

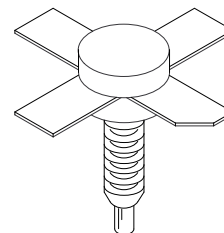
## The RF Line UHF Power Transistor

... designed primarily for wideband, large-signal output and driver amplifier stages to 1000 MHz.

- Designed for Class A Linear Power Amplifiers
- Specified 19 Volt, 1000 MHz Characteristics:  
Output Power — 14 Watts  
Power Gain — 8.0 dB, Small-Signal
- Built-In Matching Network for Broadband Operation
- Gold Metallization for Improved Reliability
- Diffused Ballast Resistors
- Circuit board photomaster available upon request by contacting RF Tactical Marketing in Phoenix, AZ.

**MRA1000-14L**

**8.0 dB, TO 1000 MHz  
14 WATTS BROADBAND  
UHF POWER TRANSISTOR**



**CASE 145D-02, STYLE 1  
(.380 SOE)**

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	28	Vdc
Collector-Base Voltage	$V_{CBO}$	50	Vdc
Emitter-Base Voltage	$V_{EBO}$	3.5	Vdc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	83 0.48	Watts W/ $^\circ\text{C}$
Operating Junction Temperature	$T_J$	200	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case ( $T_C = 70^\circ\text{C}$ )	$R_{\theta JC}$	2.1	$^\circ\text{C}/\text{W}$

### ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C = 25\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	28	—	—	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 25\text{ mA}$ , $V_{BE} = 0$ )	$V_{(BR)CES}$	50	—	—	Vdc
Collector-Base Breakdown Voltage ( $I_C = 25\text{ mA}$ , $I_E = 0$ )	$V_{(BR)CBO}$	50	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 5.0\text{ mA}$ , $I_C = 0$ )	$V_{(BR)EBO}$	3.5	—	—	Vdc
Collector Cutoff Current ( $V_{CB} = 19\text{ V}$ , $I_E = 0$ )	$I_{CBO}$	—	—	20	mAdc

### ON CHARACTERISTICS

DC Current Gain ( $I_C = 1.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )	$h_{FE}$	20	—	90	—
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(continued)

**ELECTRICAL CHARACTERISTICS — continued**

Characteristic	Symbol	Min	Typ	Max	Unit
<b>DYNAMIC CHARACTERISTICS</b>					
Output Capacitance ( $V_{CB} = 24\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )	$C_{ob}$	—	—	40	pF
<b>FUNCTIONAL TESTS</b>					
Common-Emitter Amplifier Small-Signal Gain ( $V_{CE} = 19\text{ V}$ , $P_{in} = 1.0\text{ mW}$ , $f = 1.0\text{ GHz}$ , $I_C = 2.4\text{ A}$ )	$G_{SS}$	8.0	—	—	dB
Load Mismatch ( $V_{CE} = 19\text{ V}$ , $I_C = 2.4\text{ A}$ , $P_{out} = 14\text{ W}$ , $f = 1.0\text{ GHz}$ , Load VSWR = $\infty:1$ , All Phase Angles)	$\psi$	No Degradation in Output Power			
Overdrive ( $V_{CE} = 19\text{ V}$ , $I_C = 2.4\text{ A}$ , $f = 1.0\text{ GHz}$ ) (No degradation)	$P_{inover}$	—	—	7.0	W
Output Power, 1.0 dB Compression Point ( $V_{CE} = 19\text{ V}$ , $f = 1.0\text{ GHz}$ , $I_C = 2.4\text{ A}$ )	$P_{O1\text{ dB}}$	14	—	—	W

**PACKAGE DIMENSIONS**

NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.320	0.385	9.28	9.77
B	0.320	0.330	8.13	8.38
C	0.700	0.778	17.78	19.76
D	0.220	0.230	5.59	5.84
H	0.160	0.170	4.07	4.31
J	0.003	0.006	0.08	0.15
K	0.490	0.520	12.45	13.20
R	0.248	0.275	6.30	7.23
V	0.100	0.130	2.54	3.30
W	0.055	0.065	1.40	1.65

STYLE 1:  
 PIN 1. EMITTER  
 2. BASE  
 3. EMITTER  
 4. COLLECTOR

**CASE 145D-02  
 ISSUE A**

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**How to reach us:**  
**USA/EUROPE:** Motorola Literature Distribution;  
 P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

**JAPAN:** Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,  
 6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

**MFAX:** RMFAX0@email.sps.mot.com - TOUCHTONE (602) 244-6609  
**INTERNET:** http://Design-NET.com

**HONG KONG:** Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,  
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

