

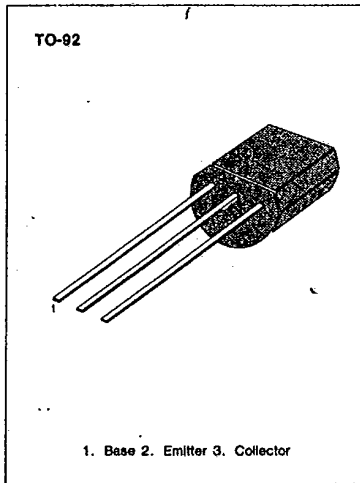
**MPSH20**

**NPN EPITAXIAL SILICON TRANSISTOR**

**VHF TRANSISTOR**

**ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub> = 25°C)**

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



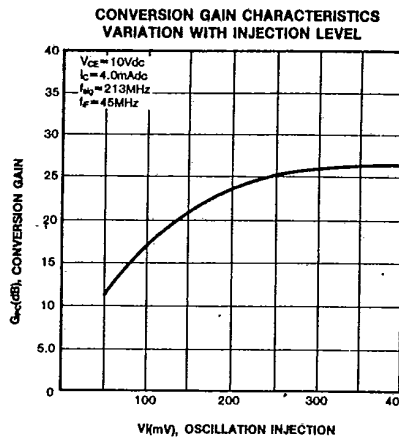
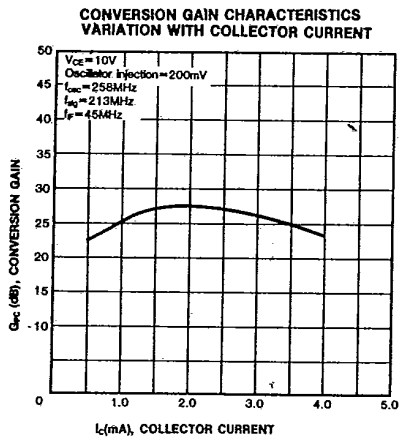
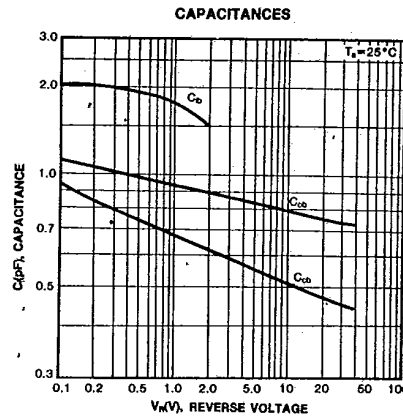
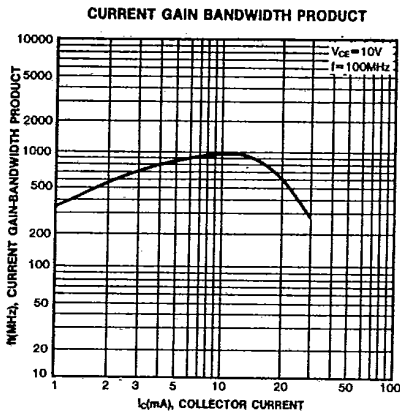
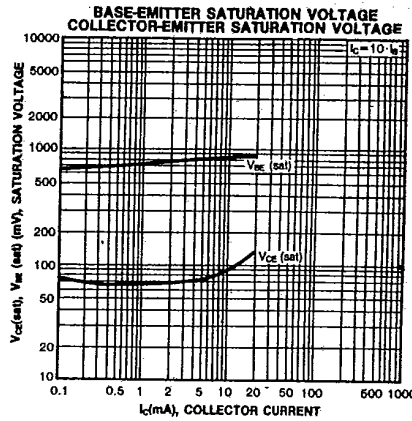
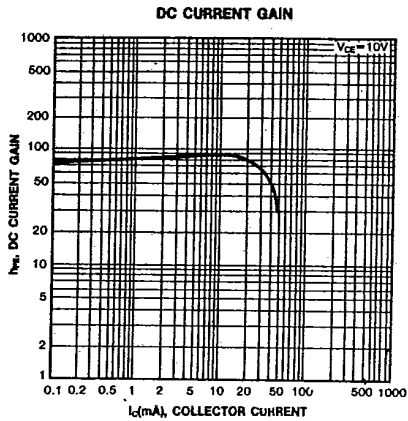
**ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25°C)**

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV <sub>CB0</sub>	I <sub>c</sub> = 100μA, I <sub>E</sub> = 0	40			V
Collector-Emitter Breakdown Voltage	BV <sub>CE0</sub>	I <sub>c</sub> = 1mA, I <sub>B</sub> = 0	30			V
Emitter-Base Breakdown Voltage	BV <sub>EB0</sub>	I <sub>E</sub> = 10μA, I <sub>C</sub> = 0	4.0			V
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> = 15V, I <sub>E</sub> = 0			50	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 4mA	25			
Current Gain Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 4mA f = 100MHz	400	620		MHz
Collector-Base Capacitance	C <sub>cb</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz		0.5	0.65	pF
Collector Base Time Constant	C <sub>c</sub> ·r <sub>bb</sub> '	V <sub>CB</sub> = 10V, I <sub>E</sub> = 4mA f = 31.8MHz		10		ps
Conversion Gain (213 to 45 MHz)	G <sub>CE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 4mA Oscillator injection = 200mV	18	23		dB

**MPSH20**

**NPN EPITAXIAL SILICON TRANSISTOR**

T-31-19



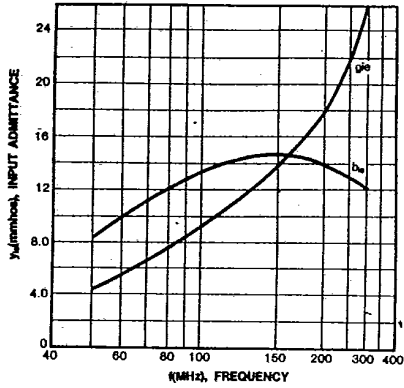
3

**MPSH20**

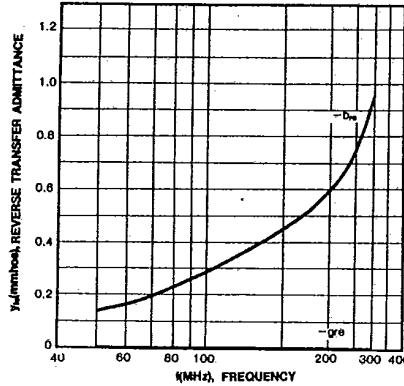
**NPN EPITAXIAL SILICON TRANSISTOR**

T-31-19

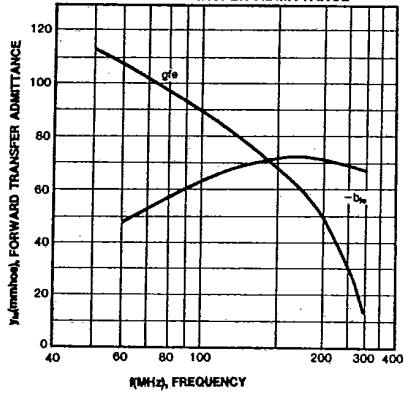
COMMON-EMITTER  $y$  PARAMETERS  
( $I_C = 4.0\text{mA}$ ,  $V_{CE} = 10\text{V}$ ,  $T_A = 25^\circ\text{C}$ )  
INPUT ADMITTANCE



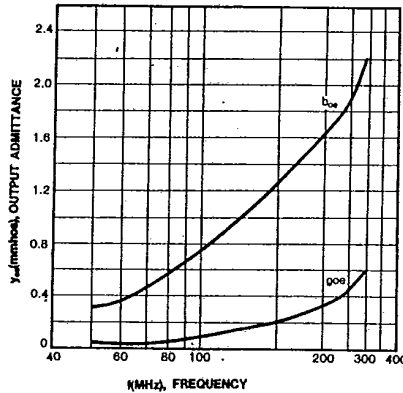
COMMON-EMITTER  $y$  PARAMETERS  
( $I_C = 4.0\text{mA}$ ,  $V_{CE} = 10\text{V}$ ,  $T_A = 25^\circ\text{C}$ )  
REVERSE TRANSFER ADMITTANCE



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

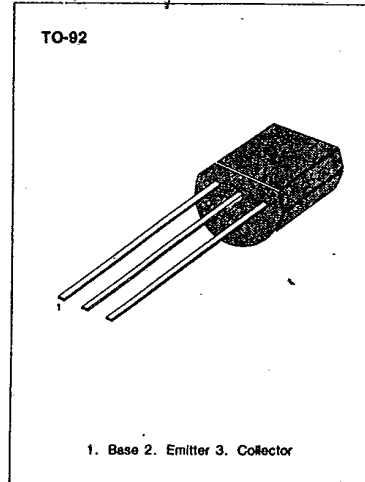


**MPSH24****NPN EPITAXIAL SILICON TRANSISTOR**

T-31-19

**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 $25^\circ\text{C}$		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	$^\circ\text{C/W}$



3

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

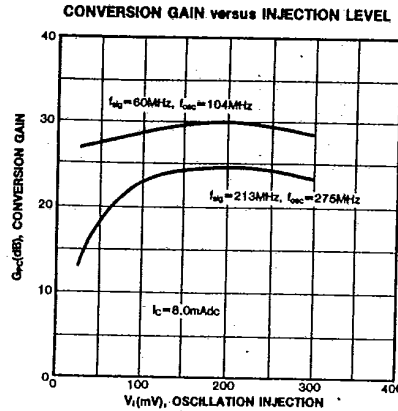
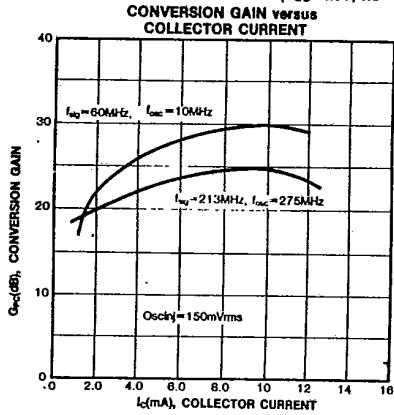
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CB0}$	$I_C=100\mu\text{A}$ , $I_E=0$	40			V
Collector-Emitter Breakdown Voltage	$BV_{CE0}$	$I_C=1\text{mA}$ , $I_B=0$	30			V
Emitter-Base Breakdown Voltage	$BV_{EB0}$	$I_E=10\mu\text{A}$ , $I_C=0$	4.0			V
Collector 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

**MPSH24**

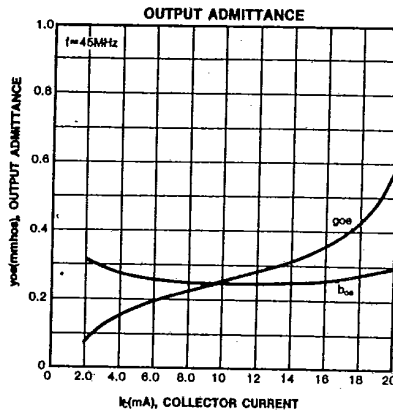
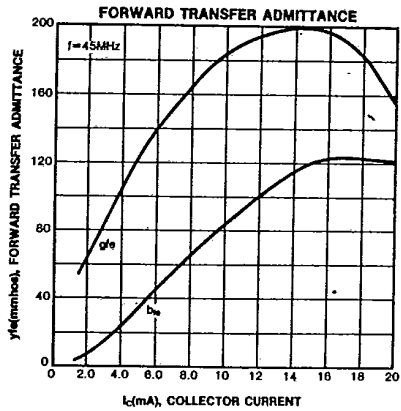
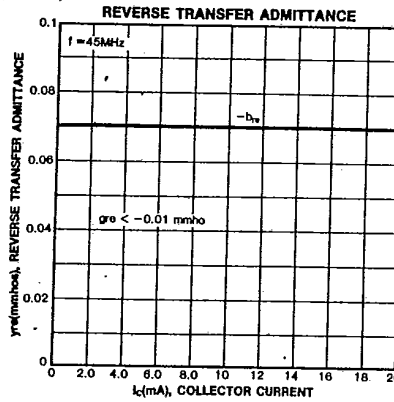
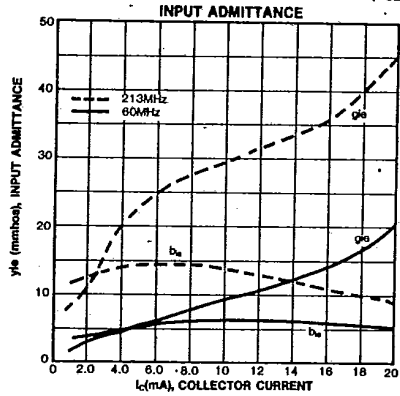
**NPN EPITAXIAL SILICON TRANSISTOR**

T-31-19

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

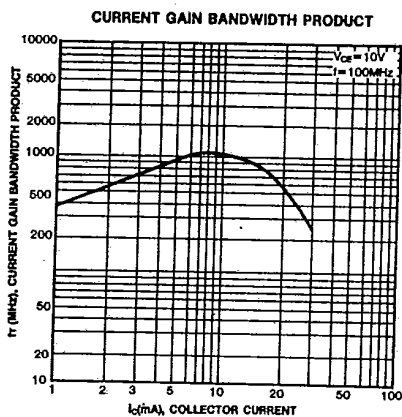
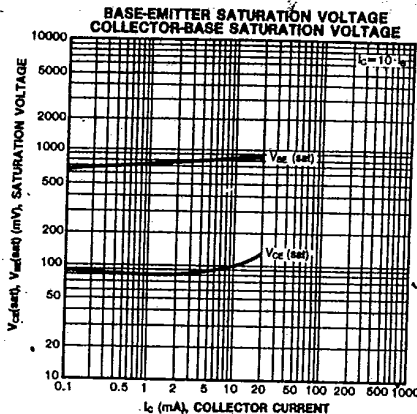
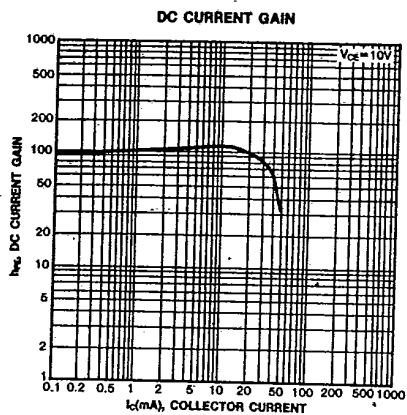


COMMON-BASE  $y$  PARAMETERS  
( $V_{CE}=15V$ ,  $T_a=25^\circ C$ )



# MPSH24 NPN EPITAXIAL SILICON TRANSISTOR

T-31-19



3

Copyright © Each Manufacturing Company.

All Datasheets cannot be modified without permission.

This datasheet has been download from :

[www.AllDataSheet.com](http://www.AllDataSheet.com)

100% Free DataSheet Search Site.

Free Download.

No Register.

Fast Search System.

[www.AllDataSheet.com](http://www.AllDataSheet.com)