

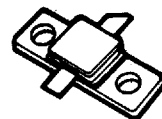
## The RF Line UHF Power Transistors

... designed primarily for wideband, large-signal output and driver amplifier stages in the 600 to 1000 MHz frequency range.

- Designed for Class C, Common Base Power Amplifiers
- Specified 28 Volt, 1000 MHz Characteristics:
  - Output Power — 3 to 18 Watts
  - Power Gain — 7.8 dB Min, Common Base
  - Collector Efficiency — 50 to 55%
- Built-In Matching Network for Broadband Operation
- Gold Metallization for Improved Reliability
- Diffused Ballast Resistors
- Hermetic Package for Military/Space Applications

### MRA0610H Series

**7.8 dB**  
**600-1000 MHz**  
**3 TO 18 WATTS**  
**BROADBAND**  
**UHF POWER**  
**TRANSISTORS**



CASE 393-01, STYLE 1  
 (HLP-11)

#### MAXIMUM RATINGS

Rating	Symbol	-3H	-9H	-18H	Unit
Collector-Base Voltage	$V_{CES}$		50		Vdc
Emitter-Base Voltage	$V_{EBO}$		3.5		Vdc
Collector Current — Continuous	$I_C$	0.5	1.5	2.5	Adc
Operating Junction Temperature	$T_J$	200			°C
Storage Temperature Range	$T_{stg}$	-65 to +200			°C

#### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max			Unit
Thermal Resistance, RF, Junction to Case	$R_{\theta JC}$	15	6	4	°C/W

#### ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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#### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $(I_C = 20 \text{ mA}, V_{BE} = 0)$ $(I_C = 60 \text{ mA}, V_{BE} = 0)$ $(I_C = 100 \text{ mA}, V_{BE} = 0)$	MRA0610- 3H - 9H -18H	$V_{(BR)CES}$	50 50 50	— — —	— — —	Vdc
Emitter-Base Breakdown Voltage $(I_E = 0.25 \text{ mA}, I_C = 0)$ $(I_E = 0.75 \text{ mA}, I_C = 0)$ $(I_E = 1.25 \text{ mA}, I_C = 0)$	MRA0610- 3H - 9H -18H	$V_{(BR)EBO}$	3.5 3.5 3.5	— — —	— — —	Vdc
Collector Cutoff Current $(V_{CB} = 28 \text{ V}, I_E = 0)$	MRA0610- 3H - 9H -18H	$I_{CBO}$	— — —	— — —	0.5 1.5 2.5	mAdc

#### ON CHARACTERISTICS

DC Current Gain $(I_C = 100 \text{ mA}, V_{CE} = 5 \text{ V})$ $(I_C = 300 \text{ mA}, V_{CE} = 5 \text{ V})$ $(I_C = 500 \text{ mA}, V_{CE} = 5 \text{ V})$	MRA0610- 3H - 9H -18H	$h_{FE}$	10 10 10	— — —	100 100 100	—
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(continued)

Characteristic	Symbol	Min	Typ	Max	Unit	
<b>DYNAMIC CHARACTERISTICS</b>						
Output Capacitance ( $V_{CB} = 28\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$ )	MRA0610- 3H - 9H -18H	$C_{ob}$	— — —	— — —	4.5 10 14	pF
<b>FUNCTIONAL TESTS</b>						
Common-Base Amplifier Power Gain ( $V_{CE} = 28\text{ V}$ , $P_{out} = 3\text{ W}$ , $f = 600\text{ MHz}$ and $1\text{ GHz}$ )	MRA0610- 3H - 9H -18H	$G_{pb}$	7.8 7.8 7.8	— — —	— — —	dB
Collector Efficiency ( $V_{CE} = 28\text{ V}$ , $P_{out} = 3\text{ W}$ , $f = 600\text{ MHz}$ and $1\text{ GHz}$ )	MRA0610- 3H - 9H -18H	$\eta_c$	50 55 55	— — —	— — —	%

## TYPICAL CHARACTERISTICS

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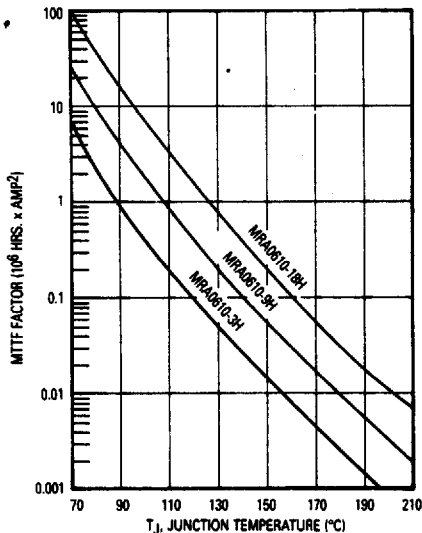
Note: Divide by  $t_c^2$  to obtain metal lifetime in hours.

Figure 1. MTTF Factor versus Junction Temperature