MRF905

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

RF OSCILLATOR TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	20	Vdc
Collector-Base Voltage	V_{CBO}	35	Vdc
Emitter-Base Voltage	V_{EBO}	3.5	Vdc
Collector Current — Continuous	I_C	150	mAdc
Total Device Dissipation @ T_C = 100°C Derate above 100°C	P_D	2.5 40	Watts mW/°C
Storage Temperature	T_{stg}	−65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	25	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0)	$V_{(BR)CEO}$	20	30	—	Vdc
Collector-Base Breakdown Voltage (I_C = 0.1 mAdc, I_E = 0)	$V_{(BR)CBO}$	35	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 0.1 mAdc, I_C = 0)	$V_{(BR)EBO}$	3.5	5.0	—	Vdc
Collector Cutoff Current (V_{CB} = 20 Vdc, I_E = 0)	I_{CBO}	—	—	0.1	mAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 100 mAdc, V_{CE} = 10 Vdc)	h_{FE}	20	60	150	—
SMALL SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 100 mAdc, V_{CE} = 10 Vdc, f = 200 MHz)	f_T	—	2500	—	MHz
Output Capacitance (V_{CB} = 20 Vdc, I_E = 0, f = 1.0 MHz)	C_{obo}	—	3.0	5.0	pF
FUNCTIONAL TEST					
Common-Collector Oscillator Output Power (Figure 1) (V_E = −20 Vdc, $I_E \cong$ 110 mAdc, f ≅ 1.68 GHz)	P_{out}	400	500	—	mW

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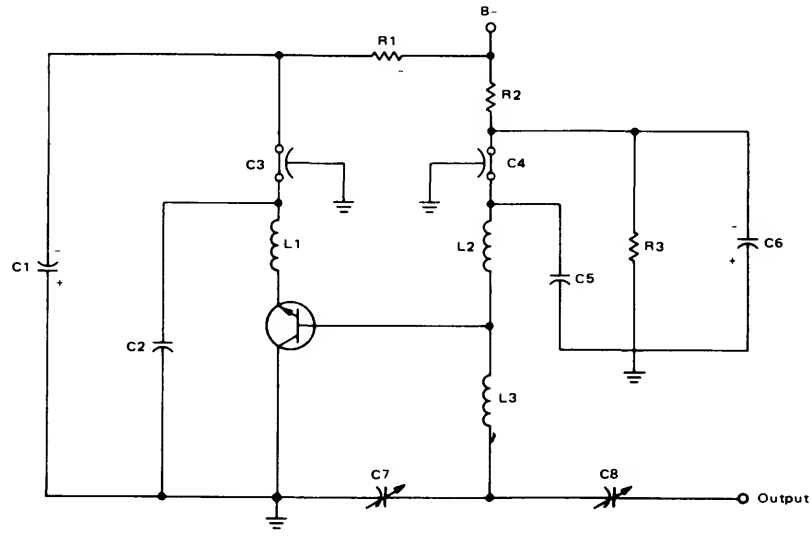
FIGURE 1 – 1.68 GHz OSCILLATOR TEST CIRCUIT SCHEMATIC



C1,C6	1.0 μF, 35 Vdc TANTALUM	R1	47 Ohms, 1/4 Watt
C2,C5	0.1 μF Ceramic Disk	R2	510 Ohms, 1/4 Watt
C3,C4	680 pF Feedthru	R3	1.5 kΩ, 1/4 Watt
C7,C8	0.4-6.0 pF JOHANSON	L1,L2	5 Turns, #22 AWG, 0.125" I.D.
		L3	#20 AWG, 0.4" Length.

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