

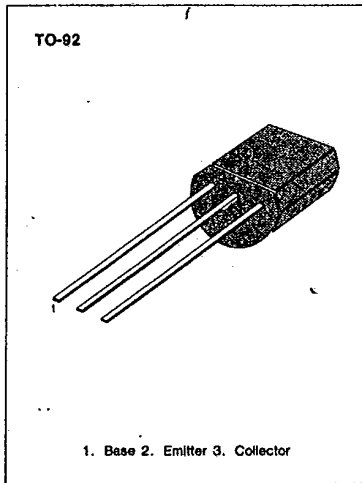
MPSH20

NPN EPITAXIAL SILICON TRANSISTOR

VHF TRANSISTOR

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V _{CB0}	40	V
Collector-Emitter Voltage	V _{CE0}	30	V
Emitter-Base Voltage	V _{EB0}	4.0	V
Collector Current	I _c	100	mA
Collector Dissipation (T _a = 25°C)	P _c	350	mW
Derate above 25°C		2.81	mW/°C
Collector Dissipation (T _c = 25°C)	P _c	1.0	W
Derate above 25°C		8.0	mW/°C
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~150	°C
Thermal Resistance, Junction to Case	R _{th(j-c)}	83.3	°C/W
Thermal Resistance, Junction to Ambient	R _{th(j-a)}	357	°C/W



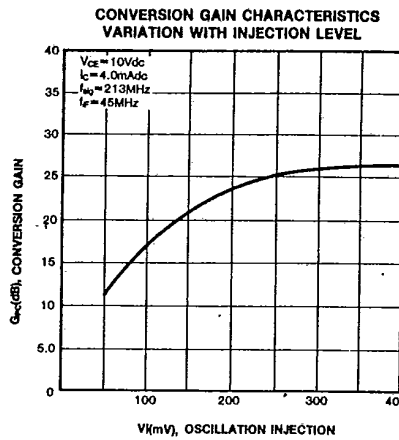
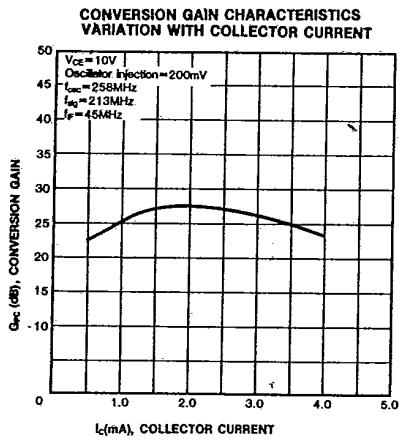
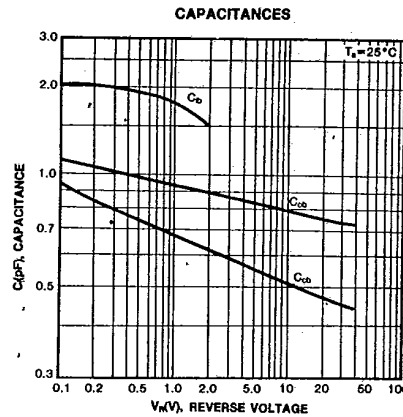
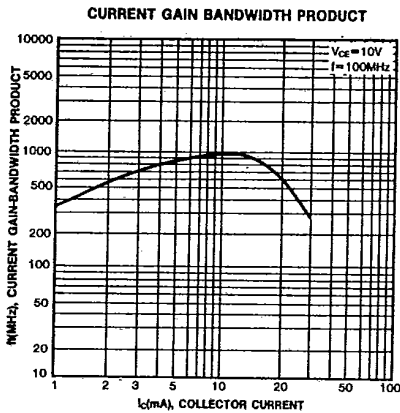
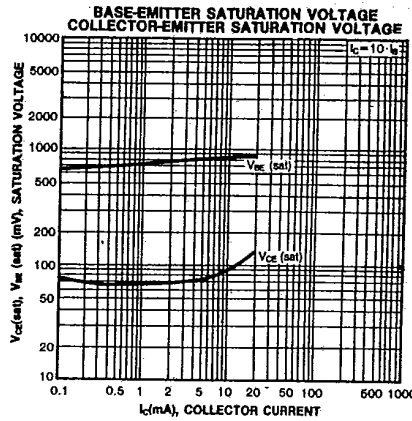
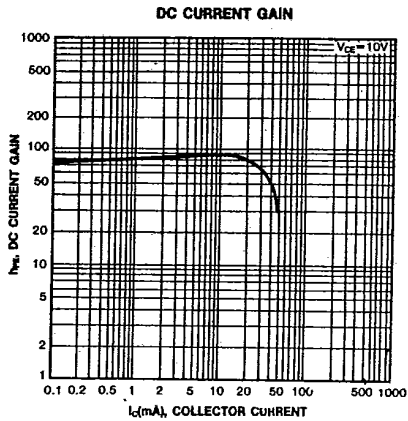
ELECTRICAL CHARACTERISTICS (T_a = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV _{CB0}	I _c = 100μA, I _E = 0	40			V
Collector-Emitter Breakdown Voltage	BV _{CE0}	I _c = 1mA, I _B = 0	30			V
Emitter-Base Breakdown Voltage	BV _{EB0}	I _E = 10μA, I _C = 0	4.0			V
Collector Cutoff Current	I _{CB0}	V _{CB} = 15V, I _E = 0			50	nA
DC Current Gain	h _{FE}	V _{CE} = 10V, I _C = 4mA	25			
Current Gain Bandwidth Product	f _T	V _{CE} = 10V, I _C = 4mA f = 100MHz	400	620		MHz
Collector-Base Capacitance	C _{cb}	V _{CB} = 10V, I _E = 0, f = 1MHz		0.5	0.65	pF
Collector Base Time Constant	C _c ·r _{bb} '	V _{CB} = 10V, I _E = 4mA f = 31.8MHz		10		ps
Conversion Gain (213 to 45 MHz)	G _{CE}	V _{CE} = 10V, I _C = 4mA Oscillator injection = 200mV	18	23		dB

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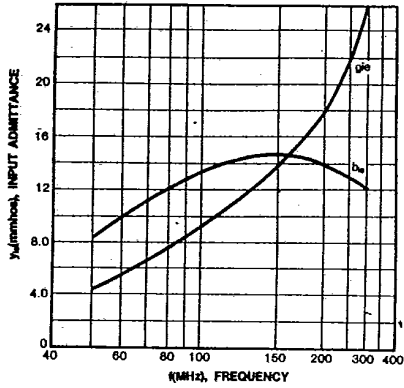
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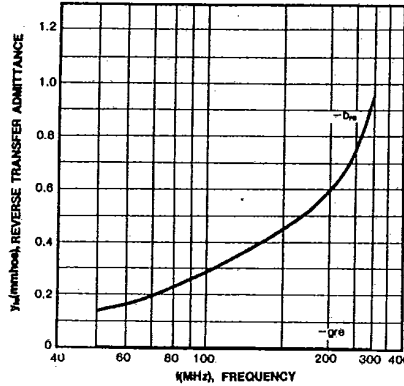
NPN EPITAXIAL SILICON TRANSISTOR

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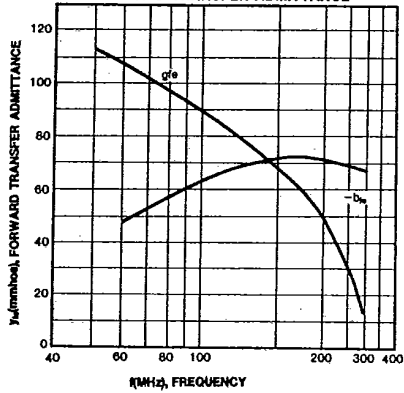
COMMON-EMITTER y PARAMETERS
($I_C = 4.0\text{mA}$, $V_{CE} = 10\text{V}$, $T_A = 25^\circ\text{C}$)
INPUT ADMITTANCE



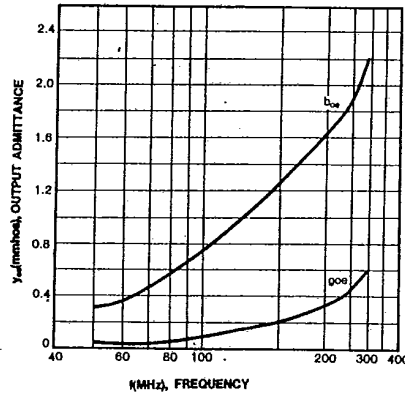
COMMON-EMITTER y PARAMETERS
($I_C = 4.0\text{mA}$, $V_{CE} = 10\text{V}$, $T_A = 25^\circ\text{C}$)
REVERSE TRANSFER ADMITTANCE



COMMON-EMITTER y PARAMETERS
($I_C = 4.0\text{mA}$, $V_{CE} = 10\text{V}$, $T_A = 25^\circ\text{C}$)
FORWARD TRANSFER ADMITTANCE



COMMON-EMITTER y PARAMETERS
($I_C = 4.0\text{mA}$, $V_{CE} = 10\text{V}$, $T_A = 25^\circ\text{C}$)
OUTPUT ADMITTANCE



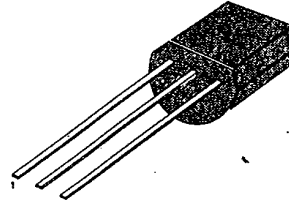
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VHF TRANSISTOR**ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	40	V
Collector-Emitter Voltage	V_{CE0}	30	V
Emitter-Base Voltage	V_{EB0}	4.0	V
Collector Current	I_C	100	mA
Collector Dissipation ($T_a=25^\circ\text{C}$)	P_C	350	mW
Derate above 25°C		2.8	mW/ $^\circ\text{C}$
Junction Temperature	T_J	135	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ 135	$^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{th(j-a)}$	357	$^\circ\text{C/W}$

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1. Base 2. Emitter 3. Collector

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

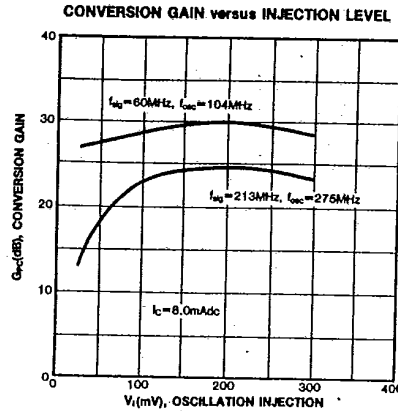
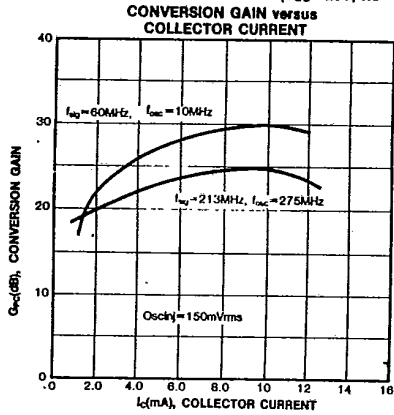
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CB0}	$I_C=100\mu\text{A}$, $I_E=0$	40			V
Collector-Emitter Breakdown Voltage	BV_{CE0}	$I_C=1\text{mA}$, $I_B=0$	30			V
Emitter-Base Breakdown Voltage	BV_{EB0}	$I_E=10\mu\text{A}$, $I_C=0$	4.0			V
Collector Cutoff Current	I_{CB0}	$V_{CB}=15\text{V}$, $I_E=0$			50	nA
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}$, $I_C=8\text{mA}$	30			
Current Gain Bandwidth Product	f_T	$V_{CE}=10\text{V}$, $I_C=8\text{mA}$ $f=100\text{MHz}$	400	620		MHz
Collector-Base Capacitance	C_{cb}	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$		0.25	0.36	pF
Conversion Gain (213 to 45 MHz)	G_{CE}	$V_{CC}=20\text{V}$, $I_C=8\text{mA}$ Oscillator injection=150mV	19	24		dB
Conversion Gain (60 to 45 MHz)	G_{CE}	$V_{CC}=20\text{V}$, $I_C=8\text{mA}$ Oscillator injection=150mV	24	29		dB

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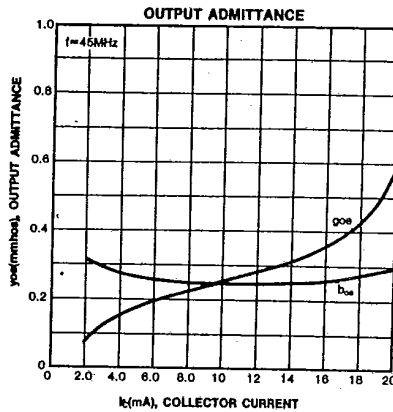
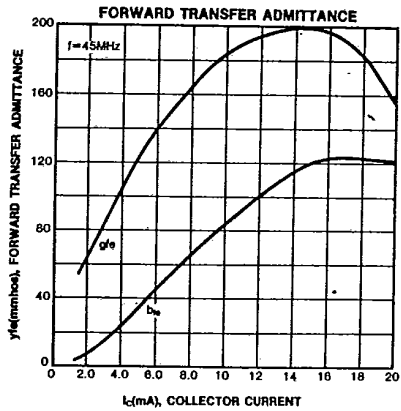
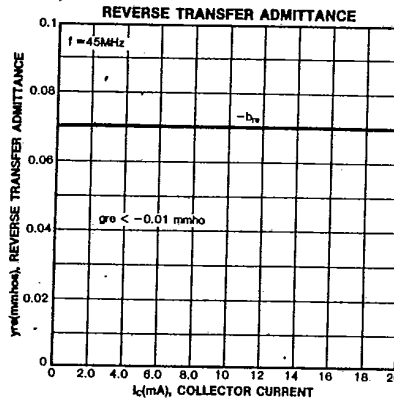
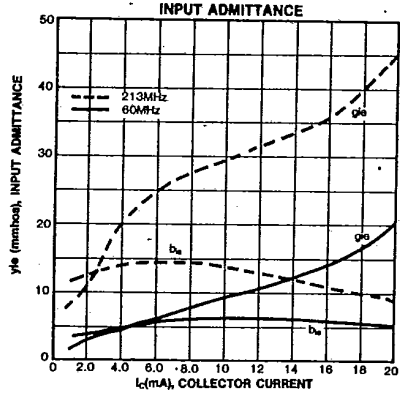
NPN EPITAXIAL SILICON TRANSISTOR

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CONVERSION GAIN CHARACTERISTICS
($V_{CC}=20V$, $R_s=R_L=50\Omega$, $f_{in}=44MHz$, B.W.=6MHz)

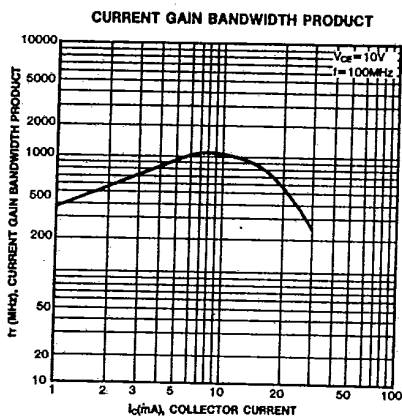
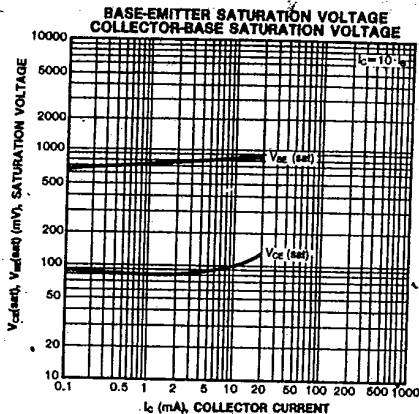
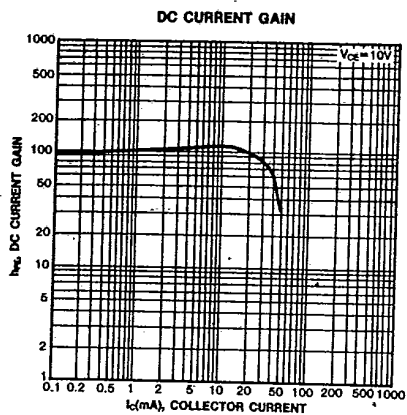


COMMON-BASE y PARAMETERS
($V_{CE}=15V$, $T_a=25^\circ C$)



MPSH24 NPN EPITAXIAL SILICON TRANSISTOR

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