

The RF Line UHF Power Transistor

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

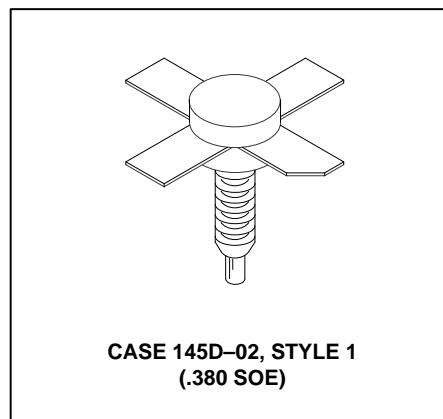
- Designed for Class A Linear Power Amplifiers
- Specified 19 Volt, 1000 MHz Characteristics:
Output Power — 7.0 Watts
Power Gain — 9.0 dB Min, Small-Signal
- Built-In Matching Network for Broadband Operation
- Gold Metallization for Improved Reliability
- Diffused Ballast Resistors
- Circuit board photomaster available upon request by contacting RF Tactical Marketing in Phoenix, AZ.

MRA1000-7L

**9.0 dB, TO 1000 MHz
7.0 WATTS BROADBAND
UHF POWER TRANSISTOR**

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°C	P_D	42 0.25	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 ($T_C = 70^\circ\text{C}$)	$R_{\theta JC}$	4.0	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 20\text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	28	—	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 20\text{ mA}$, $V_{BE} = 0$)	$V_{(BR)CES}$	50	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 20\text{ mA}$, $I_E = 0$)	$V_{(BR)CBO}$	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}	—	—	15	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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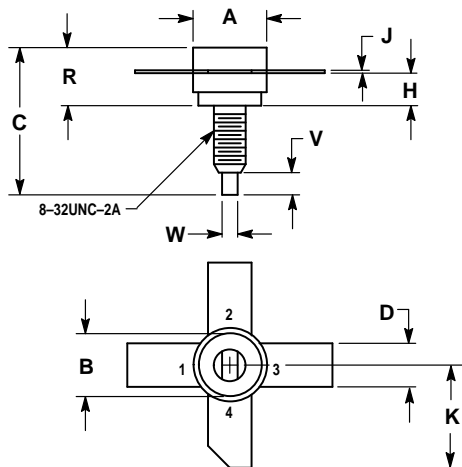
DYNAMIC CHARACTERISTICS

Output Capacitance ($V_{CB} = 24\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{ob}	—	—	22	pF
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FUNCTIONAL TESTS

Common-Emitter Amplifier Small-Signal Gain ($V_{CE} = 19\text{ V}$, $f = 1.0\text{ GHz}$, $I_C = 1.2\text{ A}$)	G_{SS}	9.0	10	—	dB
Load Mismatch ($V_{CE} = 19\text{ V}$, $I_C = 1.2\text{ A}$, $P_{out} = 7.0\text{ W}$, $f = 1.0\text{ GHz}$, Load VSWR = $\infty:1$, All Phase Angles)	ψ	No Degradation in Output Power			
Overdrive ($V_{CE} = 19\text{ V}$, $I_C = 1.2\text{ A}$, $f = 1.0\text{ GHz}$) (No degradation)	P_{inover}	—	—	3.5	W
Output Power, 1.0 dB Compression Point ($V_{CE} = 19\text{ V}$, $f = 1.0\text{ GHz}$, $I_C = 1.2\text{ A}$)	$P_{01\text{ dB}}$	7.0	—	—	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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