MRF8003

CASE 79-02, STYLE 1
TO-39 (TO-205AD)

RF AMPLIFIER TRANSISTOR

NPN SILICON

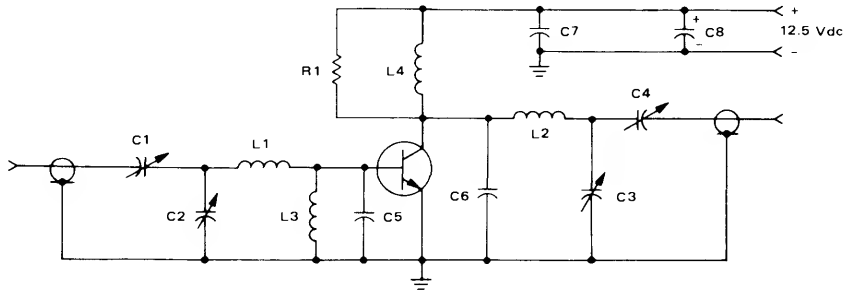
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	30	Vdc
Collector-Base Voltage	V_{CBO}	50	Vdc
Emitter-Base Voltage	V_{EBO}	3.0	Vdc
Collector Current — Continuous	I_C	0.5	Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 5.7	Watt mW/°C
Storage Temperature	T_{stg}	−65 to +200	°C

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)	$V_{(BR)CEO}$	30	—	—	Vdc
Collector-Emitter Breakdown Voltage (I_C = 0.1 mAdc, V_{BE} = 0)	$V_{(BR)CES}$	50	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 0.5 mAdc, I_C = 0)	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 12 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	—	—	—
SMALL-SIGNAL CHARACTERISTICS					
Output Capacitance (V_{CB} = 12.5 Vdc, I_E = 0, f = 1.0 MHz)	C_{obo}	—	—	15	pF
FUNCTIONAL TEST (FIGURE 1)					
Common-Emitter Amplifier Power Gain (V_{CC} = 12.5 Vdc, P_{out} = 0.5 W, f = 27 MHz)	G_{PE}	10	—	—	dB
Collector Efficiency (V_{CC} = 12.5 Vdc, P_{out} = 0.5 W, f = 27 MHz)	η		50		%

FIGURE 1 – 27 MHz TEST CIRCUIT SCHEMATIC



C1, C2, C3, C4	9.0-180 pF ARCO 463 or equivalent
C5	25 pF UNDERWOOD
C6	100 pF UNDERWOOD
C7	1000 pF UNDERWOOD
C8	10 μF ELECTROLYTIC
L1, L2	0.47 μH Molded Coil
L3	VK 200-20/4B RFC
L4	16 Turns No. 26 Wire Closewound on R1
R1	390 Ω, 2 W

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