

2SC4392

SILICON NPN EPITAXIAL PLANAR TYPE

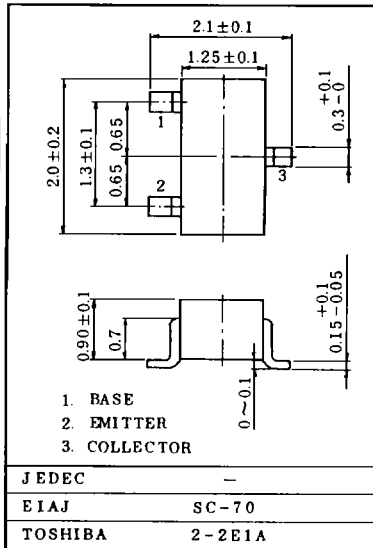
UHF~C BAND LOW NOISE AMPLIFIER APPLICATIONS.

- . High Gain : $|S_{21e}|^2 = 12\text{dB (Typ.)}$
- . Low Noise Figure : $\text{NF} = 2.3\text{dB (Typ.)}$
- . High f_T : $f_T = 6.5\text{GHz (Typ.)}$

Unit in mm

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	20	V
Collector-Emitter Voltage	V_{CE0}	7	V
Emitter-Base Voltage	V_{EB0}	3	V
Base Current	I_B	10	mA
Collector Current	I_C	30	mA
Collector Power Dissipation	P_C	100	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$



Marking

Type Name



MICROWAVE CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

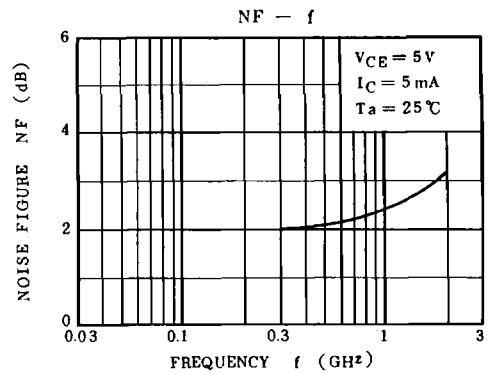
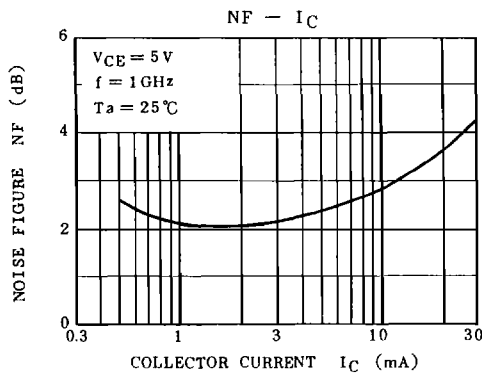
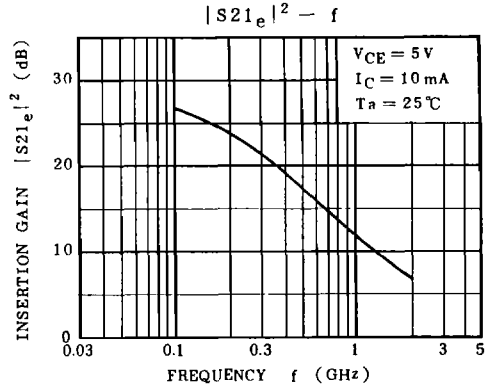
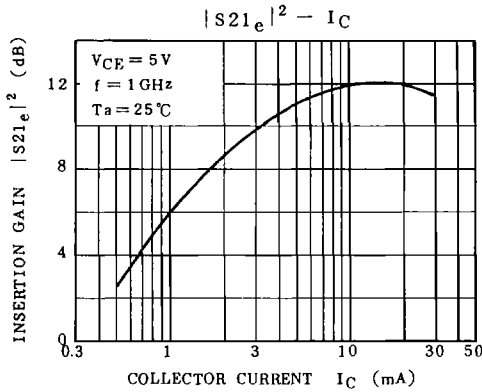
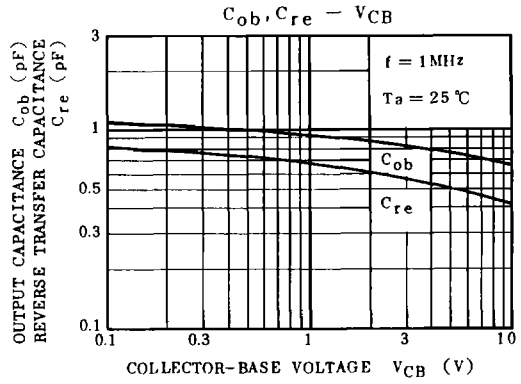
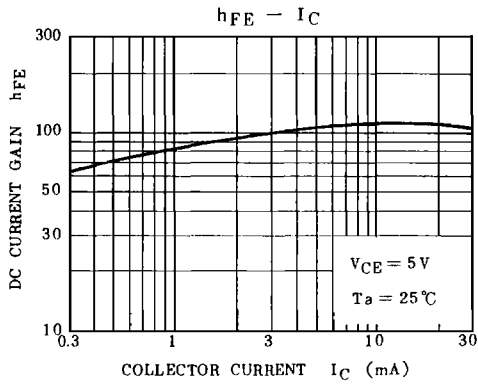
Weight : 0.006g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	-	6.5	-	GHz
Insertion Gain	$ S_{21e} ^2$	$V_{CE} = 5\text{V}, I_C = 10\text{mA}, f = 1\text{GHz}$	-	12	-	dB
Noise Figure	NF	$V_{CE} = 5\text{V}, I_C = 5\text{mA}, f = 1\text{GHz}$	-	2.3	-	dB

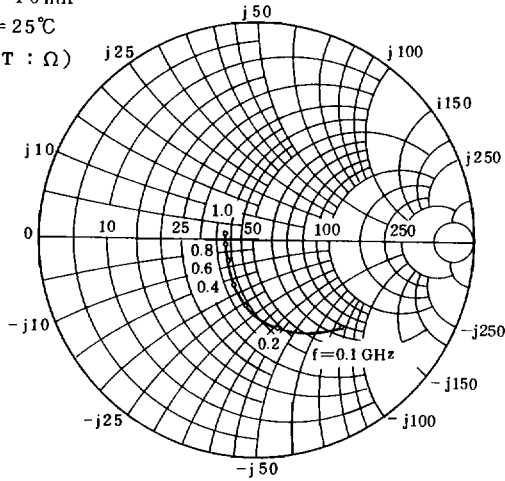
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CB0}	$V_{CB} = 10\text{V}, I_E = 0$	-	-	1.0	μA
Emitter Cut-off Current	I_{EB0}	$V_{EB} = 1\text{V}, I_C = 0$	-	-	1.0	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CE0}$	$I_C = 0.5\text{mA}, I_B = 0$	7	-	-	V
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	30	120	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	0.1	-	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-	0.87	-	V
Output Capacitance	C_{ob}	$V_{CB} = 5\text{V}, I_E = 0, f = 1\text{MHz}$	-	0.7	0.9	pF
Reverse Transfer Capacitance	C_{re}	(Note)	-	0.5	-	pF
Input Capacitance	C_{ib}	$V_{EB} = 0, I_C = 0, f = 1\text{MHz}$	-	0.8	-	pF

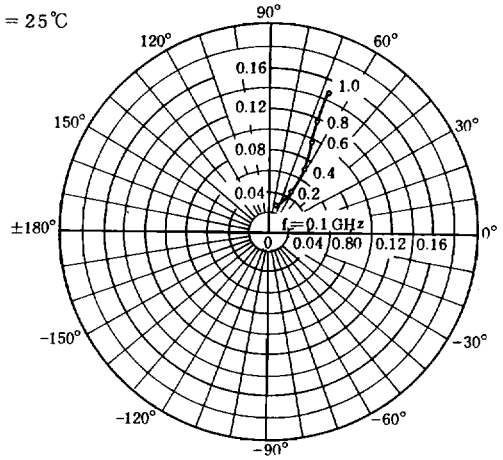
Note: C_{re} is measured by 3 terminal method with capacitance bridge.



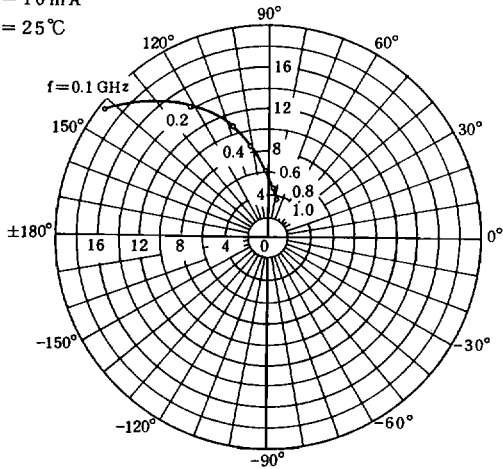
S11_e
 V_{CE} = 5 V
 I_C = 10 mA
 T_a = 25 °C
 (UNIT : Ω)



S12_e
 V_{CE} = 5 V
 I_C = 10 mA
 T_a = 25 °C



S21_e
 V_{CE} = 5 V
 I_C = 10 mA
 T_a = 25 °C



S22_e
 V_{CE} = 5 V
 I_C = 10 mA
 T_a = 25 °C
 (UNIT : Ω)

