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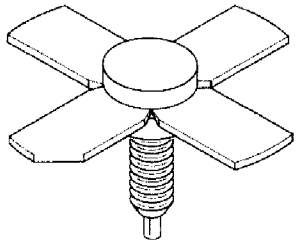
MRF323

Designed primarily for wideband large–signal driver and predriver amplifier stages in the 200–500 MHz frequency range.

- Guaranteed performance at 400 MHz, 28 V
  Output power = 20 W
  Power gain = 10 dB min.
  Efficiency = 50% min.
- 100% tested for load mismatch at all phase angles with 30:1 VSWR
- Gold metallization system for high reliability
- Computer–controlled wirebonding gives consistent input impedance

Product Image



CASE 244–04,

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	33	Vdc
Collector–Base Voltage	V_{CBO}	60	Vdc
Emitter–Base Voltage	V_{EBO}	4.0	Vdc
Collector Current — Continuous — Peak	I_C	2.2 3.0	Adc
Total Device Dissipation @ T_C = 25°C (1) Derate above 25°C	P_D	55 310	Watts mW/°C
Storage Temperature Range	T_{stg}	–65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.2	°C/W

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

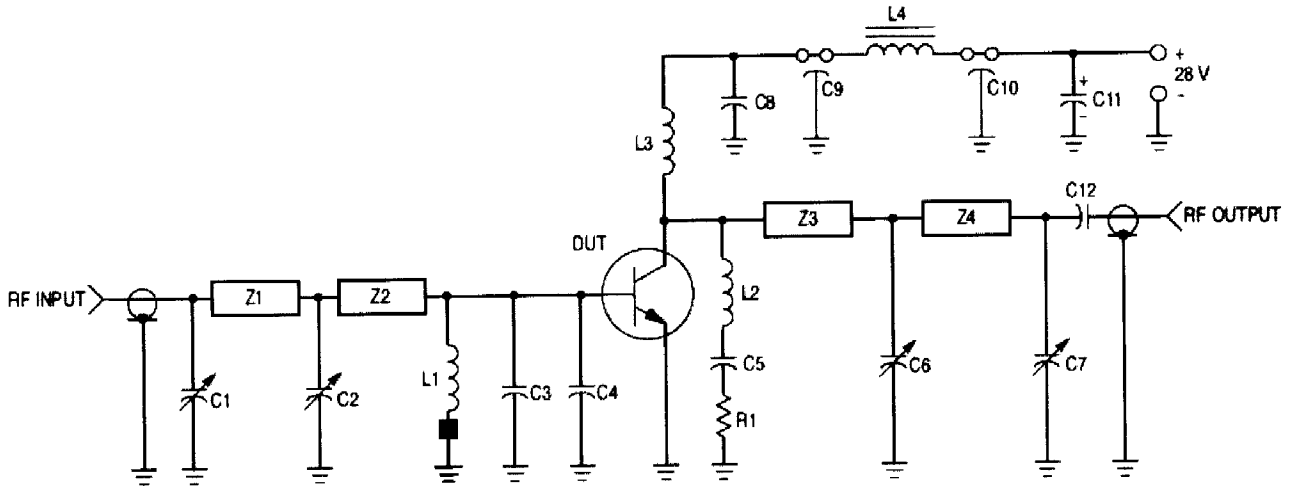
Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I_C = 20 mAdc, I_B = 0)	$V_{(BR)CEO}$	33	—	—	Vdc
Collector–Emitter Breakdown Voltage (I_C = 20 mAdc, V_{BE} = 0)	$V_{(BR)CES}$	60	—	—	Vdc
Collector–Base Breakdown Voltage (I_C = 20 mAdc, I_E = 0)	$V_{(BR)CBO}$	60	—	—	Vdc
Emitter–Base Breakdown Voltage (I_E = 2.0 mAdc, I_C = 0)	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	I_{CBO}	—	—	2.0	mAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc)	h_{FE}	20	—	80	—

(continued)

NOTE:
1. This device is designed for RF operation. The total device dissipation rating applies only when the device is operated as an RF amplifier.

ELECTRICAL CHARACTERISTICS — continued (T_C = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
DYNAMIC CHARACTERISTICS					
Output Capacitance (V_{CB} = 28 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	—	20	24	pF
FUNCTIONAL TESTS (Figure 1)					
Common–Emitter Amplifier Power Gain (V_{CC} = 28 Vdc, P_{out} = 20 W, f = 400 MHz)	G_{PE}	10	11	—	dB
Collector Efficiency (V_{CC} = 28 Vdc, P_{out} = 20 W, f = 400 MHz)	η	50	60	—	%
Load Mismatch (V_{CC} = 28 Vdc, P_{out} = 20 W, f = 400 MHz, VSWR = 30:1 all phase angles)	ψ	No Degradation in Output Power			



C1, C2, C6 — 1.0–20 pF Johanson Trimmer (JMC 5501)
C3, C4 — 47 pF ATC Chip Capacitor
C5, C8 — 0.1 μF Erie Redcap
C7 — 0.5–10 pF Johanson Trimmer (JMC 5201)
C9, C10 — 680 pF Feedthru
C11 — 1.0 μF 50 Volt Tantalum
C12 — 0.018 μF Vitramon Chip Capacitor
L1 — 0.33 μH Molded Choke with Ferroxcube Bead (Ferroxcube 56–590–65/4B) on Ground End

L2 — 6 Turns #20 Enamel, 1/4″ ID, Closewound
L3 — 4 Turns #20 Enamel, 1/8″ ID, Closewound
L4 — Ferroxcube VK200–19/4B
R1 — 5.1 Ω 1/4 Watt
Z1 — Microstrip 0.1″ W x 1.35″ L
Z2 — Microstrip 0.1″ W x 0.55″ L
Z3 — Microstrip 0.1″ W x 0.8″ L
Z4 — Microstrip 0.1″ W x 1.75″ L
Board — Glass Teflon ϵ_r = 2.56, t = 0.062″
Input/Output Connectors — Type N

Figure 1. 400 MHz Test Circuit Schematic