

<Transistor>

2SC5396

For FM • AM Radio High Frequency Amplify Application
Silicon NPN Epitaxial Type Micro(Frame type)

DESCRIPTION

2SC5396 is a silicon NPN epitaxial type transistor. It is designed for high frequency amplify application.

FEATURE

- High f_T at low current range ,small $C_{crb'b}$
 $f_T=470\text{MHz typ (}I_c=1\text{mA)}$
 $C_{crb'b}=15\text{pS typ (}I_c=1\text{mA)}$
- Low noise figure $NF=2.5\text{dB typ (}f_T=100\text{MHz)}$

APPLICATION

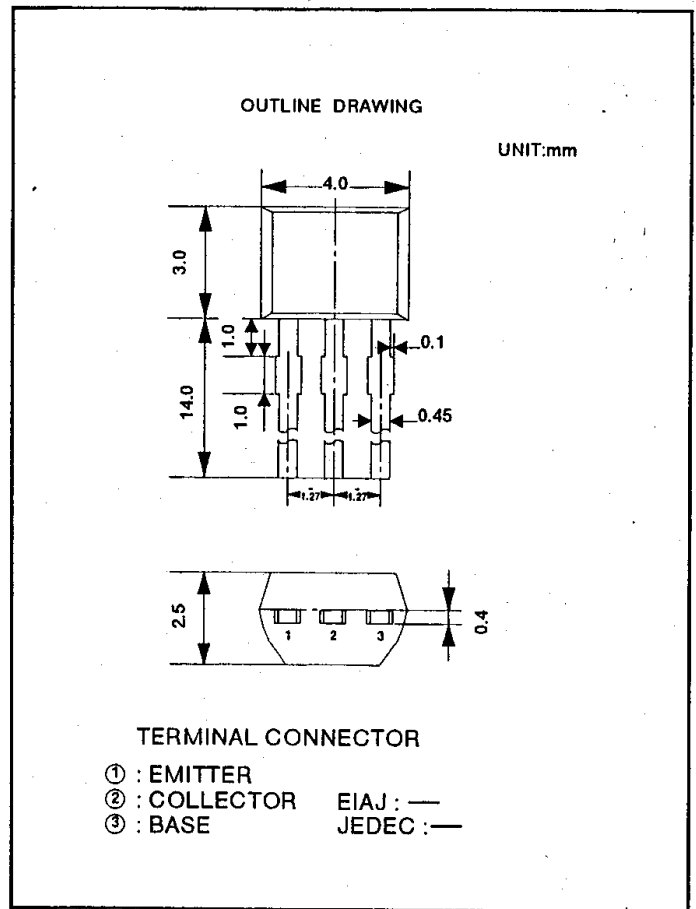
FM radio tuner ,VHF band amplify.

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

SYMBOL	PARAMETER	RATINGS	UNIT
V_{CB0}	Collector to Base voltage	25	V
V_{EB0}	Emitter to Base voltage	3	V
V_{CEO}	Collector to Emitter voltage	12	V
I_c	Collector current	20	mA
P_c	Collector dissipation ($T_a=25^\circ\text{C}$)	240	mW
T_j	Junction temperature	+125	$^\circ\text{C}$
T_{stg}	Storage temperature	-55to+125	$^\circ\text{C}$

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

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
I_{CBO}	Collector cut off current	$V_{CB}=12\text{V, }I_E=0$			0.5	μA
I_{EBO}	Emitter cut off current	$V_{EB}=2\text{V, }I_C=0$			1.0	μA
h_{FE}^*	DC forward current gain	$V_{CE}=6\text{V, }I_C=1\text{mA}$	35		180	—
f_T	Gain band width product	$V_{CE}=6\text{V, }I_E=-1\text{mA}$	400	470		MHz
C_{ob}	Collector output capacitance	$V_{CB}=6\text{V, }I_E=0, f=1\text{MHz}$		1.4	2.0	pF
$C_{crb'b}$	Base time constant	$V_{CB}=6\text{V, }I_E=-1\text{mA, }f=31.8\text{MHz}$		15	25	pS
NF	Noise figure	$V_{CE}=6\text{V, }I_E=-1\text{mA, }f=100\text{MHz, }R_G=50\Omega$		2.5		dB
MAG	Max effective power gain	$V_{CE}=6\text{V, }I_E=-1\text{mA, }f=100\text{MHz}$		37		dB



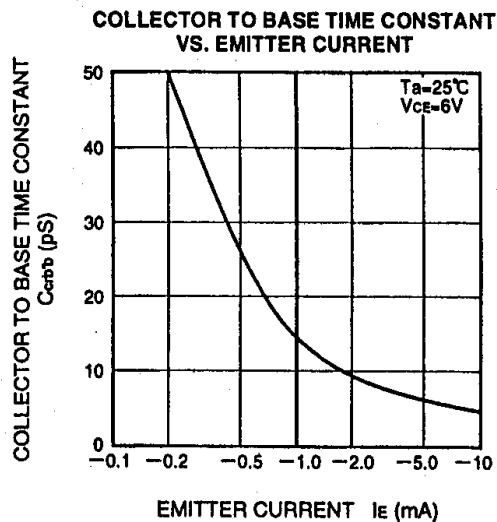
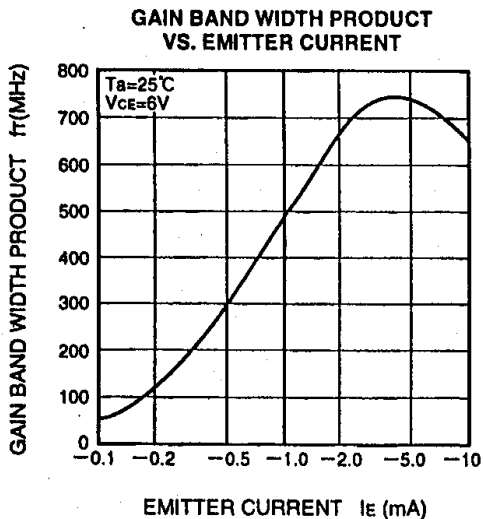
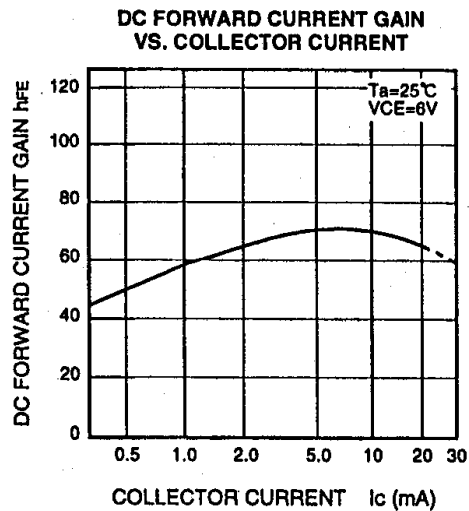
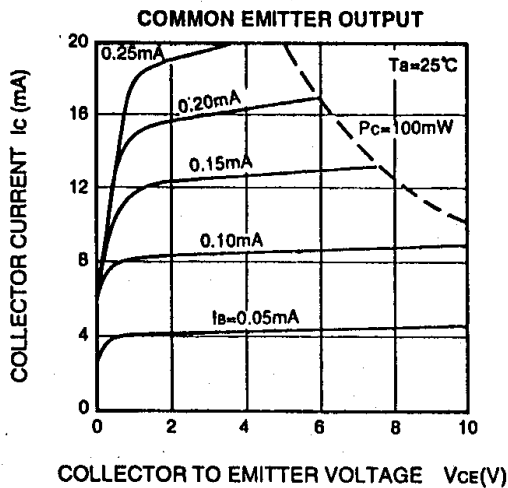
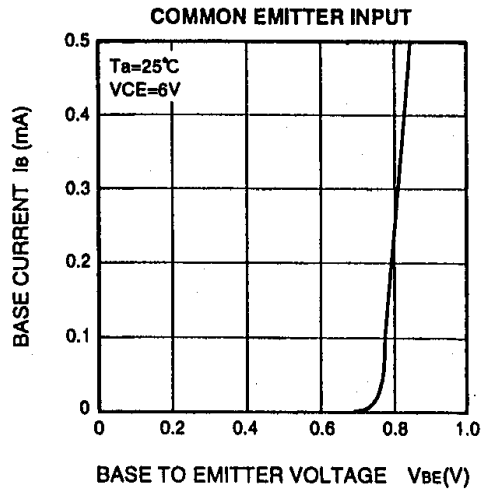
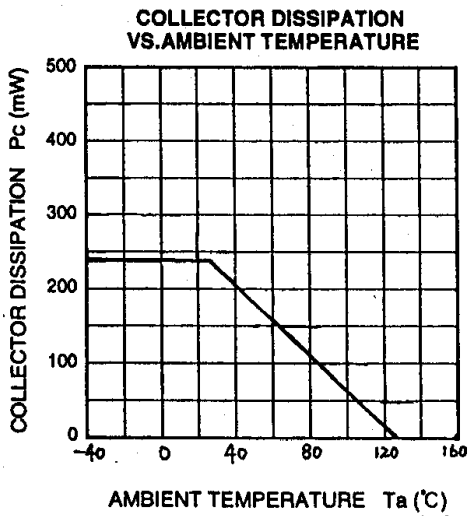
ITEM	B	C	D
h_{FE}	35~70	55~110	90~180

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TYPICAL CHARACTERISTICS



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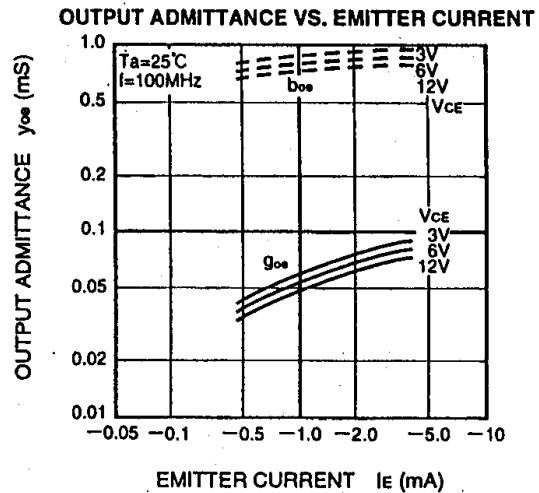
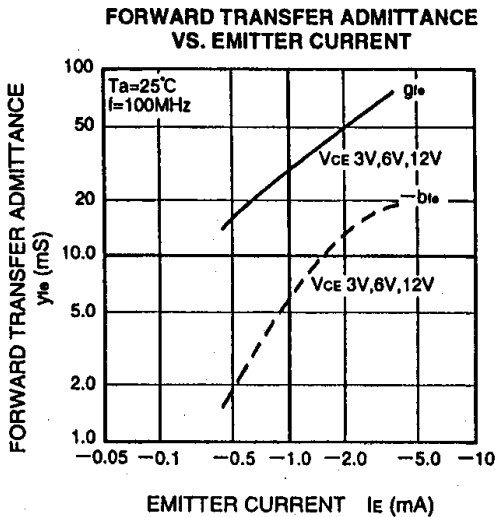
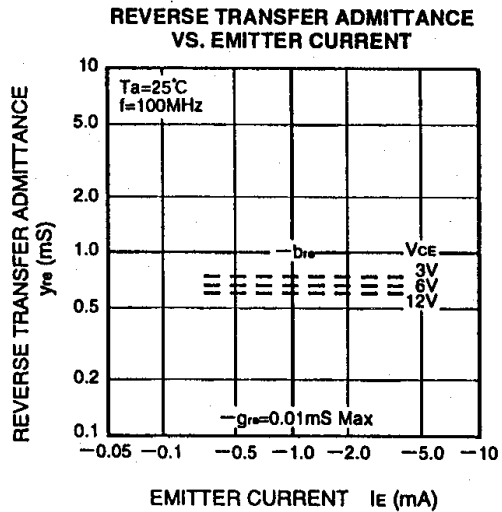
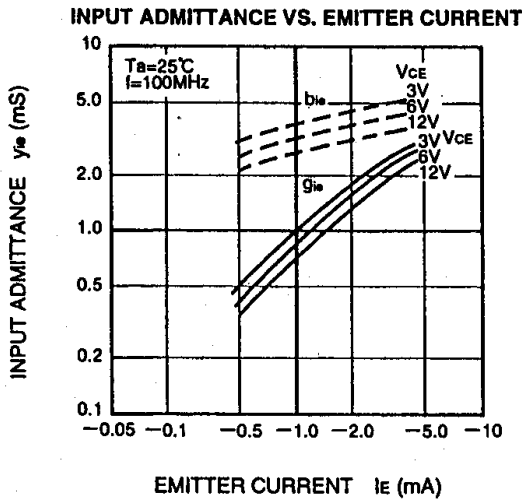
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COMMON EMITTER, 100MHz, y PARAMETER (TYPICAL VALUE)

Symbol	Test conditions	Limits	Unit
y_{ie}	g_{ie}	0.9	mS
	b_{ie}	3.3	
y_{re}	$-g_{re}$	0.01 Max	mS
	$-b_{re}$	0.7	
y_{fe}	g_{fe}	30	mS
	$-b_{fe}$	6.0	
y_{oe}	g_{oe}	0.05	mS
	b_{oe}	0.9	

$T_a=25^\circ\text{C}$
 $V_{CE}=6\text{V}$
 $I_E=-1\text{mA}$
 $f=100\text{MHz}$

COMMON EMITTER, 100MHz y PARAMETER



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