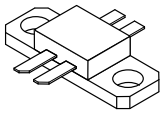
The RF Line
UHF Linear Power Transistor

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
  $I_{Q_{total}}$ = 150 mA
- Push–Pull Configuration

TP3024B

35.5 W, 960 MHz
UHF LINEAR POWER
TRANSISTOR



CASE 395B–01, STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Emitter–Base Voltage	V_{EBO}	4.0	Vdc
Operating Junction Temperature	T_J	200	°C
Storage Temperature Range	T_{stg}	–65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case (1) (T_C = 75°C)	$R_{\theta JC}$	3.0	°C/W

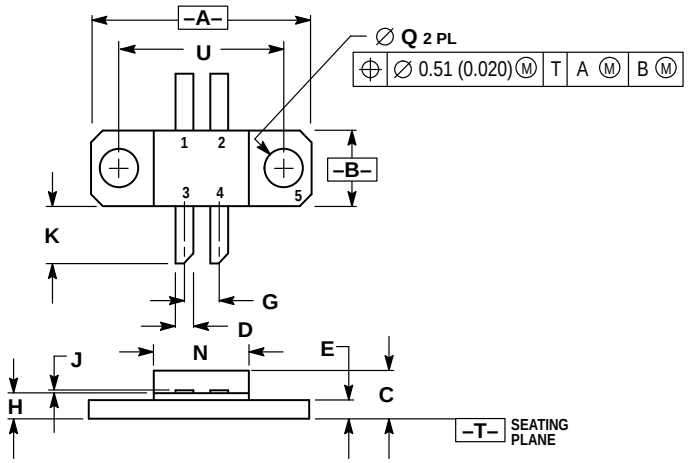
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage (I_C = 10 mA, R_{BE} = 75 Ohms)	$V_{(BR)CER}$	40	—	—	Vdc
Collector–Emitter Leakage (V_{CE} = 26 V, R_{BE} = 75 Ohms)	I_{CER}	—	—	5.0	mA
Emitter–Base Breakdown Voltage (I_C = 5.0 mAdc, I_C = 0)	$V_{(BR)EBO}$	3.5	—	—	Vdc
Emitter–Base Leakage (V_{BE} = 2.5 V)	I_{EBO}	—	—	1.0	mA
ON CHARACTERISTICS (2)					
DC Current Gain (I_C = 500 mA, V_{CE} = 10 V)	h_{FE}	15	—	100	—
DYNAMIC CHARACTERISTICS (1)					
Output Capacitance (V_{CB} = 24 V, I_E = 0, f = 1.0 MHz)	C_{ob}	—	17	25	pF
FUNCTIONAL TESTS (3)					
Common–Emitter Amplifier Power Gain (V_{CE} = 26 V, P_{out} = 35.5 W, f = 960 MHz, $I_{Q_{total}}$ = 150 mA)	G_{PE}	7.5	—	—	dB
Collector Efficiency (V_{CE} = 26 V, P_{out} = 35.5 W, f = 960 MHz, $I_{Q_{total}}$ = 150 mA)	η_c	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.

MOTOROLA

PACKAGE DIMENSIONS



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

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.739	0.750	18.77	19.05
B	0.240	0.260	6.10	6.60
C	0.165	0.198	4.19	5.03
D	0.055	0.065	1.40	1.65
E	0.055	0.070	1.40	1.78
G	0.110	0.130	2.79	3.30
H	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	

STYLE 1:
PIN 1. BASE
2. BASE
3. COLLECTOR
4. COLLECTOR
5. EMITTER

CASE 395B–01
ISSUE A

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