

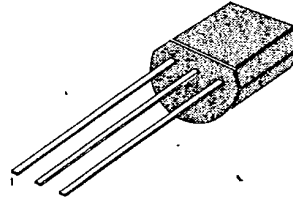
SS9015**PNP EPITAXIAL SILICON TRANSISTOR****LOW FREQUENCY, LOW NOISE AMPLIFIER**

• Complement to SS9014

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	-50	V
Collector-Emitter Voltage	V_{CE0}	-45	V
Emitter-Base Voltage	V_{EB0}	-5	V
Collector Current	I_C	-100	mA
Collector Dissipation	P_C	450	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

TO-92



1. Emitter 2. Base 3. Collector

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CB0}	$I_C = -100\mu\text{A}$, $I_E = 0$	-50			V
Collector-Emitter Breakdown Voltage	BV_{CE0}	$I_C = -1\text{mA}$, $I_B = 0$	-45			V
Emitter-Base Breakdown Voltage	BV_{EB0}	$I_E = -100\mu\text{A}$, $I_C = 0$	-5			V
Collector Cutoff Current	I_{CB0}	$V_{CB} = -50\text{V}$, $I_E = 0$			-50	nA
Emitter Cutoff Current	I_{EB0}	$V_{EB} = -5\text{V}$, $I_C = 0$			-50	nA
DC Current Gain	h_{FE}	$V_{CE} = -5\text{V}$, $I_C = -1\text{mA}$	60	200	600	
Collector-Base Saturation Voltage	$V_{CE(sat)}$	$I_C = -100\text{mA}$, $I_B = -5\text{mA}$		-0.2	-0.7	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -100\text{mA}$, $I_B = -5\text{mA}$		-0.82	-1.0	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = -5\text{V}$, $I_C = -2\text{mA}$	-0.6	-0.65	-0.75	V
Output Capacitance	C_{ob}	$V_{CB} = -10\text{V}$, $I_E = 0$ $f = 1\text{MHz}$		4.5	7.0	pF
Current Gain-Bandwidth Product	f_T	$V_{CE} = -5\text{V}$, $I_C = -10\text{mA}$	100	190		MHz
Noise Figure	NF	$V_{CE} = -5\text{V}$, $I_C = -0.2\text{mA}$ $f = 1\text{KHz}$, $R_s = 1\text{K}\Omega$		0.7	10	dB

 h_{FE} CLASSIFICATION

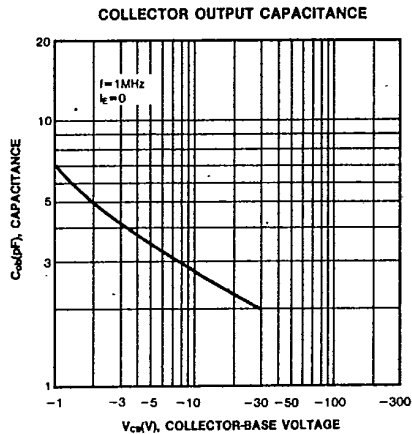
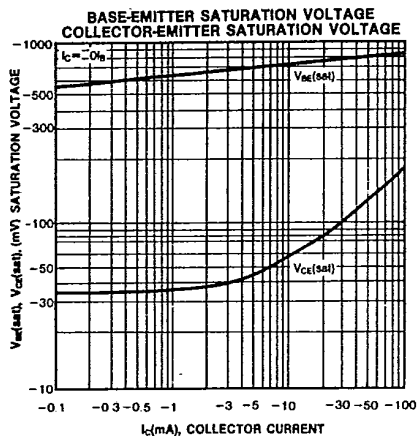
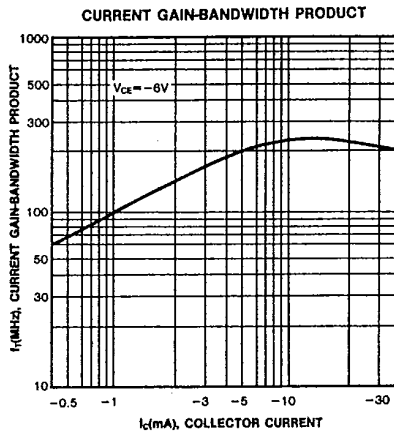
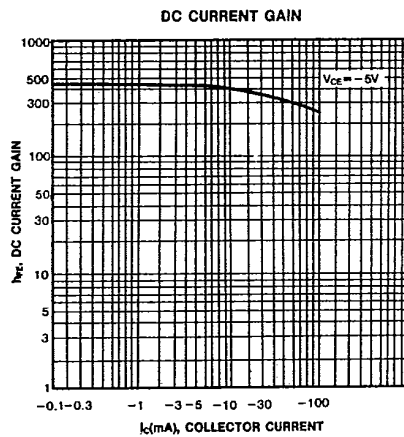
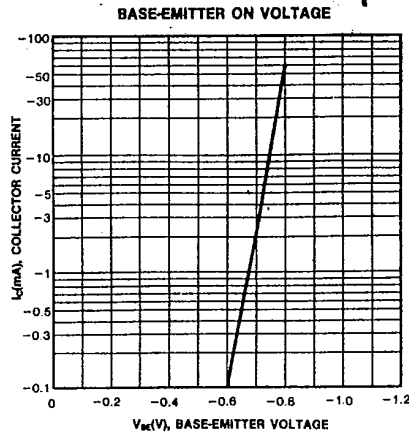
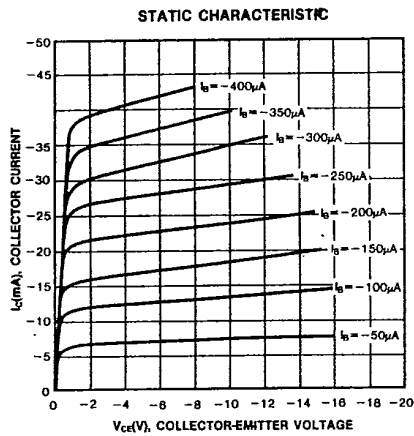
Classification	A	B	C
h_{FE}	60-150	100-300	200-600



SS9015

PNP EPITAXIAL SILICON TRANSISTOR

T-29-19



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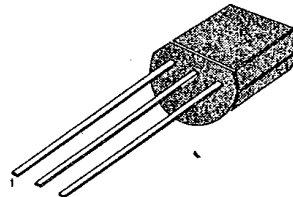
SS9016**NPN EPITAXIAL SILICON TRANSISTOR****AM CONVERTER, FM/RF AMPLIFIER OF LOW NOISE.**

- High total power dissipation. (PT=400mW)

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	30	V
Collector-Emitter Voltage	V_{CE0}	20	V
Emitter-Base Voltage	V_{EB0}	4	V
Collector Current	I_C	25	mA
Collector Dissipation	P_C	400	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

TO-92



1. Emitter 2. Base 3. Collector

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CB0}	$I_C=100\mu\text{A}$, $I_E=0$	30			V
Collector-Emitter Breakdown Voltage	BV_{CE0}	$I_C=1\text{mA}$, $I_B=0$	20			V
Emitter-Base Breakdown Voltage	BV_{EB0}	$I_E=100\mu\text{A}$, $I_C=0$	4			V
Collector Cutoff Current	I_{CBO}	$V_{CB}=30\text{V}$, $I_E=0$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=3\text{V}$, $I_C=0$			100	nA
DC Current Gain	h_{FE}	$V_{CE}=5\text{V}$, $I_C=1\text{mA}$	28	90	198	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10\text{mA}$, $I_B=1\text{mA}$		0.1	0.3	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE}=5\text{V}$, $I_C=1\text{mA}$		0.72		V
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $I_E=0$ $f=1\text{MHz}$		1.2	1.6	pF
Current Gain-Bandwidth Product	f_T	$V_{CE}=5\text{V}$, $I_C=1\text{mA}$	400	620		MHz
Noise Figure	NF	$V_{CE}=5\text{V}$, $I_C=1.0\text{mA}$ $f=100\text{MHz}$, $R_s=50\Omega$		3.0	5.0	dB

 h_{FE} CLASSIFICATION

Classification	D	E	F	G	H	I
h_{FE}	28-45	39-60	54-80	72-108	97-146	132-198

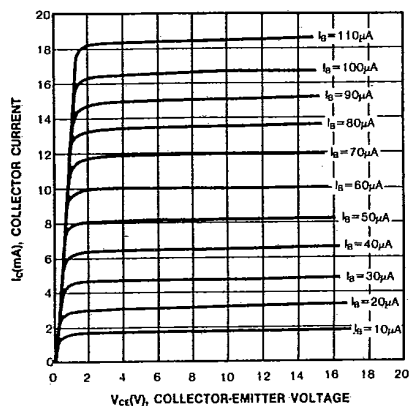


SS9016

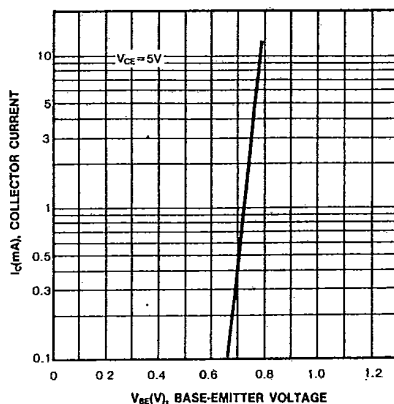
NPN EPITAXIAL SILICON TRANSISTOR

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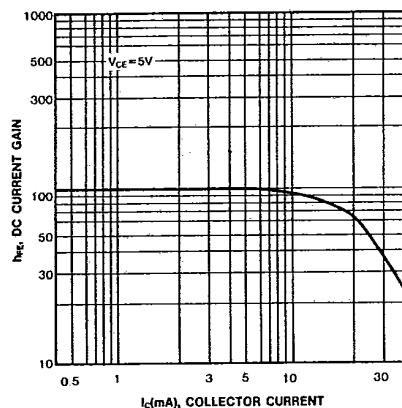
STATIC CHARACTERISTIC



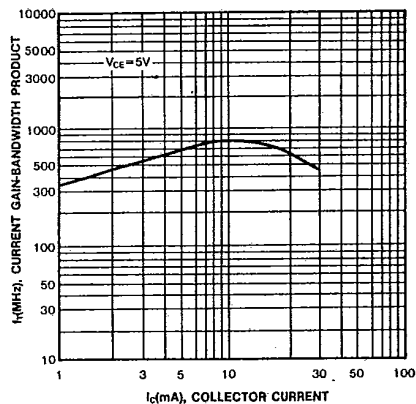
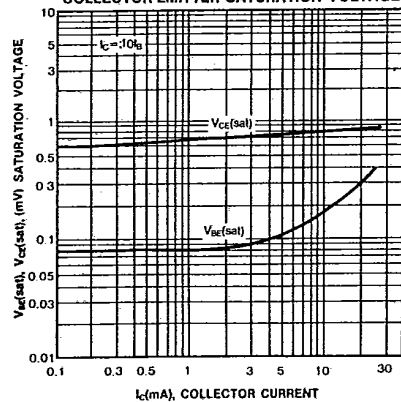
BASE-EMITTER ON VOLTAGE



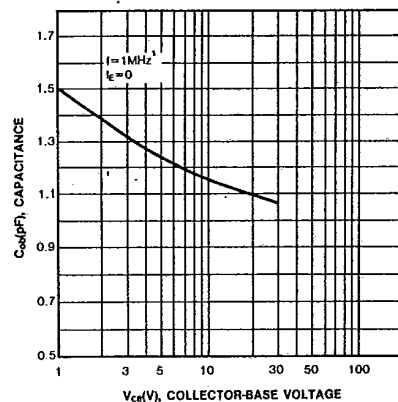
DC CURRENT GAIN



CURRENT GAIN-BANDWIDTH PRODUCT

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE

COLLECTOR OUTPUT CAPACITANCE



SS9018**NPN EPITAXIAL SILICON TRANSISTOR**

**AM/FM IF AMPLIFIER, LOCAL OSCILLATOR
OF FM/VHF TUNER**

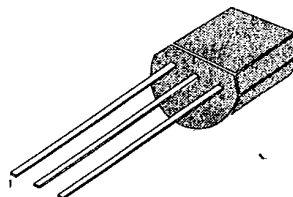
- High Current Gain Bandwidth Product $f_T = 1,100$ MHz (Typ)

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	30	V
Collector-Emitter Voltage	V_{CE0}	15	V
Emitter-Base Voltage	V_{EB0}	5	V
Collector Current	I_C	50	mA
Collector Dissipation	P_C	400	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim 150$	$^\circ\text{C}$

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1. Emitter 2. Base 3. Collector

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 100\mu\text{A}$, $I_E = 0$	30			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1.0\text{mA}$, $I_B = 0$	15			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = 100\mu\text{A}$, $I_C = 0$	5			V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 12\text{V}$, $I_E = 0$			50	nA
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}$, $I_C = 1.0\text{mA}$	28	100	198	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}$, $I_B = 1\text{mA}$			0.5	V
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$ $f = 1\text{MHz}$		1.3	1.7	pF
Current Gain-Bandwidth Product	f_T	$V_{CE} = 5\text{V}$, $I_C = 5\text{mA}$	700	1100		MHz

 h_{FE} CLASSIFICATION

Classification	D	E	F	G	H	I
h_{FE}	28-45	39-60	54-80	72-108	97-146	132-198

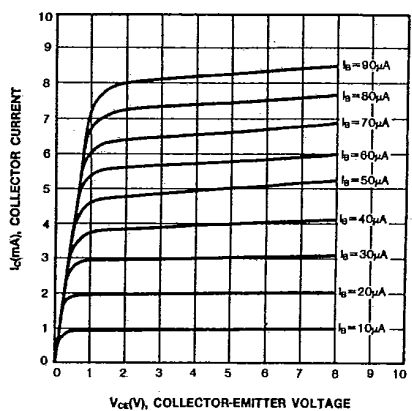


SS9018

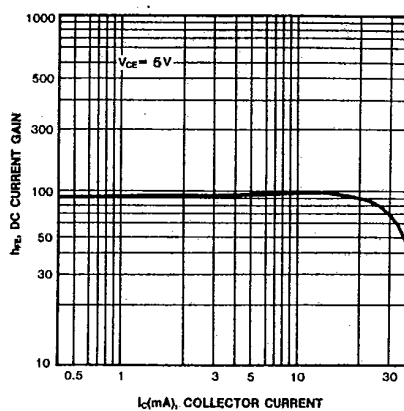
NPN EPITAXIAL SILICON TRANSISTOR

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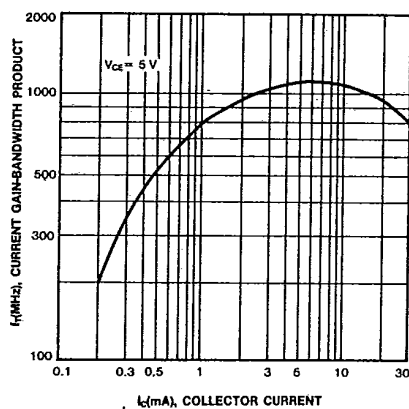
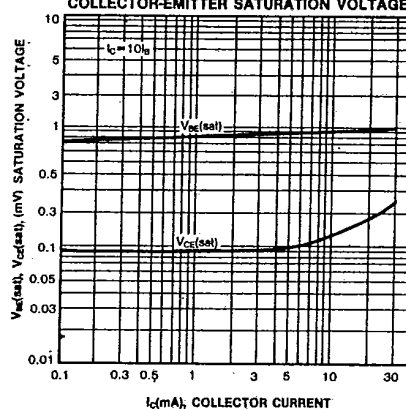
STATIC CHARACTERISTIC



DC CURRENT GAIN



CURRENT GAIN-BANDWIDTH PRODUCT

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE

OUTPUT CAPACITANCE

