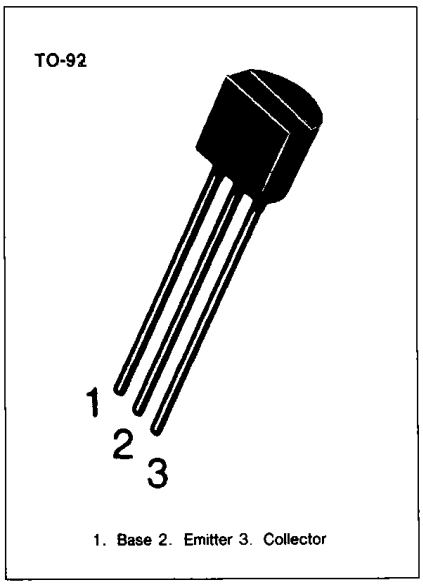
Transistors
2SC1393

USHA (INDIA) LTD

TV VHF TUNER RF AMPLIFIER (FORWARD AGC)

- **High Current Gain Bandwidth Product f_T=700MHz (Typ)**
- **Low Noise Figure NF=3.0dB (Max) at f=200MHz**
- **Low Reverse Transfer Capacitance Cre=0.5pF (Max)**



ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	20	mA
Collector Dissipation	P_C	250	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 ~ 150	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C)

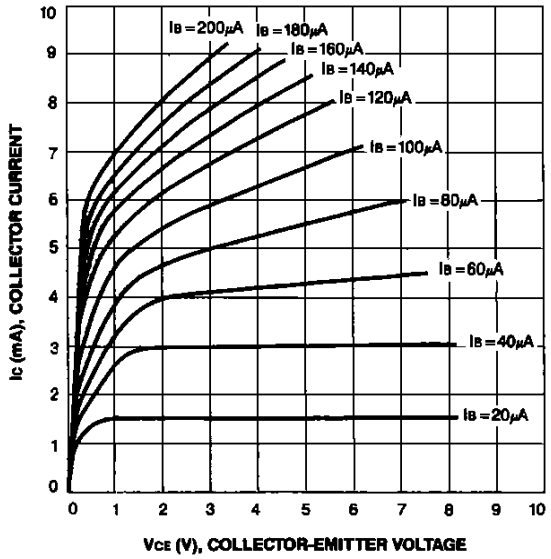
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=10μA, I_E=0	30			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=5mA, I_B=0	30			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=10μA, I_C=0	4			V
Collector Cut-off Current	I_{CBO}	V_{CB}=20V, I_E=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=10V, I_C=2mA	40		180	
Current Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=3mA	400	700		MHz
Reverse Transfer Capacitance	Cre	f=1MHz, V_{CB}=10V, I_E=0		0.35	0.5	pF
Power Gain	Gpe	f=200MHz, I_E=−3mA, Rs=50Ω, V_{CE}=10V	20	24		dB
AGC Current	I_{AGC}	I_E at Gpe=−30dB, f=200MHz		−10	−12	mA
Noise Figure	NF	f=200MHz, I_E=−3mA, V_{CE}=10V, Rs=50Ω		2.0	3.0	dB

h_{FE} CLASSIFICATION

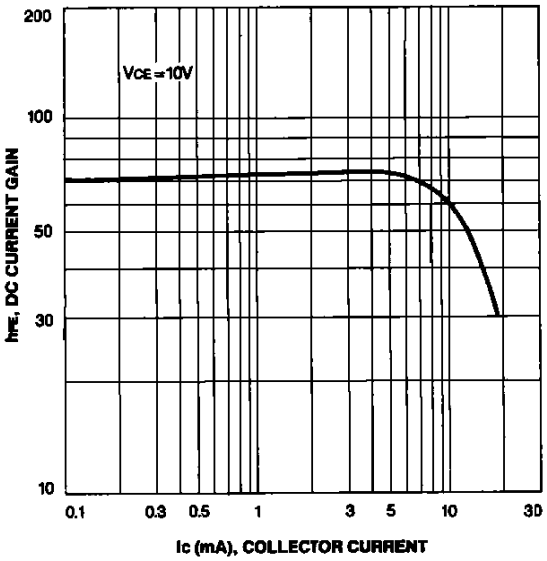
Classification	R	O	Y
h_{FE}	40-80	60-140	90-180

ISO 14001 CERTIFIED
AN ISO 9002 COMPANY

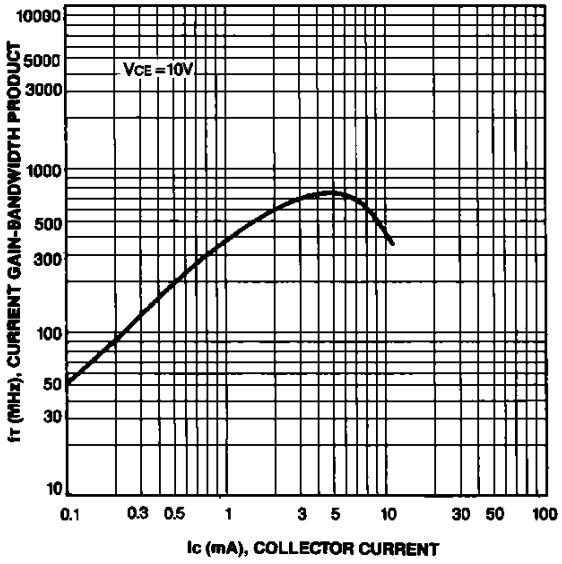
STATIC CHARACTERISTIC



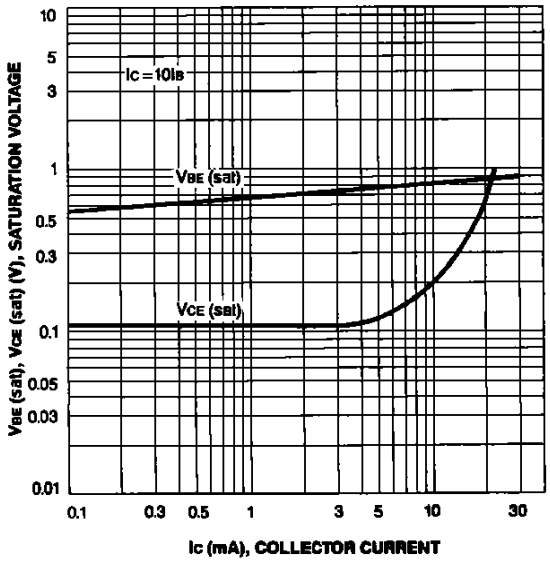
DC CURRENT GAIN



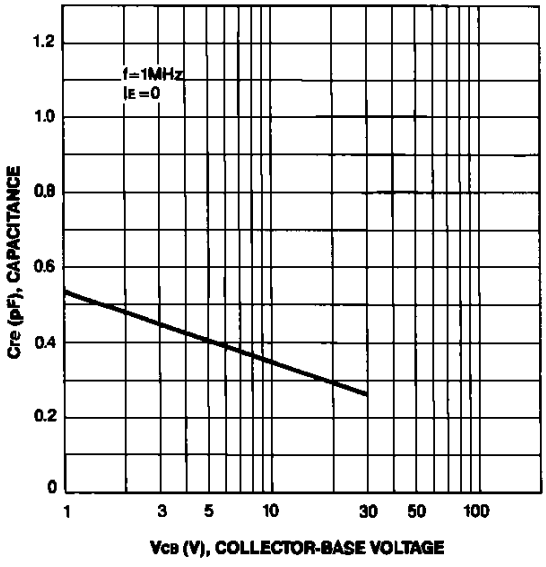
CURRENT GAIN-BANDWIDTH PRODUCT



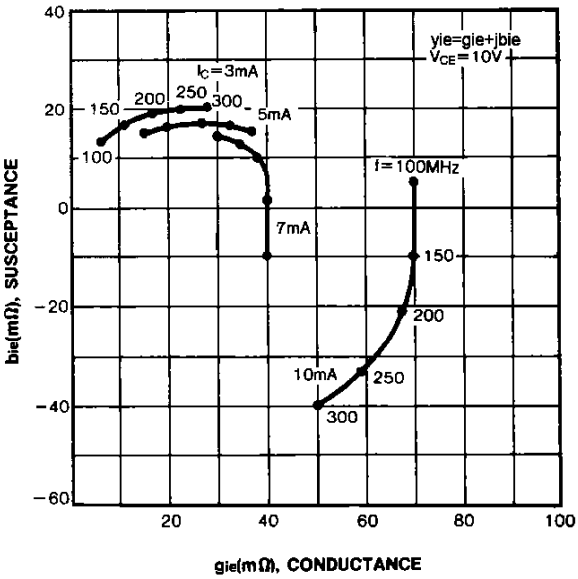
BASE-EMITTER SATURATION VOLTAGE COLLECTOR-EMITTER SATURATION VOLTAGE



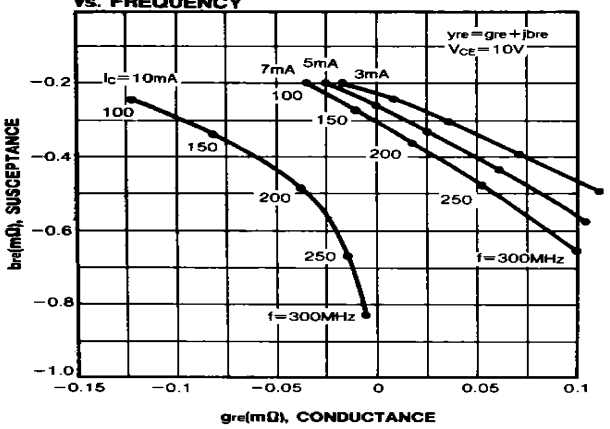
REVERSE CAPACITANCE



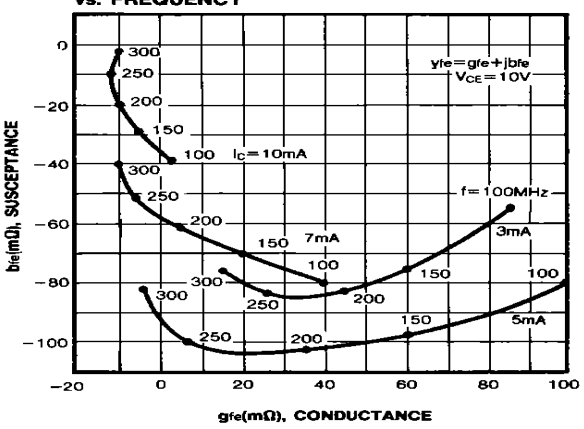
INPUT ADMITTANCE (yie) vs. FREQUENCY



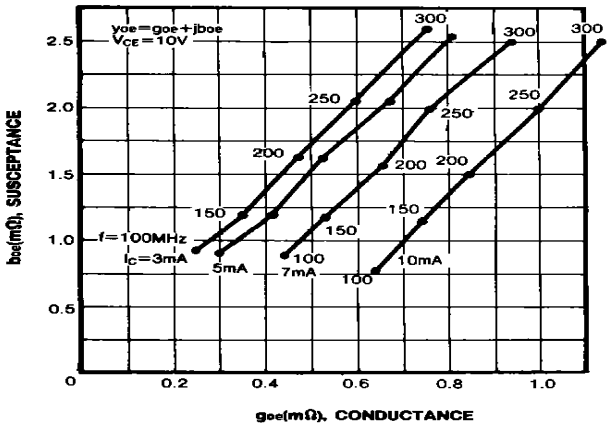
REVERSE TRANSFER ADMITTANCE (yre) vs. FREQUENCY



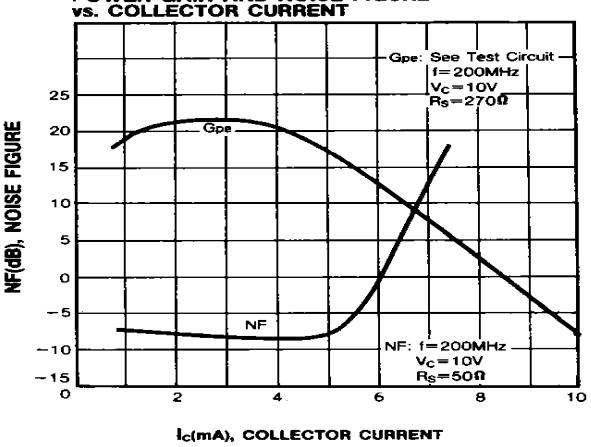
FORWARD TRANSFER ADMITTANCE (yfe) vs. FREQUENCY



OUTPUT ADMITTANCE (yoe) vs. FREQUENCY



POWER GAIN AND NOISE FIGURE vs. COLLECTOR CURRENT



POWER GAIN AND NOISE FIGURE TEST CIRCUIT