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# MRF321



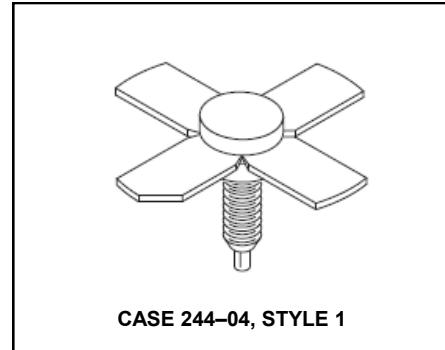
## The RF Line NPN Silicon Power Transistor 10W, 400MHz, 28V

Rev. V1

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

- Guaranteed performance at 400 MHz, 28 Vdc  
Output power = 10 W  
Power gain = 12 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



### 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	$I_C$	1.1 1.5	Adc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ (1) Derate above $25^\circ\text{C}$	$P_D$	27 160	Watts mW/ $^\circ\text{C}$

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	6.4	$^\circ\text{C/W}$

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ 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, $I_E = 0$ )	$I_{CBO}$	—	—	1.0	mAdc

### ON CHARACTERISTICS

DC Current Gain ( $I_C = 500$ mA, $V_{CE} = 5.0$ Vdc)	$h_{FE}$	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.



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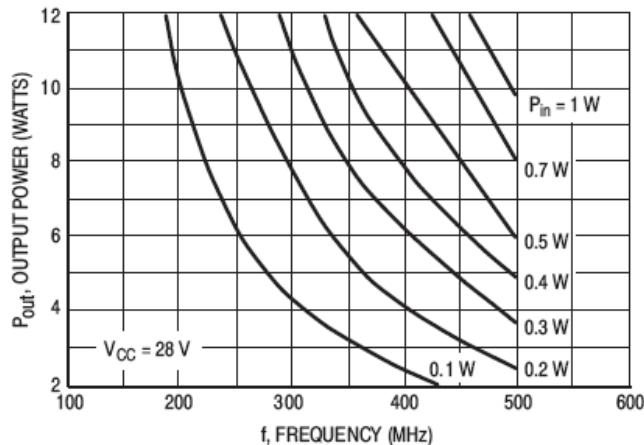


Figure 2. Output Power versus Frequency

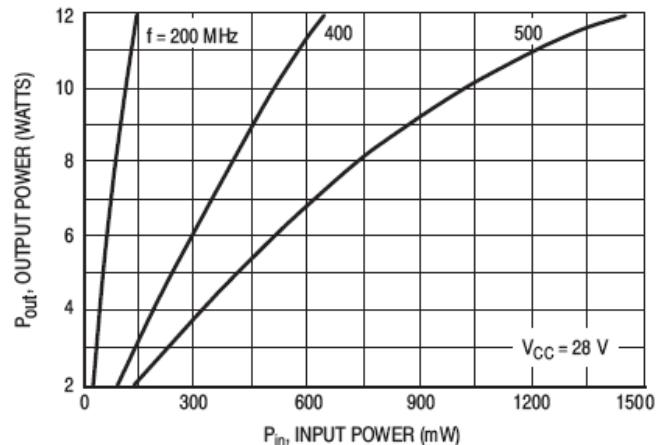


Figure 3. Output Power versus Input Power

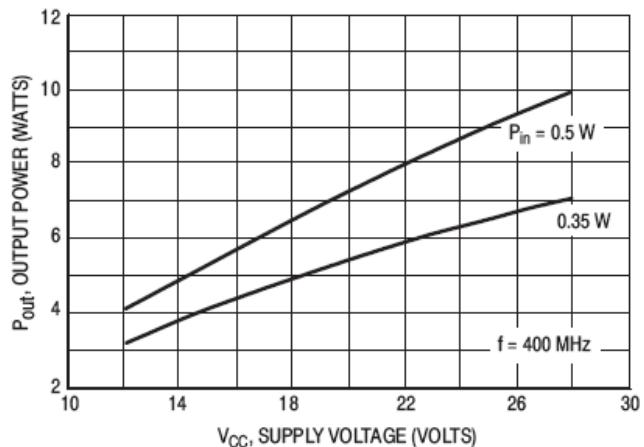


Figure 4. Output Power versus Supply Voltage

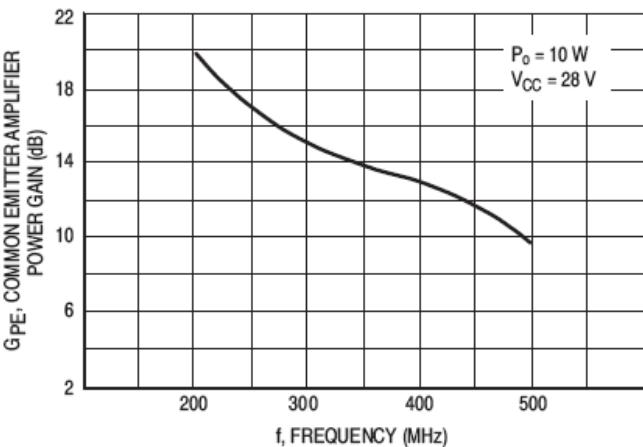


Figure 5. Power Gain versus Frequency

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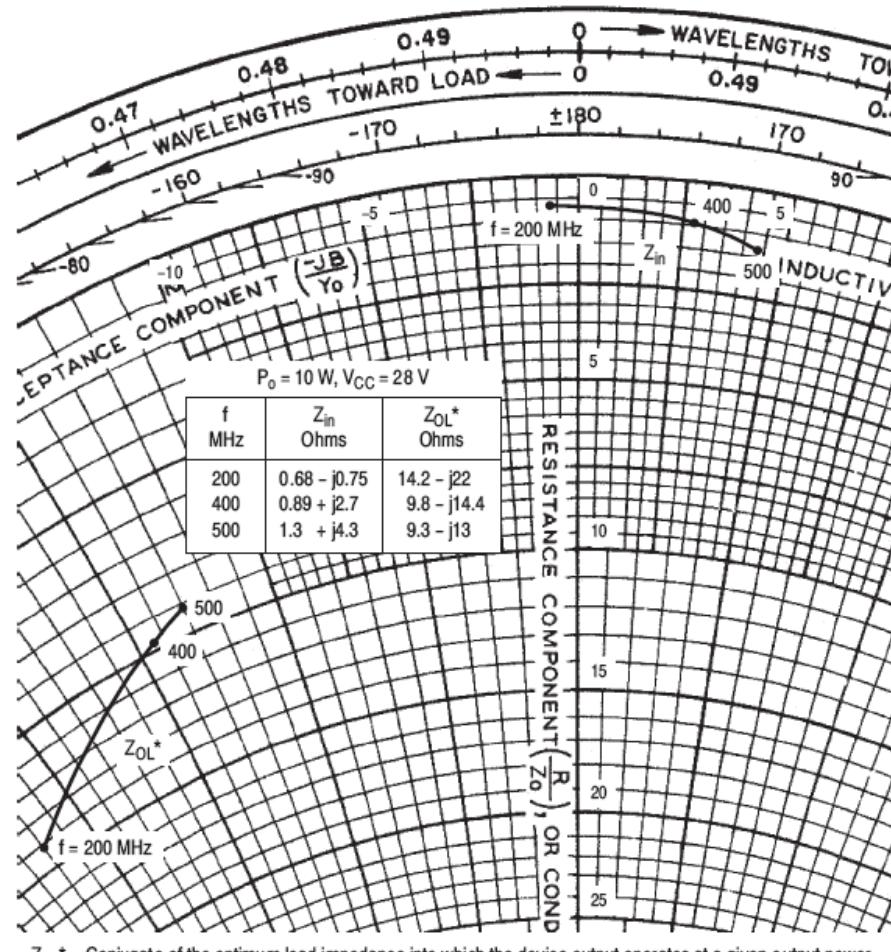


Figure 6. Series Equivalent Impedance

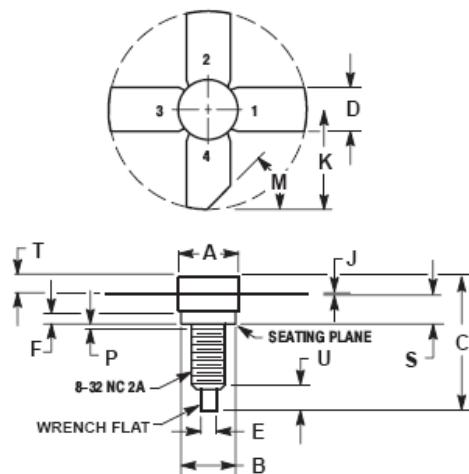
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## PACKAGE DIMENSIONS



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.06	7.26	0.278	0.286
B	6.20	6.50	0.244	0.256
C	14.99	16.51	0.590	0.650
D	5.46	5.96	0.215	0.235
E	1.40	1.65	0.055	0.065
G	1.52	---	0.060	---
J	0.08	0.17	0.003	0.007
K	11.05	---	0.435	---
M	45°NOM	45°NOM		
P	---	1.27	---	0.050
S	3.00	3.25	0.118	0.128
T	1.40	1.77	0.055	0.070
U	2.92	3.68	0.115	0.145

STYLE 1:  
PIN 1. Emitter  
2. Base  
3. Emitter  
4. Collector

**CASE 244-04**  
**ISSUE J**

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