

KSC1394

NPN EPITAXIAL SILICON TRANSISTOR

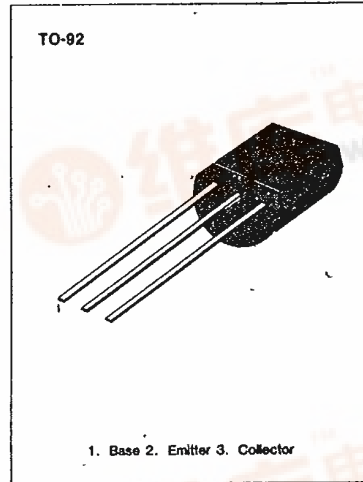
T-31-17

TV VHF TUNER MIXER

- High Current Gain Bandwidth Product $f_T = 700\text{MHz}$ (Typ)
- High Power Gain $G_{pe} = 20\text{dB}$ (Min) at $f = 200\text{MHz}$
- Low Noise Figure $NF = 3.5\text{dB}$ (Max) at $f = 200\text{MHz}$

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

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	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ 150	$^\circ\text{C}$



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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 10\mu\text{A}, I_E = 0$	30			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 5\text{mA}, I_B = 0$	30			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = -10\mu\text{A}, I_C = 0$	4			V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 20\text{V}, I_E = 0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 2\text{mA}$	40		180	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$			0.7	V
Current Gain-Bandwidth Product	f_T	$V_{CE} = 10\text{V}, I_C = 3\text{mA}$	400	700		MHz
Reverse Transfer Capacitance	C_{re}	$V_{CB} = 10\text{V}, I_E = 0$ $f = 1\text{MHz}$		0.35	0.5	pF
Power Gain	G_{pe}	$V_{CE} = 6\text{V}, I_E = -3\text{mA}$ $R_s = 50\Omega, f = 200\text{MHz}$	20			dB
Noise Figure	NF	$V_{CE} = 6\text{V}, I_E = -3\text{mA}$ $R_s = 50\Omega, f = 200\text{MHz}$			3.5	dB

h_{FE} CLASSIFICATION

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

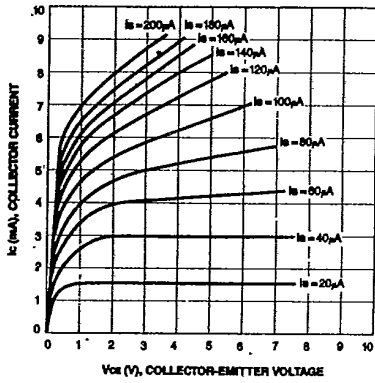


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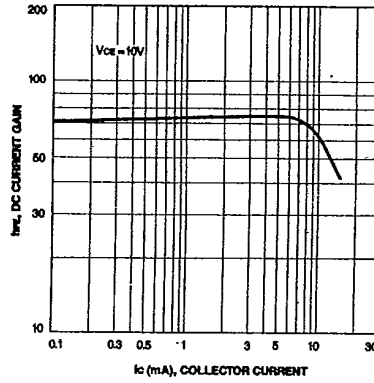
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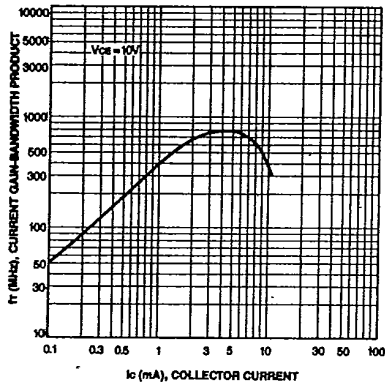
STATIC CHARACTERISTIC



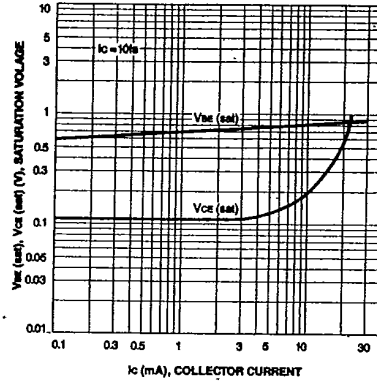
DC CURRENT GAIN



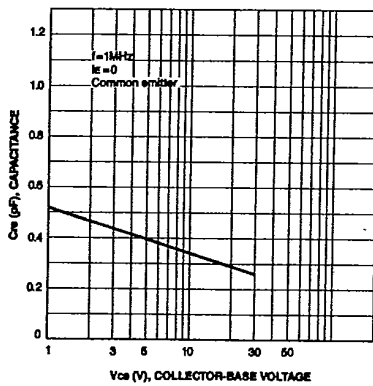
CURRENT GAIN-BANDWIDTH PRODUCT



BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



REVERSE CAPACITANCE



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