

MOTOROLA

SEMICONDUCTOR

TECHNICAL DATA

Advance Information

The RF Line

UHF Linear Power Transistor

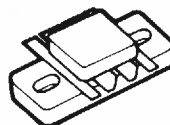
... designed for 24–28 Volt UHF large-signal common emitter amplifier applications in industrial and commercial FM equipment operating in the 430 to 470 MHz frequency range, i.e., cellular radio base stations.

- 430–470 MHz
- 60/50 W — P_{out}
- 28/24 V — V_{CC}
- Push-Pull Package
- Gold Metallization for Reliability
- Guaranteed Ruggedness at Rated P_O

TP5060

60 W — 470 MHz
UHF LINEAR
POWER TRANSISTOR
NPN SILICON

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CASE 827-01, STYLE 1
(MRP 7)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	35	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	3.5	Vdc
Total Device Dissipation (at $T_C = 70^\circ\text{C}$ (Note 1) Derate above 70°C)	P_D	160 1.43	Watts $W/^\circ\text{C}$
Operating Junction Temperature	T_J	200	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-60 to +200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case ($T_C = 70^\circ\text{C}$)	$R_{\theta JC}$	0.7	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS (Note 2)					
Collector-Emitter Breakdown Voltage ($I_C = 45\text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	35	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 45\text{ mA}$, $I_E = 0$)	$V_{(BR)CBO}$	60	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 5\text{ mA}$, $I_C = 0$)	$V_{(BR)EBO}$	3.5	—	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 45\text{ mA}$, $R_{BE} = 15\ \Omega$)	$V_{(BR)CER}$	55	—	—	Vdc

ON CHARACTERISTICS (Note 2)

DC Current Gain ($I_C = 500\text{ mA}$, $V_{CE} = 28\text{ V}$)	h_{FE}	20	—	—	—
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DYNAMIC CHARACTERISTICS (Note 2)

Output Capacitance ($V_{CB} = 28\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$)	C_{ob}	—	60	—	pF
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Notes. 1 These devices are designed for RF operation. The total dissipation rating applies only when the devices are operated as RF push-pull amplifiers.

(continued)

2 Each transistor chip measured separately.

This document contains information on a new product. Specifications and information herein are subject to change without notice.

MOTOROLA RF DEVICE DATA

2-1239

ELECTRICAL CHARACTERISTICS — continued

Characteristic	Symbol	Min	Typ	Max	Unit
FUNCTIONAL TESTS (Note 1)					
Common-Emitter Amplifier Power Gain (VCE = 28 V, Pout = 60 W, f = 470 MHz, IQ = 2 x 100 mA)	GPE1	6.5	7	—	dB
Common-Emitter Amplifier Power Gain (VCE = 24 V, Pout = 50 W, f = 470 MHz, IQ = 2 x 100 mA)	GPE2	6	6.5	—	dB
Collector Efficiency (VCE = 28 V, Pout = 60 W, f = 470 MHz, IQ = 2 x 100 mA)	η_c	45	50	—	%
Load Mismatch (VCE = 28 V, Pout = 60 W, f = 470 MHz, Load VSWR = 25:1, All Phase Angles)	ψ	No Degradation in Output Power			

Note 1. Both transistor chips operating in push-pull amplifier.