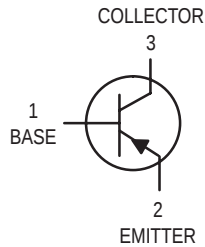


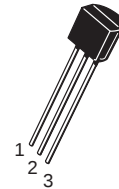
RF Amplifier Transistor

PNP Silicon



MPSH81

Motorola Preferred Device



CASE 29-04, STYLE 2
TO-92 (TO-226AA)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	–20	Vdc
Collector–Base Voltage	V_{CBO}	–20	Vdc
Emitter–Base Voltage	V_{EBO}	–3.0	Vdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.81	mW mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_C = -1.0 \text{ mA}$, $I_E = 0$)	$V_{(BR)CEO}$	–20	—	—	Vdc
Collector–Base Breakdown Voltage ($I_C = -10 \mu\text{A}$, $I_E = 0$)	$V_{(BR)CBO}$	–20	—	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = -10 \mu\text{A}$, $I_C = 0$)	$V_{(BR)EBO}$	–3.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = -10 \text{ Vdc}$, $I_E = 0$)	I_{CBO}	—	—	–100	nAdc
Emitter Cutoff Current ($V_{EB} = -2.0 \text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	—	–100	nAdc

Preferred devices are Motorola recommended choices for future use and best overall value.

MPSH81**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

DC Current Gain ($I_C = -5.0\text{ mA}$, $V_{CE} = -10\text{ Vdc}$)	h_{FE}	60	—	—	—
Collector–Emitter Saturation Voltage ($I_C = -5.0\text{ mA}$, $I_B = -0.5\text{ mA}$)	$V_{CE(sat)}$	—	—	–0.5	Vdc
Base–Emitter On Voltage ($I_C = -5.0\text{ mA}$, $V_{CE} = -10\text{ Vdc}$)	$V_{BE(on)}$	—	—	–0.9	Vdc

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = -5.0\text{ mA}$, $V_{CE} = -10\text{ Vdc}$, $f = 100\text{ MHz}$)	f_T	600	—	—	MHz
Collector–Base Capacitance ($V_{CB} = -10\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{cb}	—	—	0.85	pF
Collector–Emitter Capacitance ($I_B = 0$, $V_{CB} = -10\text{ Vdc}$, $f = 1.0\text{ MHz}$)	C_{ce}	—	—	0.65	pF

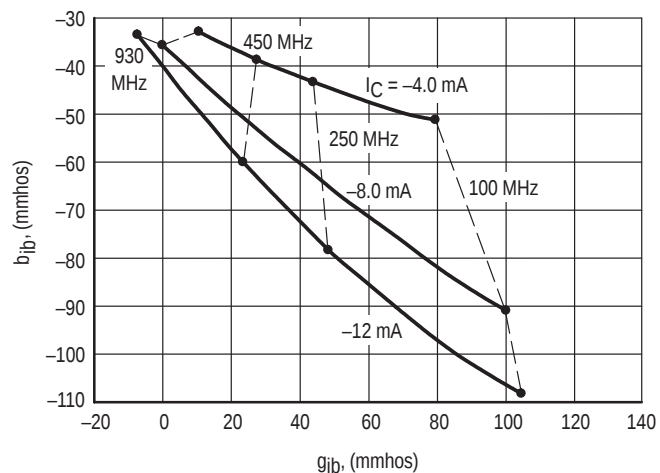
TYPICAL COMMON-BASE y -PARAMETERS $(V_{CB} = 10 \text{ Vdc}, T_A = 25^\circ\text{C}, \text{Frequency Points in MHz})$ 

Figure 1. Input Admittance

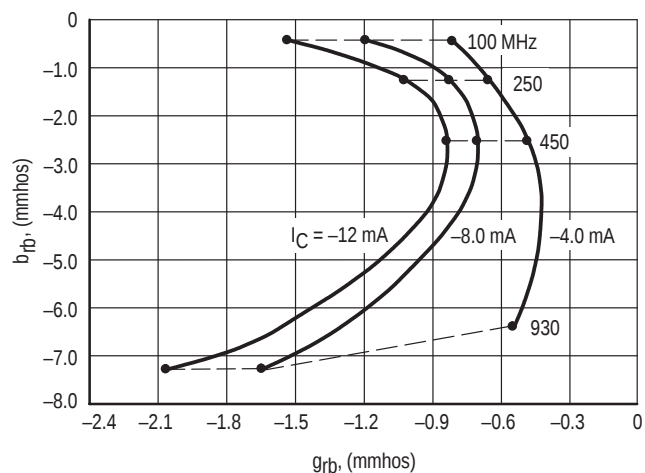


Figure 2. Reverse Transfer Admittance

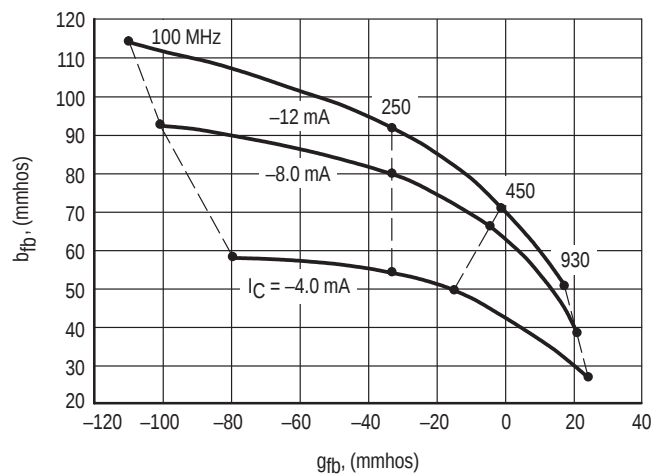


Figure 3. Forward Transfer Admittance

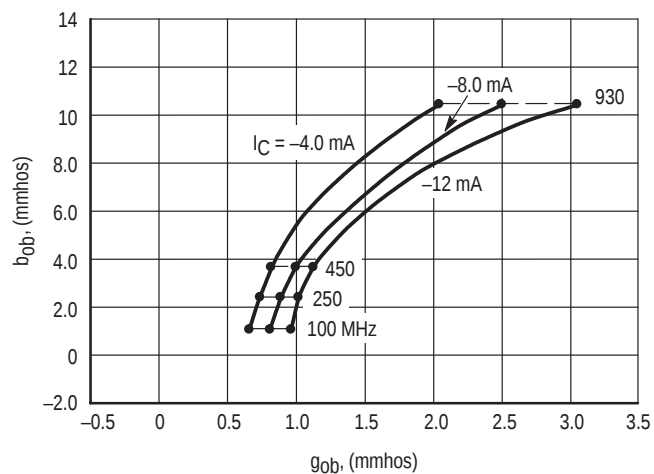


Figure 4. Output Admittance

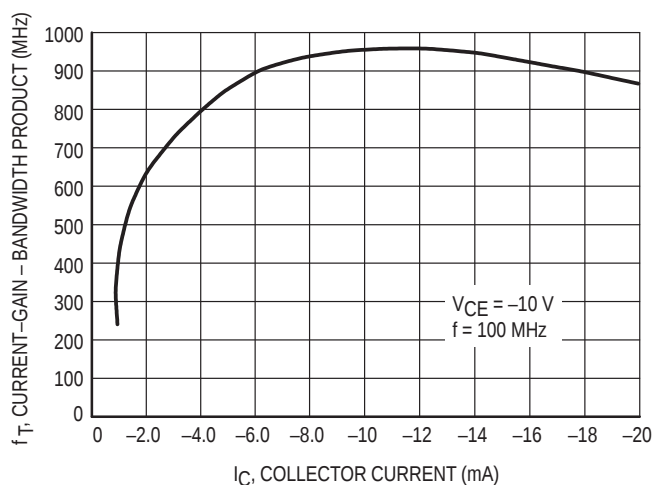


Figure 5. Current-Gain — Bandwidth Product