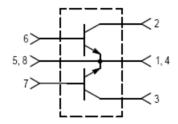


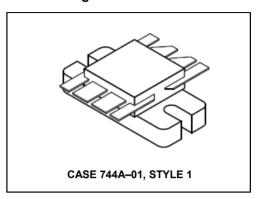
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Designed primarily for wideband large—signal output and driver amplifier stages in the 30 to 500 MHz frequency range.

- Specified 28 V, 400 MHz characteristics —
 Output power = 125 W
 Typical gain = 10 dB
 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



Product Image



The MRF392 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 _{СВО}	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

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.65	°C/W

NOTE:

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



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ELECTRICAL CHARACTERISTICS (TC = 25°C unless otherwise noted)

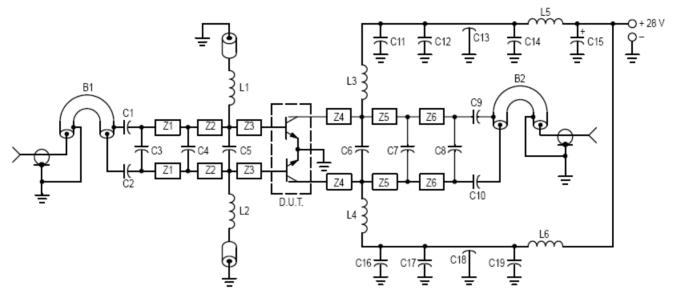
Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS (1)					
Collector–Emitter Breakdown Voltage (I _C = 50 mAdc, I _B = 0)	V _(BR) CEO	30	_	_	Vdc
Collector–Emitter Breakdown Voltage (IC = 50 mAdc, VBE = 0)	V(BR)CES	60	_	_	Vdc
Emitter–Base Breakdown Voltage (I _E = 5.0 mAdc, I _C = 0)	V _{(BR)EBO}	4.0	_	_	Vdc
Collector Cutoff Current (VCB = 30 Vdc, IE = 0)	ICBO	_	_	5.0	mAdc
ON CHARACTERISTICS (1)					
DC Current Gain (IC = 1.0 Adc, VCE = 5.0 Vdc)	hFE	40	60	100	_
DYNAMIC CHARACTERISTICS (1)					
Output Capacitance (V _{CB} = 28 Vdc, I _E = 0, f = 1.0 MHz)	C _{ob}	_	75	95	pF
FUNCTIONAL TESTS (2) — See Figure 1					
Common–Emitter Amplifier Power Gain (V _{CC} = 28 Vdc, P _{out} = 125 W, f = 400 MHz)	G _{pe}	8.0	10	_	dB
Collector Efficiency (V _{CC} = 28 Vdc, P _{out} = 125 W, f = 400 MHz)	η	50	55	_	%
Load Mismatch (V _{CC} = 28 Vdc, P _{out} = 125 W, f = 400 MHz, VSWR = 30:1, all phase angles)	Ψ	No Degradation in Output Power			

NOTES:

- 1. Each transistor chip measured separately.
- 2. Both transistor chips operating in push-pull amplifier.



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C1, C2 — 240 pF, 100 Mil Chip Cap (ATC) or Equivalent

C3 - 3.6 pF, 100 Mil Chip Cap (ATC) or Equivalent

C4, C8 - 8.2 pF, 100 Mil Chip Cap (ATC) or Equivalent

C5, C6 - 20 pF, 100 Mil Chip Cap (ATC) or Equivalent

C7 - 18 pF, Mini Unelco or Equivalent

C9, C10 - 270 pF, 100 Mil Chip Cap (ATC) or Equivalent

C11, C12, C16, C17 - 470 pF 100 Mil Chip Cap (ATC) or Equivalent

C13, C18 — 680 pF Feedthru

C14, C19 - 0.1 µF Erie Redcap or Equivalent

C15 - 20 µF, 50 V

L1, L2 - 0.15 μH Molded Choke With Ferrite Bead

L3, L4 - 2-1/2 Turns #20 AWG, 0.200 ID

L5, L6 - 3-1/2 Turns #18 AWG, 0.200 ID

B1 — Balun, 50 Ω Semi–Rigid Coaxial Cable 86 Mil OD, 2" L

B2 — Balun, 50 Ω Semi-Rigid Coaxial Cable 86 Mil OD, 2" L

Z1 - Microstrip Line 270 Mil L x 125 Mil W

Z2 - Microstrip Line 375 Mil L x 125 Mil W

Z3 — Microstrip Line 280 Mil L x 125 Mil W

Z4 — Microstrip Line 300 Mil L x 125 Mil W Z5 — Microstrip Line 350 Mil L x 125 Mil W

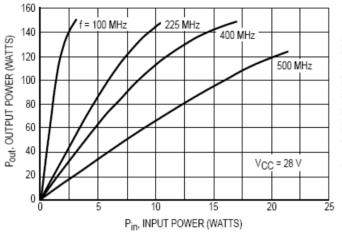
Z6 — Microstrip Line 365 Mil L x 125 Mil W

Board Material — 0.0625" Teflon Fiberglass ϵ_Γ = 2.5 \pm 0.05 1 oz. Cu. CLAD. Double Sided

Figure 1. 400 MHz Test Fixture



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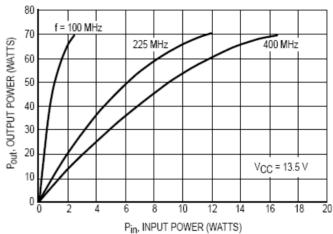
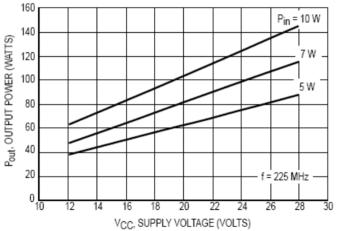


Figure 2. Output Power versus Input Power

Figure 3. Output Power versus Input Power



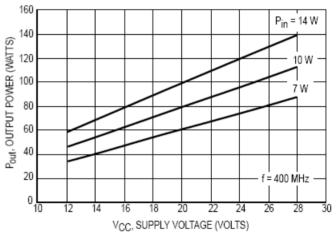


Figure 4. Output Power versus Supply Voltage

Figure 5. Output Power versus Supply Voltage



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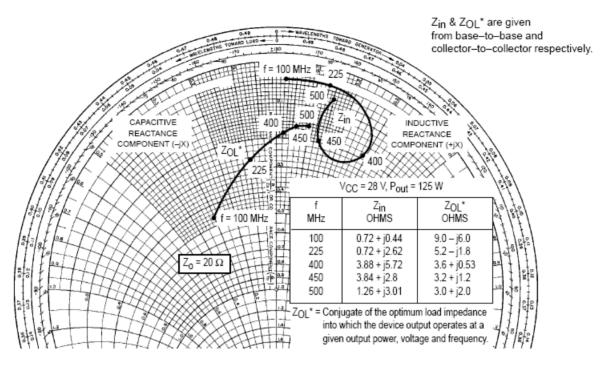
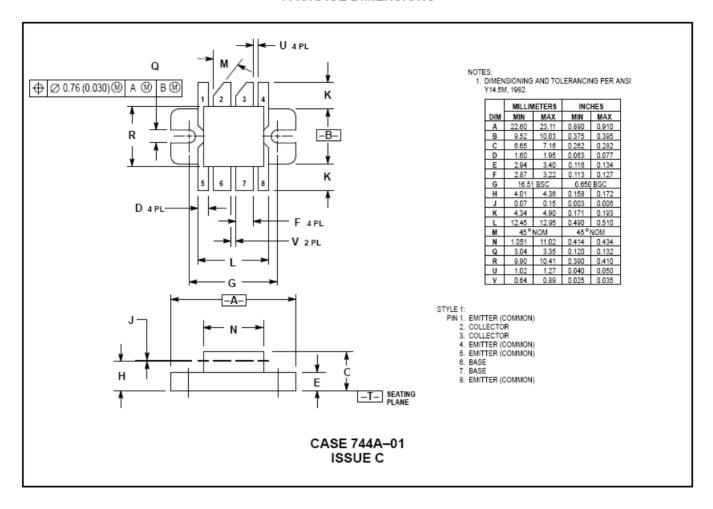


Figure 6. Series Equivalent Input/Output Impedance



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PACKAGE DIMENSIONS



MRF392



The RF Line Controlled "Q" Broadband Power Transistor 125W. 30 to 500MHz. 28V

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