{ V}, I_C = 5 \text{ mA}$ f = 200 MHz

Not recommend  
for new design

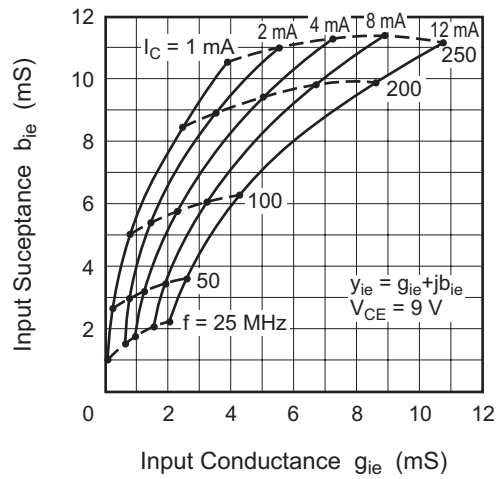
Main Characteristics



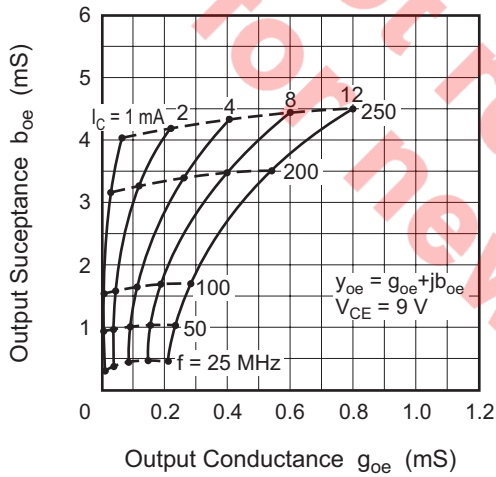
Base Time Constant vs. Collector Current



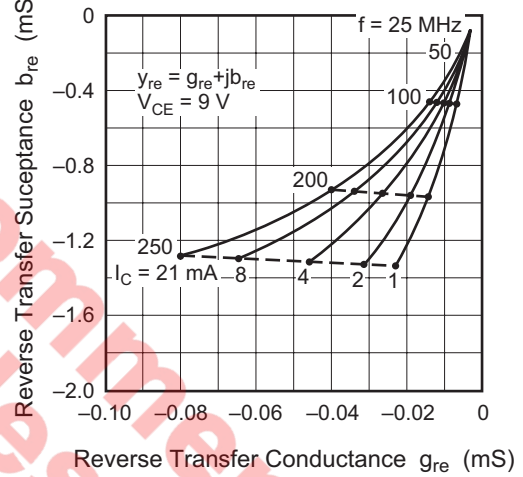
Input Admittance vs. Frequency



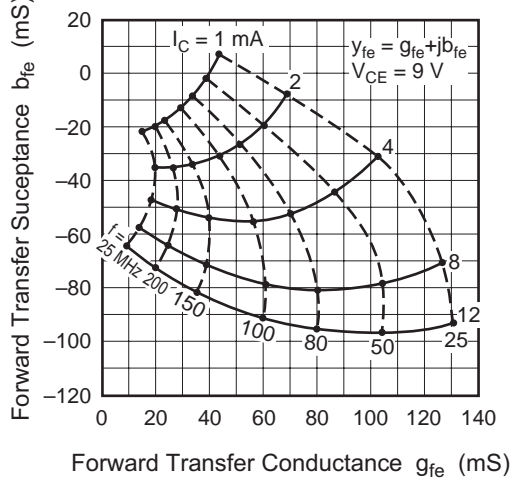
Output Admittance vs. Frequency



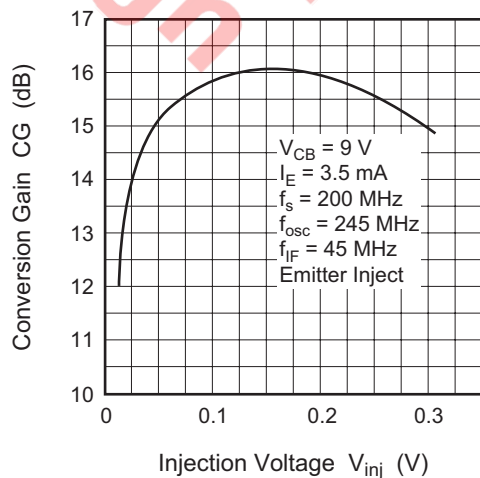
Reverse Transfer Admittance vs. Frequency

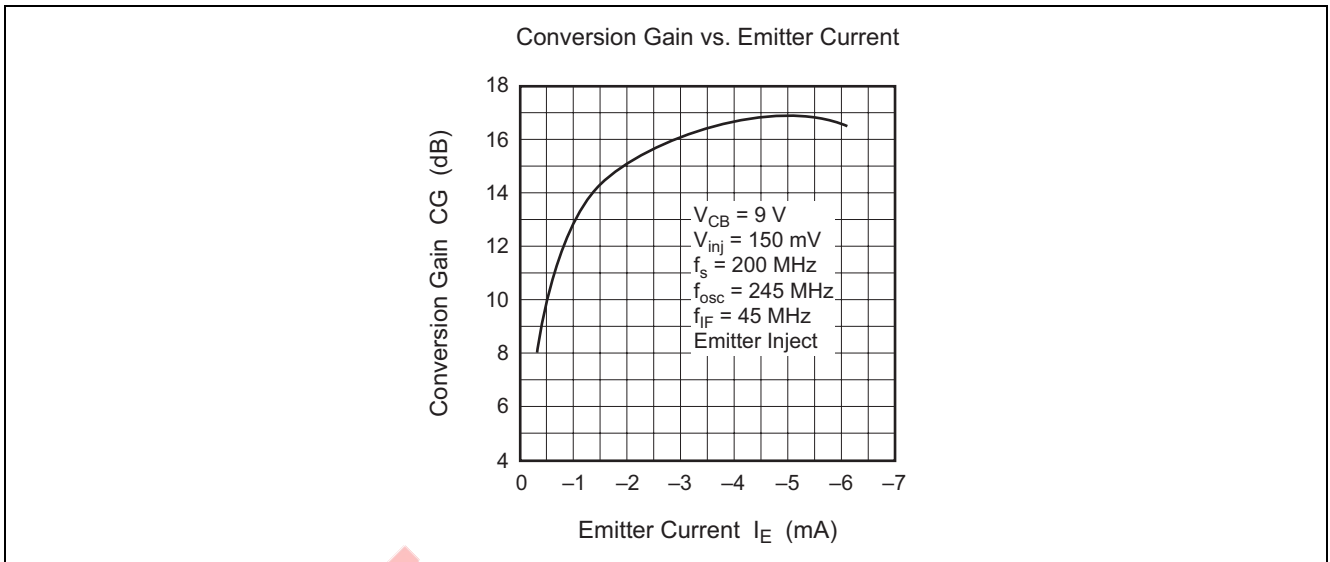


Forward Transfer Admittance vs. Frequency



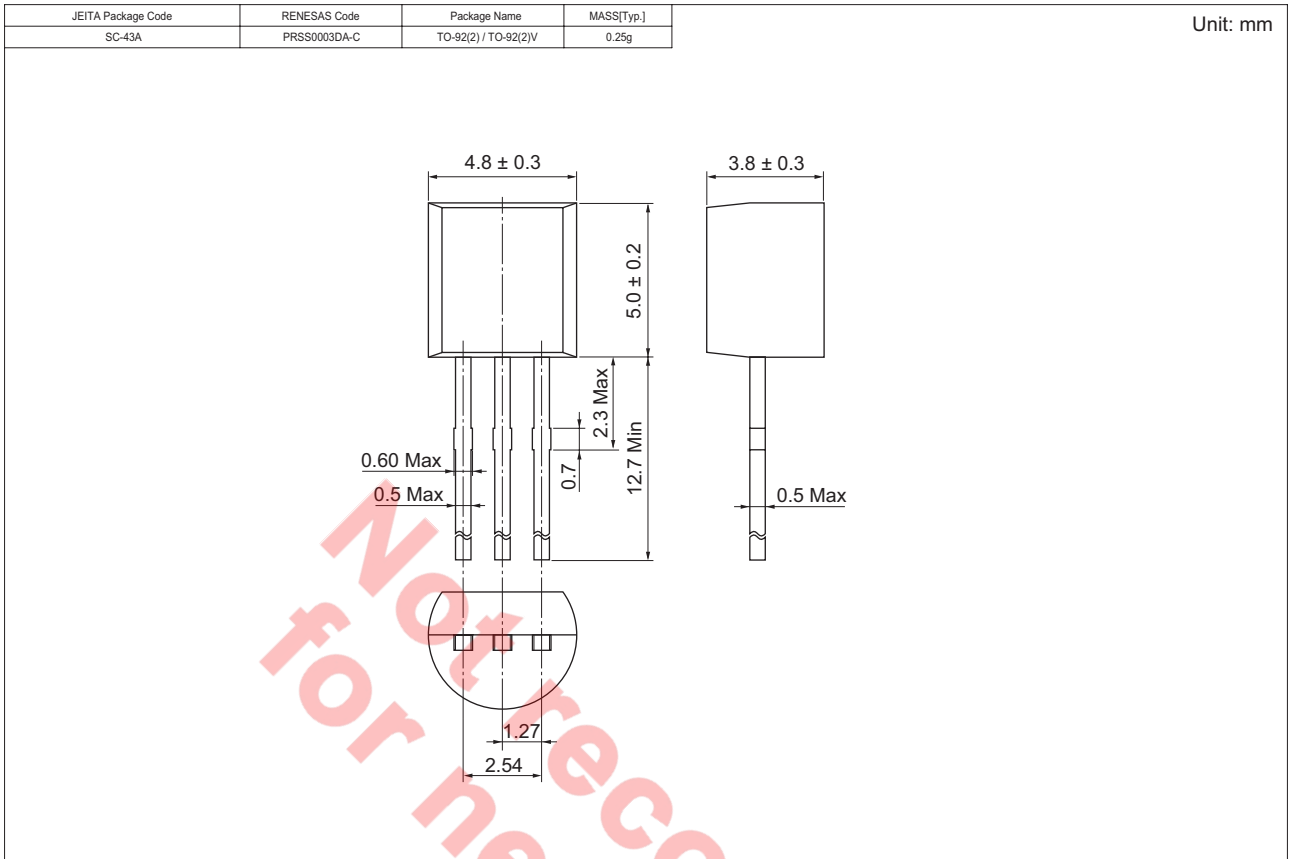
Conversion Gain vs. Local Oscillating Injection Voltage





Not recommend  
for new design

### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SC1906TZ-E	2500	Hold Box, Radial Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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