

## The RF Line UHF Power Transistor

... designed primarily for wideband, large-signal output and driver amplifier stages to 1.0 GHz.

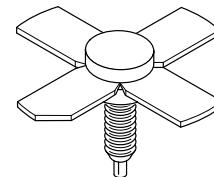
- Designed for Class A Linear Power Amplifiers
- Specified 25 Volt, 900 MHz Characteristics:  
Output Power — 1.5 Watts  
Power Gain — 8.0 dB Min, Class AB
- Gold Metallization for Improved Reliability

**MRF1029**

1.5 W, TO 1.0 GHz  
LINEAR  
UHF POWER TRANSISTOR  
NPN SILICON

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	30	Vdc
Collector-Base Voltage	$V_{CBO}$	60	Vdc
Emitter-Base Voltage	$V_{EBO}$	4.0	Vdc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	14.5 0.084	Watts $W^\circ\text{C}$
Operating Junction Temperature	$T_J$	200	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$



CASE 244-04, STYLE 1  
(.280 SOE)

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case ( $T_C = 70^\circ\text{C}$ )	$R_{\theta JC}$	12	$^\circ\text{C/W}$

### ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit

### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C = 10 \text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	30	—	—	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 10 \text{ mA}$ , $V_{BE} = 0$ )	$V_{(BR)CES}$	60	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 10 \text{ mA}$ , $I_E = 0$ )	$V_{(BR)CBO}$	60	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 5.0 \text{ mA}$ , $I_C = 0$ )	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 25 \text{ V}$ , $I_E = 0$ )	$I_{CBO}$	—	—	1.0	mA dc

### ON CHARACTERISTICS

DC Current Gain ( $I_C = 250 \text{ mA}$ , $V_{CE} = 5.0 \text{ V}$ )	$h_{FE}$	20	—	80	—

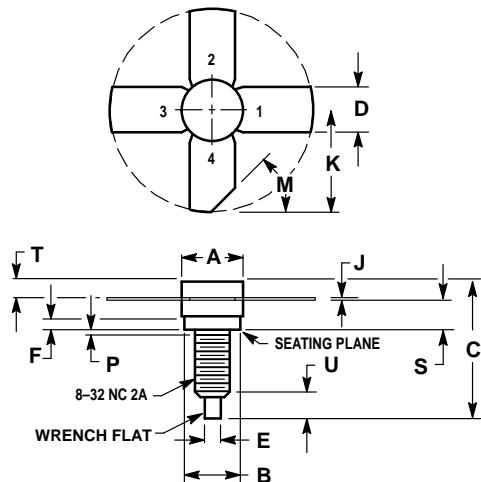
### DYNAMIC CHARACTERISTICS

Output Capacitance ( $V_{CB} = 28 \text{ V}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{ob}$	—	—	4.75	pF

### FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain ( $V_{CE} = 25 \text{ V}$ , $P_{out} = 1.5 \text{ W}$ , $f = 900 \text{ MHz}$ , $I_C = 0.2 \text{ A}$ )	$G_{PE}$	8.0	9.3	—	dB
Load Mismatch ( $V_{CE} = 25 \text{ V}$ , $I_C = 0.2 \text{ A}$ , $P_{out} = 1.5 \text{ W}$ , $f = 900 \text{ MHz}$ , Load VSWR = $\infty:1$ , All Phase Angles)	$\Psi$		No Degradation in Output Power		

## 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:  
 1. Emitter  
 2. Base  
 3. Emitter  
 4. Collector

## CASE 244-04 ISSUE J

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MRF1029/D

