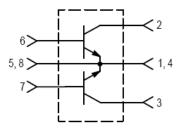




M/A-COM Products Released - Rev. 07.07

Designed primarily for wideband large–signal output and driver amplifier stages in the 30 to 500 MHz frequency range.

- Specified 28 V, 500 MHz characteristics Output power = 100 W Typical gain = 9.5 dB (Class AB); 8.5 dB (Class C) Efficiency = 55% (typ.)
- Built-in input impedance matching networks for broadband operation
- Push–pull configuration reduces even numbered harmonics
- Gold metallization system for high reliability
- 100% tested for load mismatch



The MRF393 is two transistors in a single package with separate base and collector leads and emitters common. This arrangement provides the designer with a space saving device capable of operation in a push–pull configuration.

PUSH-PULL TRANSISTORS

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	VCEO	30	Vdc
Collector-Base Voltage	V _{CBO}	60	Vdc
Emitter-Base Voltage	VEBO	4.0	Vdc
Collector Current — Continuous	IC	16	Adc
Total Device Dissipation @ T _C = 25°C (1) Derate above 25°C	PD	270 1.54	Watts W/∘C
Storage Temperature Range	T _{stg}	-65 to +150	°C
Junction Temperature	Tj	200	°C

THERMAL CHARACTERISTICS

Commitment to produce in volume is not guaranteed.

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R _{0JC}	0.65	°C/W

NOTE:

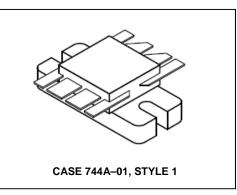
1. This device is designed for RF operation. The total device dissipation rating applies only when the device is operated as an RF push-pull amplifier.

1

- ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. 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.
- 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.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

Product Image





M/A-COM Products Released - Rev. 07.07

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

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS (1)					
Collector–Emitter Breakdown Voltage (I _C = 50 mAdc, I _B = 0)	V(BR)CEO	30	-	-	Vdc
Collector–Emitter Breakdown Voltage (I _C = 50 mAdc, V _{BE} = 0)	V(BR)CES	60	-	-	Vdc
Emitter–Base Breakdown Voltage (I _E = 5.0 mAdc, I _C = 0)	V _{(BR)EBO}	4.0	-	-	Vdc
Collector Cutoff Current (V _{CB} = 30 Vdc, I _E = 0)	ICBO	_	-	5.0	mAdc
ON CHARACTERISTICS (1)					
DC Current Gain (I _C = 1.0 Adc, V _{CE} = 5.0 Vdc)	hFE	20	—	100	_
DYNAMIC CHARACTERISTICS (1)					
Output Capacitance (V _{CB} = 28 Vdc, I _E = 0, f = 1.0 MHz)	Cob	40	75	95	pF
FUNCTIONAL TESTS (2) — See Figure 1			•		
Common–Emitter Amplifier Power Gain (V _{CC} = 28 Vdc, P _{out} = 100 W, f = 500 MHz)	G _{pe}	7.5	8.5	_	dB
Collector Efficiency (V _{CC} = 28 Vdc, P _{out} = 100 W, f = 500 MHz)	η	50	55	-	%
Load Mismatch (V _{CC} = 28 Vdc, P _{out} = 100 W, f = 500 MHz, VSWR = 30:1, all phase angles)	Ψ	No Degradation in Output Power			

NOTES:

2

1. Each transistor chip measured separately.

2. Both transistor chips operating in push-pull amplifier.

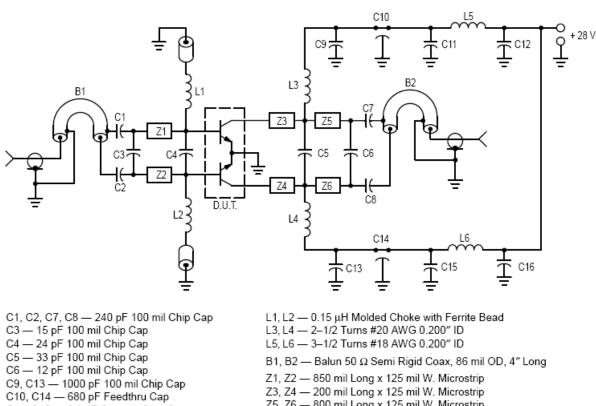
ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. **PRELIMINARY:** Data Sheets contain information 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. Commitment to produce in volume is not guaranteed.

- 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.

[•] North America Tel: 800.366.2266 / Fax: 978.366.2266



M/A-COM Products Released - Rev. 07.07



- C11, C15 0.1 µF Ceramic Disc Cap
- C12, C16 50 µF 50 V

- Z5, Z6 800 mil Long x 125 mil W. Microstrip
- Board Material 0.0325" Teflon-Fiberglass, er = 2.56, 1 oz. Copper Clad both sides.

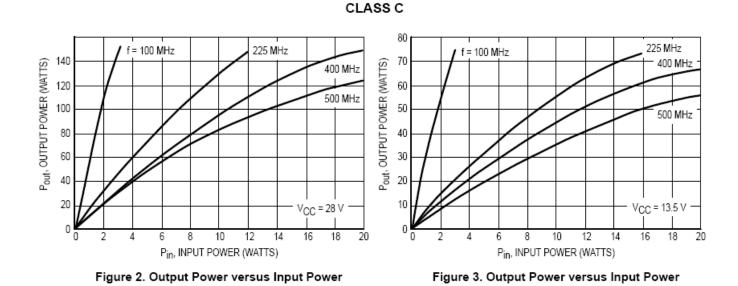


ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are Vertical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

- North America Tel: 800.366.2266 / Fax: 978.366.2266
- Europe Tel: 44.1908.574.200 / Fax: 44.1908.574.300 ٠
- Asia/Pacific Tel: 81.44.844.8296 / Fax: 81.44.844.8298 Visit www.macomtech.com for additional data sheets and product information.



M/A-COM Products Released - Rev. 07.07



CLASS C

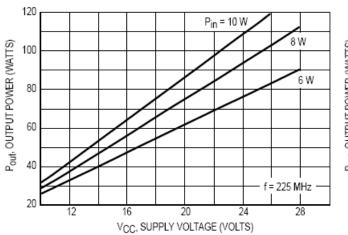


Figure 4. Output Power versus Supply Voltage

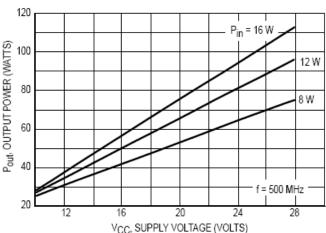
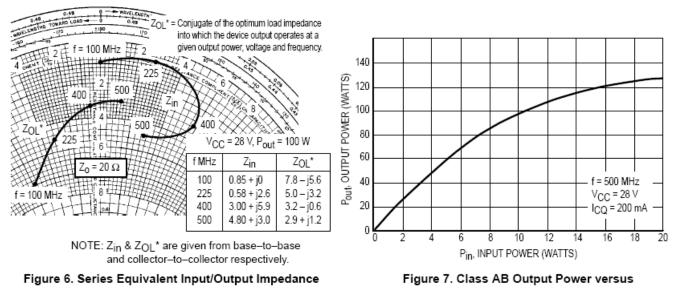


Figure 5. Output Power versus Supply Voltage

- ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. **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. Commitment to produce in volume is not guaranteed.
- 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.



M/A-COM Products Released - Rev. 07.07



Input Power

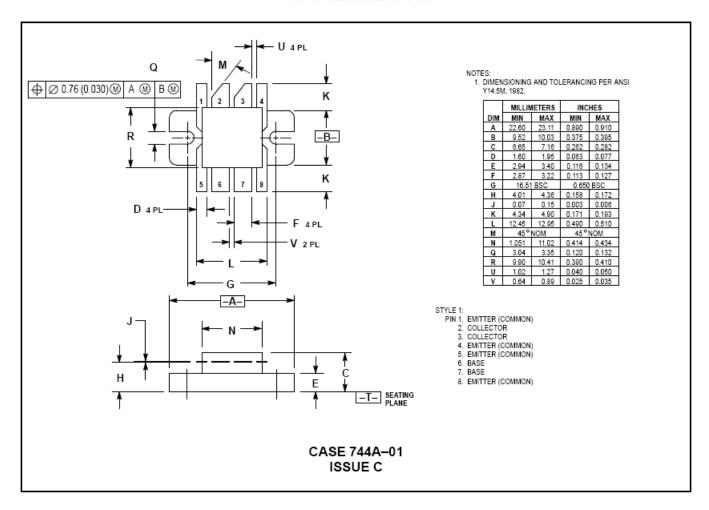
ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. **PRELIMINARY:** Data Sheets contain information 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. Commitment to produce in volume is not guaranteed.

5

- 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.



M/A-COM Products Released - Rev. 07.07



PACKAGE DIMENSIONS

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. **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. Commitment to produce in volume is not guaranteed.

- 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.