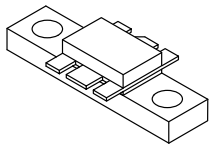
The RF Line
UHF Power Transistor

TP3022B

The TP3022B is designed for common–emitter operation in the 900 MHz mobile radio band. Use of gold metallization and silicon diffused ballast resistors results in a medium power output/driver transistor with state–of–the–art ruggedness and reliability.

- Specified 26 Volts, 960 MHz Characteristics:
  Output Power = 15 Watts
  Minimum Gain = 8.5 dB
  I_Q = 50 mA
- Class AB Operation

15 W, 960 MHz
NPN SILICON
UHF POWER
TRANSISTOR



CASE 319–07, STYLE 2

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	29 0.167	Vdc
Operating Junction Temperature	T_J	200	°C
Storage Temperature Range	T_{stg}	–65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case (1)	$R_{\theta JC}$	6.0	°C/W

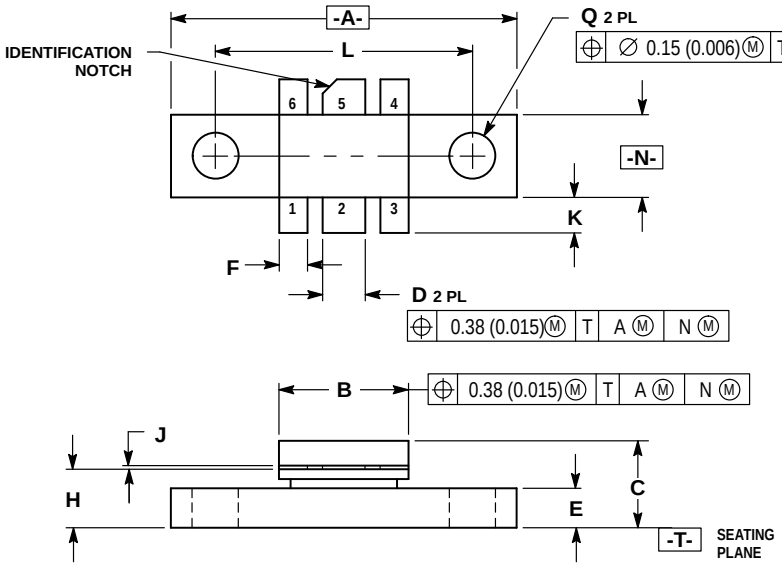
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS (1)					
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)	$V_{(BR)EBO}$	3.5	—	—	Vdc
Emitter–Base Leakage (V_{BE} = 2.5 V)	I_{EBO}	—	—	1.0	mA
ON CHARACTERISTICS					
DC Current Gain (I_C = 500 mA, V_{CE} = 10 V)	h_{FE}	15	—	100	—
DYNAMIC CHARACTERISTICS					
Output Capacitance (V_{CB} = 24 V, I_E = 0, f = 1.0 MHz)	C_{ob}	—	17	25	pF
FUNCTIONAL TESTS					
Common–Emitter Amplifier Power Gain (V_{CE} = 26 V, P_{out} = 15 W, f = 960 MHz, I_Q = 50 mA)	G_{PE}	8.5	—	—	dB
Collector Efficiency (V_{CE} = 26 V, P_{out} = 15 W, f = 960 MHz, I_Q = 50 mA)	η_c	45	—	—	%

NOTE:
1. Thermal resistance is determined under specified RF operating condition.

MOTOROLA

PACKAGE DIMENSIONS



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

	INCHES		MILLIMETER	
DIM	MIN	MAX	MIN	MAX
A	0.965	0.985	24.52	25.01
B	0.355	0.375	9.02	9.52
C	0.230	0.260	5.85	6.60
D	0.115	0.125	2.93	3.17
E	0.102	0.114	2.59	2.90
F	0.075	0.085	1.91	2.15
H	0.160	0.170	4.07	4.31
J	0.004	0.006	0.11	0.15
K	0.090	0.110	2.29	2.79
L	0.725 BSC		18.42 BSC	
N	0.225	0.241	5.72	6.12
Q	0.125	0.135	3.18	3.42

STYLE 2:
PIN 1. EMITTER (COMMON)
2. BASE (INPUT)
3. EMITTER (COMMON)
4. EMITTER (COMMON)
5. COLLECTOR (OUTPUT)
6. EMITTER (COMMON)

CASE 319–07
ISSUE M

Literature Distribution Centers:
USA: Motorola Literature Distribution; P.O. Box 20912; Phoenix, Arizona 85036.
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