

SILICON TRANSISTORS

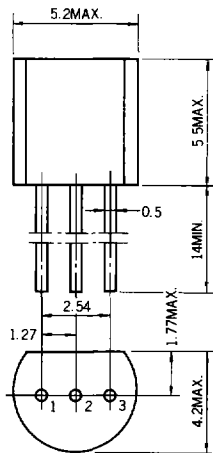
2SC1393, 2SC1394

NPN SILICON EPITAXIAL TRANSISTOR
2SC1393 : VHF RF AMPLIFIER
2SC1394 : VHF MIXER
FOR TV TUNER

2

PACKAGE DIMENSIONS

(Unit : mm)



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

FEATURES

- Low NF high G_{pe} .
 $NF = 2.0dB$ TYP. $G_{pe} = 24dB$ TYP. ($f = 200MHz$)
- Forward AGC capability to 30dB.
- Low feedback capacity. $C_{re} = 0.35pF$ TYP.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$)

Collector to Base Voltage	V_{CBO}	30	V
Collector to Emitter Voltage	V_{CEO}	30	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	I_C	20	mA
Total Power Dissipation	P_T	250	mW
Junction Temperature	T_j	125	$^\circ C$
Storage Temperature	T_{stg}	-55 to +125	$^\circ C$

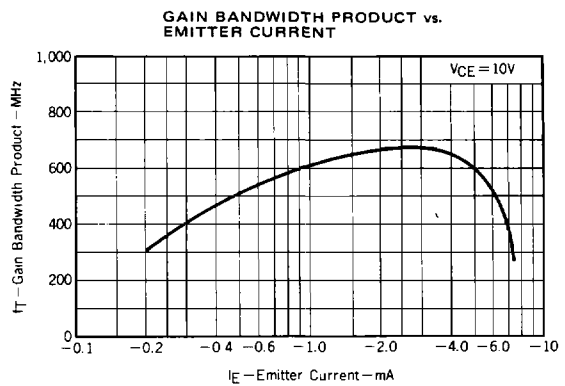
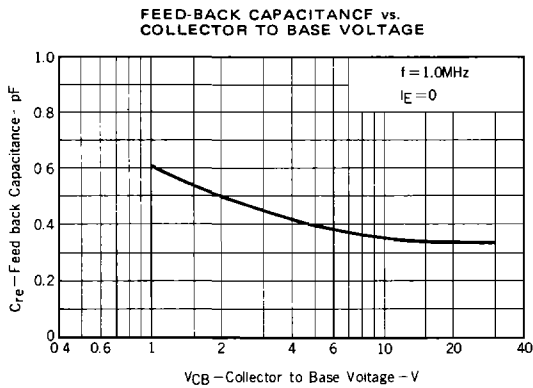
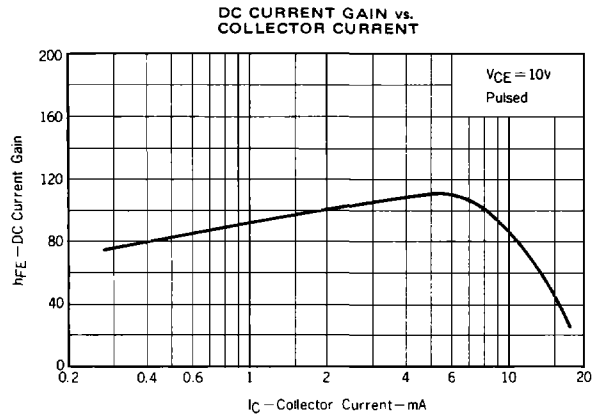
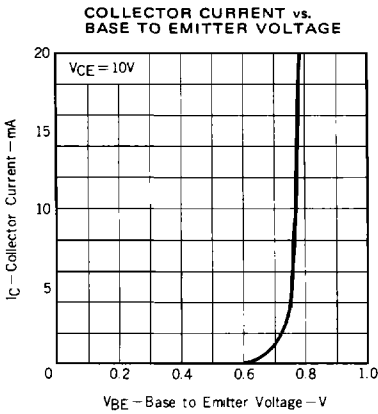
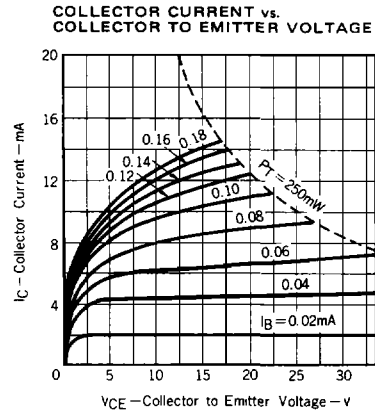
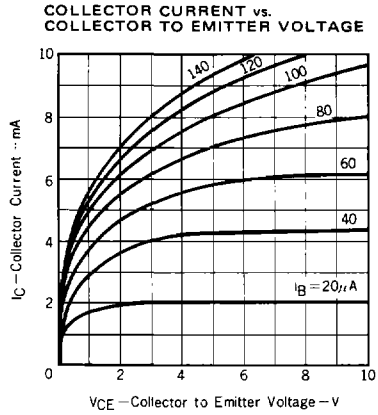
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	2SC1393			2SC1394			UNIT	TEST CONDITIONS
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector Cutoff Current	I_{CBO}			0.1			0.1	μA	$V_{CB} = 20V, I_E = 0$
DC Current Gain	h_{FE}	40	100	180	40	100	180		$V_{CE} = 10V, I_C = 2.0mA$
Gain Bandwidth Product	f_T	400	700		400	700		MHz	$V_{CE} = 10V, I_E = -3.0mA$
Feed-back Capacitance	C_{re}		0.35	0.5		0.35	0.5	pF	$f = 1.0MHz, V_{CB} = 10V, I_E = 0$
Power Gain	G_{pe}	20	24		20			dB	$f = 200MHz, I_C = 3.0mA$
AGC Current	I_{AGC}		-10	-12				mA	$f = 200MHz,$ I_E at gain reduction of 30dB.
Noise Figure	NF		2.0	3.0			3.5	dB	$f = 200MHz, I_C = 3.0mA$

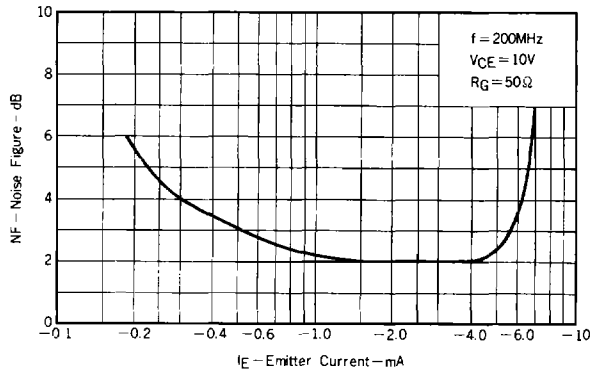
h_{FE} Classification

M : 40 - 80 L : 60 - 120 K : 90 - 180

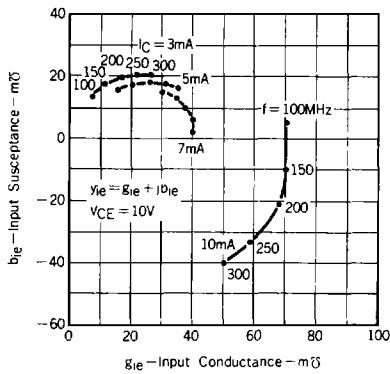
TYPICAL CHARACTERISTICS (Ta = 25°C)



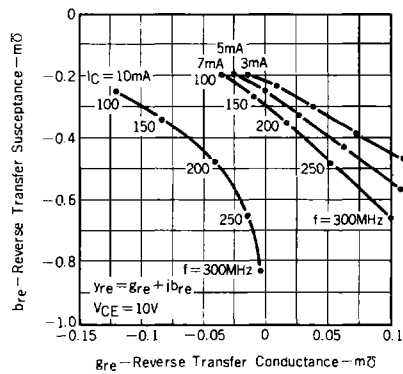
NOISE FIGURE vs. EMITTER CURRENT



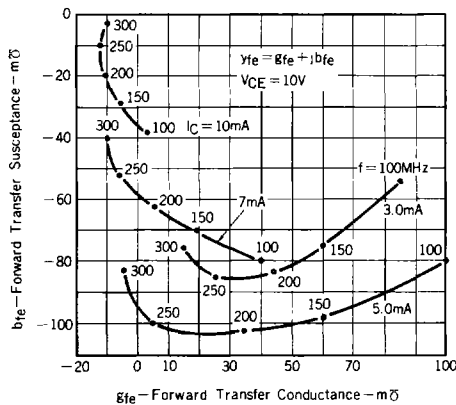
INPUT ADMITTANCE (y_{ie}) vs. FREQUENCY



REVERSE TRANSFER ADMITTANCE (y_{re}) vs. FREQUENCY



FORWARD TRANSFER ADMITTANCE (y_{fe}) vs. FREQUENCY



OUTPUT ADMITTANCE (y_{oe}) vs. FREQUENCY

