

# MOTOROLA

## SEMICONDUCTOR

### TECHNICAL DATA

## Advance Information

### The RF Line

## UHF Power Transistor

The TP3020A is designed for use in the 900 MHz mobile radio band. Its high gain and ability to operate Class A makes it an ideal choice as a driver operating Class A, Class B or Class C.

- 960 MHz
- 2.2 W — P<sub>out</sub>
- 26 V — V<sub>CC</sub>
- High Gain — 9.0 dB, Class A

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Emitter-Base Voltage	V <sub>EBO</sub>	3.5	Vdc
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	P <sub>D</sub>	8.75 0.05	Watts W/°C
Operating Junction Temperature	T <sub>J</sub>	200	°C
Storage Temperature Range	T <sub>stg</sub>	-65 to +200	°C

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case (T <sub>C</sub> = 70°C)	R <sub>θJC</sub>	20	°C/W

### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

### OFF CHARACTERISTICS

Emitter-Base Breakdown Voltage (I <sub>E</sub> = 0.5 mA, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	3.5	—	—	Vdc
Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 10 mA, R <sub>BE</sub> = 75 Ω)	V <sub>(BR)CER</sub>	40	—	—	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 24 V, I <sub>E</sub> = 0)	I <sub>CBO</sub>	—	—	0.5	mAdc

### ON CHARACTERISTICS

DC Current Gain (I <sub>C</sub> = 100 mA, V <sub>CE</sub> = 5.0 V)	h <sub>FE</sub>	15	—	120	—
---	-----------------	----	---	-----	---

### DYNAMIC CHARACTERISTICS

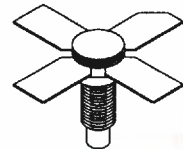
Output Capacitance (V <sub>CB</sub> = 28 V, I <sub>E</sub> = 0, f = 1.0 MHz)	C <sub>ob</sub>	—	—	5.0	pF
---	-----------------	---	---	-----	----

### FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain (V <sub>CE</sub> = 26 V, P <sub>out</sub> = 2.2 W, f = 960 MHz, I <sub>Q</sub> = 200 mA)	G <sub>PE</sub>	9.1	—	—	dB
---	-----------------	-----	---	---	----

# TP3020A

2.2 W, 960 MHz  
UHF POWER  
TRANSISTOR  
NPN SILICON



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