# The RF Line UHF Linear Power Transistor

The TP3024B is a balanced transistor designed specifically for use in cellular radio systems. This device permits the design of a Class AB push–pull, high gain, broadband amplifier having a high degree of linearity without the need for complicated biasing circuitry.

Specified 26 Volts, 960 MHz Characteristics:
 Output Power = 35.5 W
 Minimum Gain = 7.5 dB
 IQ<sub>total</sub> = 150 mA

• Push-Pull Configuration

# **TP3024B**

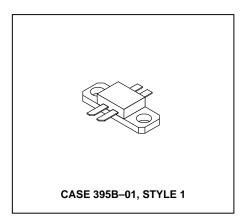
35.5 W, 960 MHz UHF LINEAR POWER TRANSISTOR

## **MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Emitter–Base Voltage	V <sub>EBO</sub>	4.0	Vdc
Operating Junction Temperature	TJ	200	°C
Storage Temperature Range	T <sub>stg</sub>	-65 to +200	°C

# THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case (1) (T <sub>C</sub> = 75°C)	R <sub>θ</sub> JC	3.0	°C/W



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

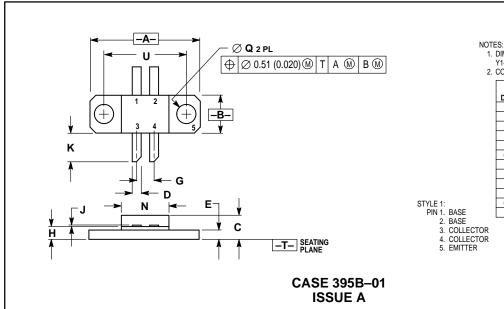
Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I <sub>C</sub> = 10 mA, R <sub>BE</sub> = 75 Ohms)	V(BR)CER	40	_	_	Vdc
Collector–Emitter Leakage (V <sub>CE</sub> = 26 V, R <sub>BE</sub> = 75 Ohms)	ICER	_	_	5.0	mA
Emitter–Base Breakdown Voltage (I <sub>C</sub> = 5.0 mAdc, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	3.5	_	_	Vdc
Emitter–Base Leakage (V <sub>BE</sub> = 2.5 V)	I <sub>EBO</sub>	_	_	1.0	mA
ON CHARACTERISTICS (2)					
DC Current Gain (I <sub>C</sub> = 500 mA, V <sub>CE</sub> = 10 V)	hFE	15	_	100	_
DYNAMIC CHARACTERISTICS (1)				•	
Output Capacitance ( $V_{CB} = 24 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$ )	C <sub>ob</sub>	_	17	25	pF
FUNCTIONAL TESTS (3)					
Common–Emitter Amplifier Power Gain (V <sub>CE</sub> = 26 V, P <sub>out</sub> = 35.5 W, f = 960 MHz, I <sub>Qtotal</sub> = 150 mA)	G <sub>PE</sub>	7.5	_	_	dB
Collector Efficiency (VCE = 26 V, P <sub>out</sub> = 35.5 W, f = 960 MHz, <sup>I</sup> Q <sub>total</sub> = 150 mA)	ης	45	_	_	%

#### NOTE:

- 1. Thermal resistance is determined under specified RF operating condition.
- 2. Each transistor chip measured separately.
- 3. Both transistor chips operating in push-pull amplifier.



#### PACKAGE DIMENSIONS



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

	INCHES		MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.739	0.750	18.77	19.05	
В	0.240	0.260	6.10	6.60	
С	0.165	0.198	4.19	5.03	
D	0.055	0.065	1.40	1.65	
Е	0.055	0.070	1.40	1.78	
G	0.110	0.130	2.79	3.30	
Н	0.079	0.091	2.01	2.31	
J	0.003	0.005	0.08	0.13	
K	0.180	0.220	4.57	5.59	
N	0.315	0.330	8.00	8.38	
Q	0.125	0.135	3.18	3.42	
U	0.560 BSC		14.22	BSC	

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