

M/A-COM Products Released - Rev. 07.07

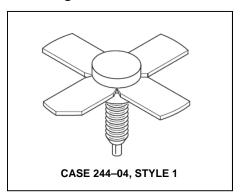
Designed primarily for wideband large-signal driver and predriver amplifier stages in the 200-500 MHz frequency range.

- 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

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V <sub>CEO</sub>	33	Vdc
Collector-Base Voltage	V <sub>СВО</sub>	60	Vdc
Emitter–Base Voltage	V <sub>EBO</sub>	4.0	Vdc
Collector Current — Continuous — Peak	lc	2.2 3.0	Adc
Total Device Dissipation @ T <sub>C</sub> = 25°C (1) Derate above 25°C	P <sub>D</sub>	55 310	Watts mW/°C
Storage Temperature Range	T <sub>stg</sub>	-65 to +150	°C

### **Product Image**



### THERMAL CHARACTERISTICS

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

#### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS	•	•	•	•	
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 20 mAdc, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	33	_	_	Vdc
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 20 mAdc, V <sub>BE</sub> = 0)	V <sub>(BR)</sub> CES	60	_	_	Vdc
Collector–Base Breakdown Voltage (I <sub>C</sub> = 20 mAdc, I <sub>E</sub> = 0)	V <sub>(BR)</sub> CBO	60	_	_	Vdc
Emitter–Base Breakdown Voltage (I <sub>E</sub> = 2.0 mAdc, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	4.0	_	_	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 30 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	_	_	2.0	mAdc
ON CHARACTERISTICS	•	•	•	•	•
DC Current Gain (I <sub>C</sub> = 1.0 Adc, V <sub>CE</sub> = 5.0 Vdc)	h <sub>FE</sub>	20	_	80	_

NOTE: (continued)

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

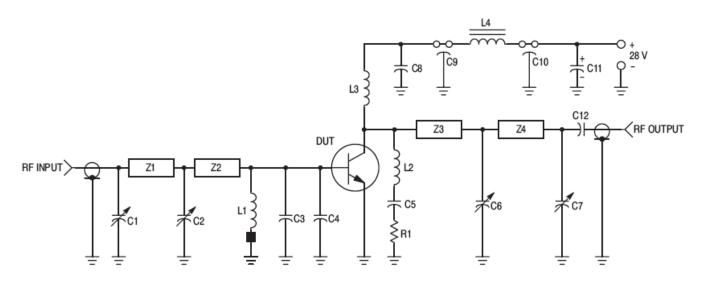
- North America Tel: 800.366.2266 / Fax: 978.366.2266
- Europe Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- Asia/Pacific Tel: 81.44.844.8296 / Fax: 81.44.844.8298 Visit www.macomtech.com for additional data sheets and product information.



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### ELECTRICAL CHARACTERISTICS — continued (T<sub>C</sub> = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Тур	Max	Unit
DYNAMIC CHARACTERISTICS		•	•	•	•
Output Capacitance (V <sub>CB</sub> = 28 Vdc, I <sub>E</sub> = 0, f = 1.0 MHz)	C <sub>ob</sub>	_	20	24	pF
FUNCTIONAL TESTS (Figure 1)		•	•	•	•
Common–Emitter Amplifier Power Gain (V <sub>CC</sub> = 28 Vdc, P <sub>out</sub> = 20 W, f = 400 MHz)	G <sub>PE</sub>	10	11	_	dB
Collector Efficiency (V <sub>CC</sub> = 28 Vdc, P <sub>out</sub> = 20 W, f = 400 MHz)	η	50	60	_	%
Load Mismatch (V <sub>CC</sub> = 28 Vdc, P <sub>out</sub> = 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  $\Omega$  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  $\varepsilon_r$  = 2.56, t = 0.062" Input/Output Connectors — Type N

Figure 1. 400 MHz Test Circuit Schematic

Commitment to produce in volume is not guaranteed.

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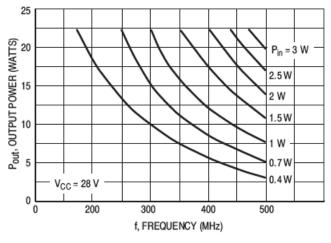
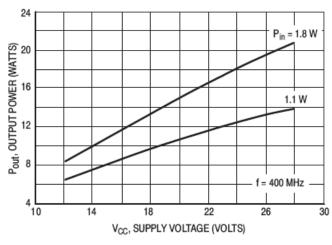


Figure 2. Output Power versus Frequency

Figure 3. Output Power versus Input Power



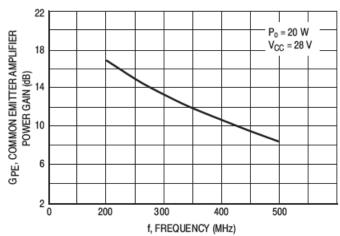


Figure 4. Output Power versus Supply Voltage

Figure 5. Power Gain versus Frequency

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology
Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available.

M/A-COM Technology
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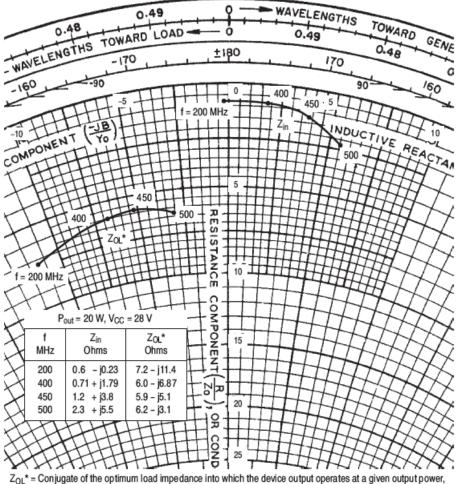
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voltage and frequency.

Figure 6. Series Equivalent Impedance

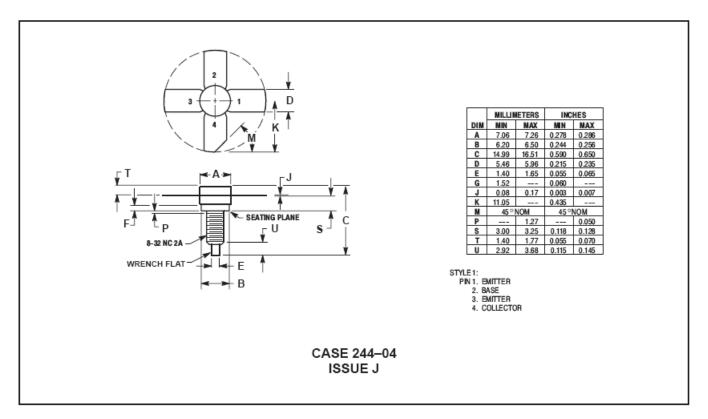
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