

MRF604

CASE 26-03, STYLE 1
TO-46 (TO-206AB)

HIGH FREQUENCY TRANSISTOR

NPN SILICON



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CE0}	20	Vdc
Collector-Base Voltage	V_{CBO}	40	Vdc
Emitter-Base Voltage	V_{EBO}	2.0	Vdc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	2.5 0.04	Watts W/ $^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +200	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage ($I_C = 5.0 \text{ mAdc}$, $I_B = 0$)	$V_{(BR)CEO}$	20	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	40	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	3.5	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 12 \text{ Vdc}$, $I_B = 0$)	I_{CEO}	—	—	1.0	mAdc
ON CHARACTERISTICS					
DC Current Gain ($I_C = 50 \text{ mAdc}$, $V_{CE} = 5.0 \text{ Vdc}$)	h_{FE}	20	80	200	—
SMALL SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product ($I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 200 \text{ MHz}$)	f_T	800	—	—	MHz
Output Capacitance ($V_{CB} = 12.5 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{ob0}	—	—	3.5	pF
FUNCTIONAL TEST (FIGURE 1)					
Common-Emitter Amplifier Power Gain ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 1.0 \text{ W}$, $f = 175 \text{ MHz}$)	G_{PE}	10	—	—	dB
Collector Efficiency ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 1.0 \text{ W}$, $f = 175 \text{ MHz}$)	η	50	—	—	%
Series Equivalent Input Impedance ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 1.0 \text{ W}$, $f = 175 \text{ MHz}$)	Z_{in}	—	$7.5 - j14$	—	Ohms
Series Equivalent Output Impedance ($V_{CC} = 12.5 \text{ Vdc}$, $P_{out} = 1.0 \text{ W}$, $f = 175 \text{ MHz}$)	Z_{out}	—	$47 - j60$	—	Ohms

FIGURE 1 - 175 MHz TEST CIRCUIT SCHEMATIC

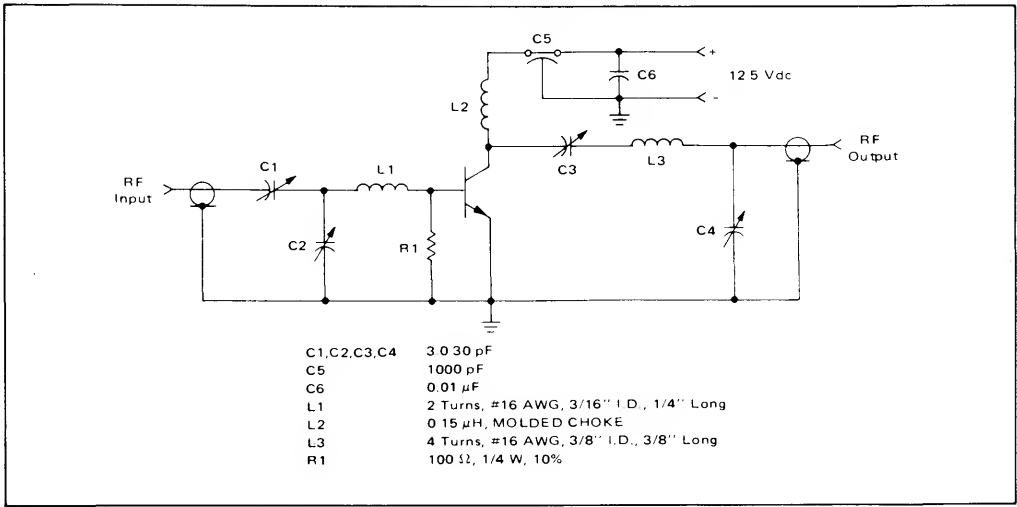


FIGURE 2 - OUTPUT POWER versus INPUT POWER

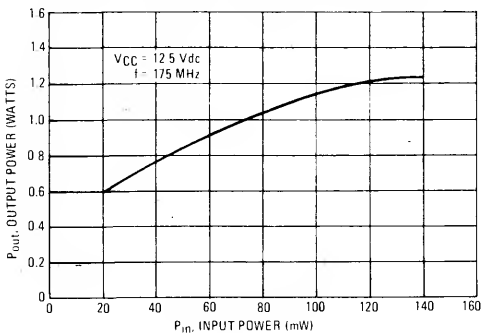


FIGURE 3 - CURRENT-GAIN BANDWIDTH PRODUCT

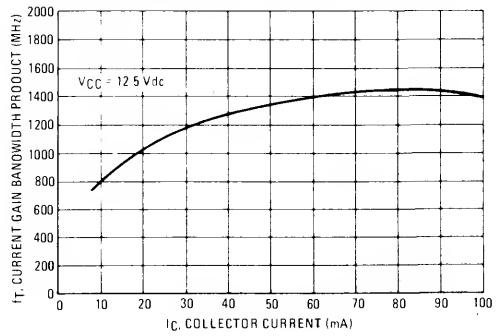


FIGURE 4 - OUTPUT CAPACITANCE versus COLLECTOR BASE VOLTAGE

