

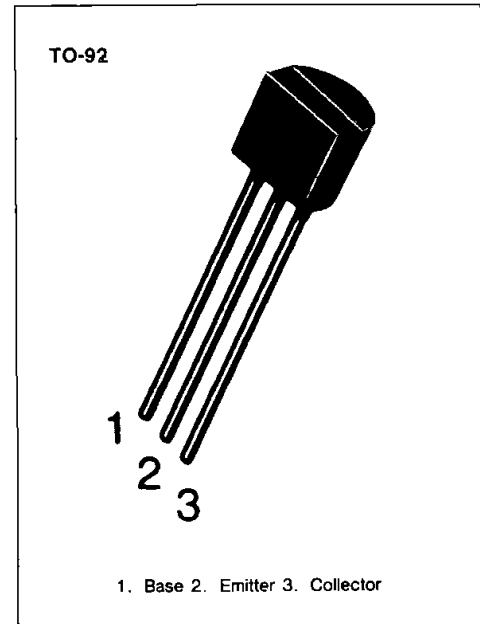
# Transistors

## MPSA24

### VHF TRANSISTOR

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	40	V
Collector-Emitter Voltage	$V_{CEO}$	30	V
Emitter-Base Voltage	$V_{EBO}$	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	$^\circ\text{C/W}$

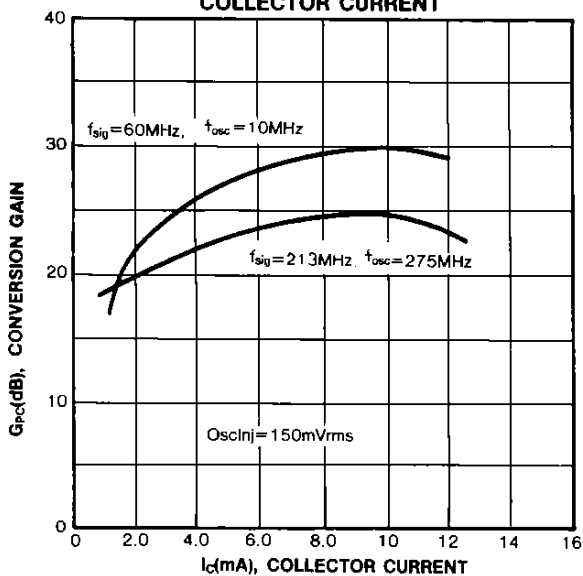


#### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

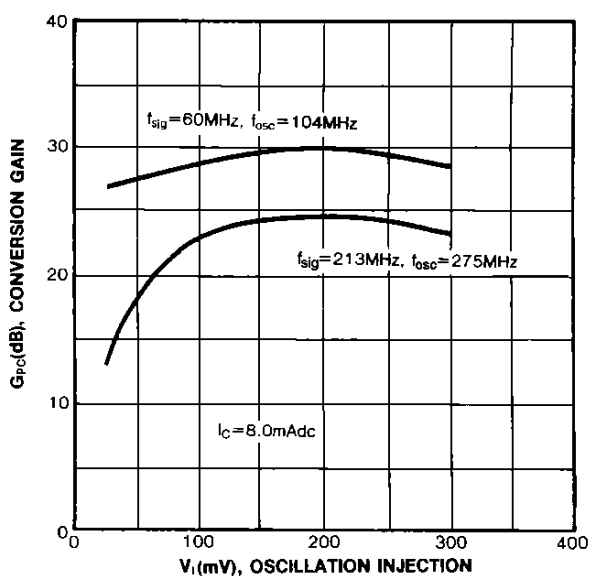
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=100\mu\text{A}, I_E=0$	40			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=1\text{mA}, I_B=0$	30			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=10\mu\text{A}, I_C=0$	4.0			V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=15\text{V}, I_E=0$			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

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

**CONVERSION GAIN versus COLLECTOR CURRENT**

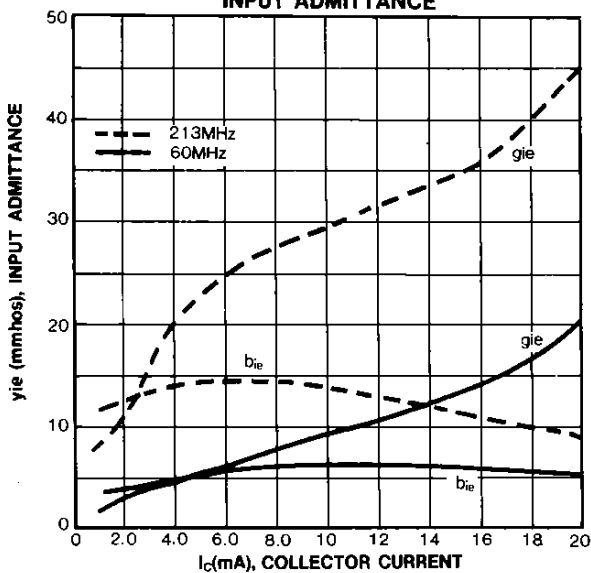


**CONVERSION GAIN versus INJECTION LEVEL**

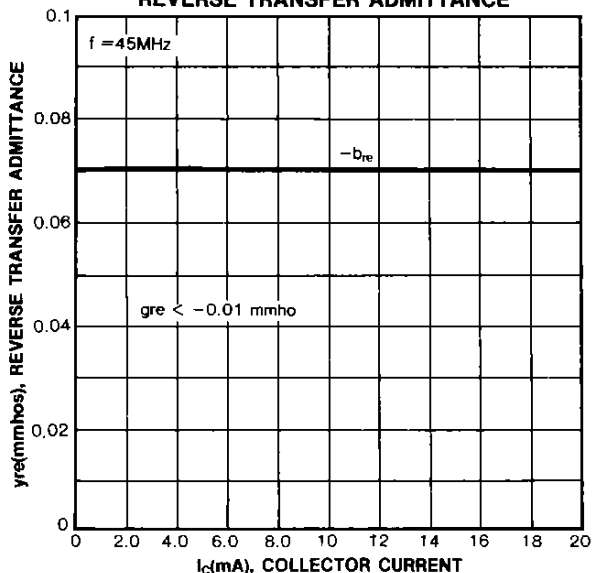


**COMMON-BASE  $y$  PARAMETERS**  
 ( $V_{CE} = 15V$ ,  $T_a = 25^\circ C$ )

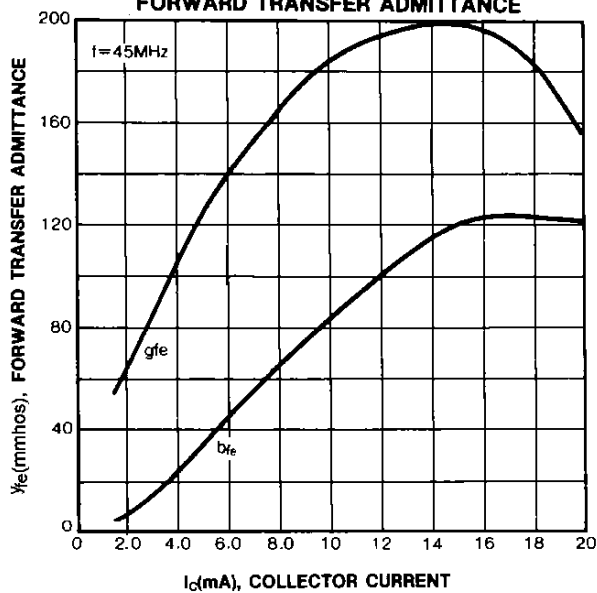
**INPUT ADMITTANCE**



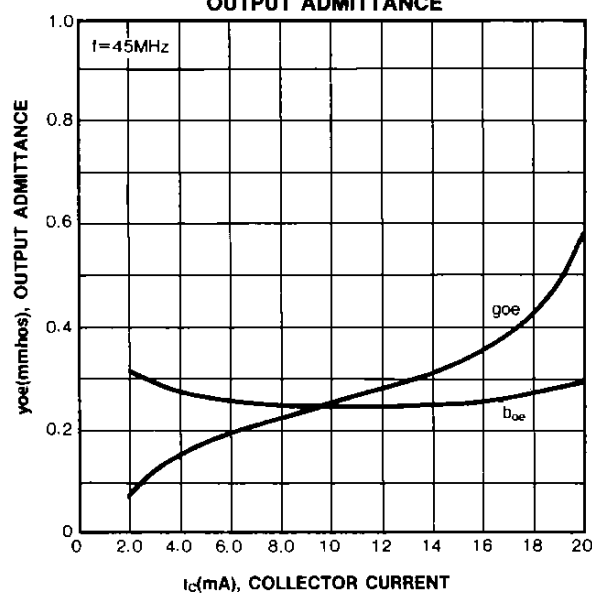
**REVERSE TRANSFER ADMITTANCE**



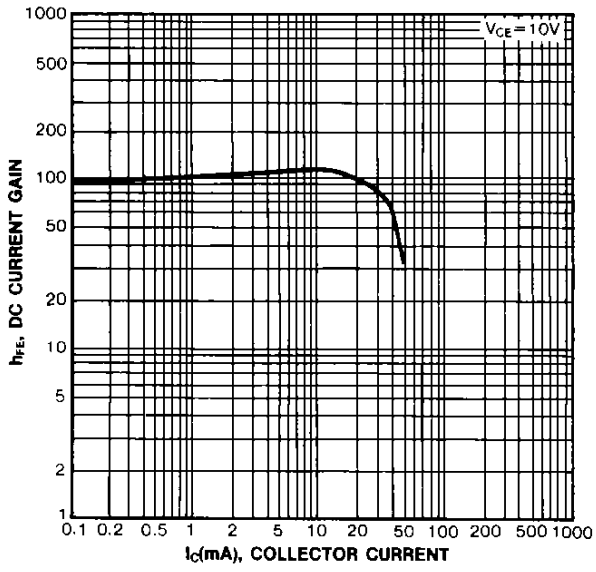
**FORWARD TRANSFER ADMITTANCE**



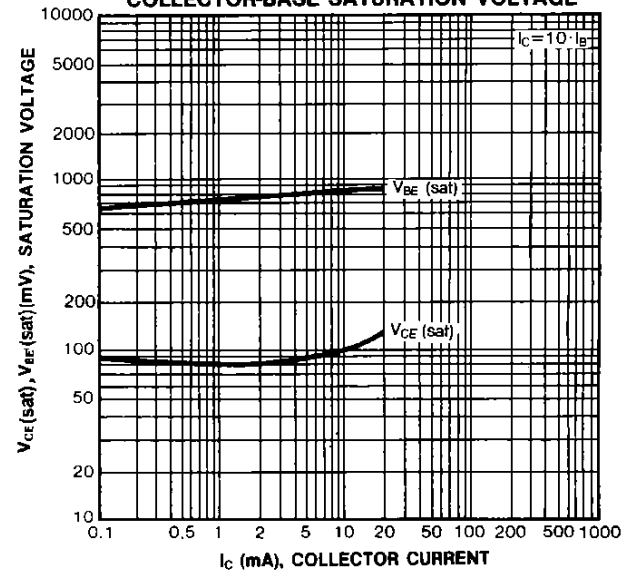
**OUTPUT ADMITTANCE**



### DC CURRENT GAIN



### BASE-EMITTER SATURATION VOLTAGE COLLECTOR-BASE SATURATION VOLTAGE



### CURRENT GAIN BANDWIDTH PRODUCT

