

## The RF Line UHF Power Transistor

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.

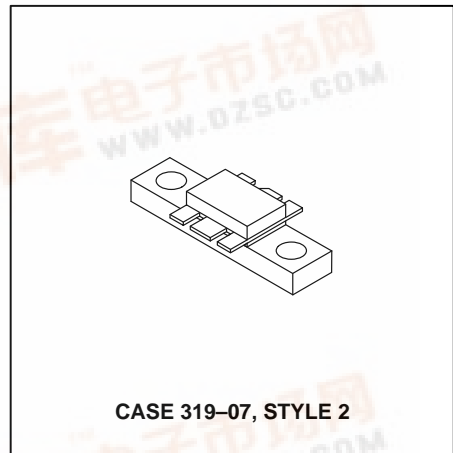
- Specified 26 Volts, 960 MHz Characteristics:
  - Output Power = 15 Watts
  - Minimum Gain = 8.5 dB
  - $I_Q = 50$  mA
- Class AB Operation



**15 W, 960 MHz  
 NPN SILICON  
 UHF POWER  
 TRANSISTOR**

### MAXIMUM RATINGS

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



### THERMAL CHARACTERISTICS

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

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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### 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	—
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### DYNAMIC CHARACTERISTICS

Output Capacitance ( $V_{CB} = 24$ V, $I_E = 0$ , $f = 1.0$ MHz)	$C_{ob}$	—	17	25	pF
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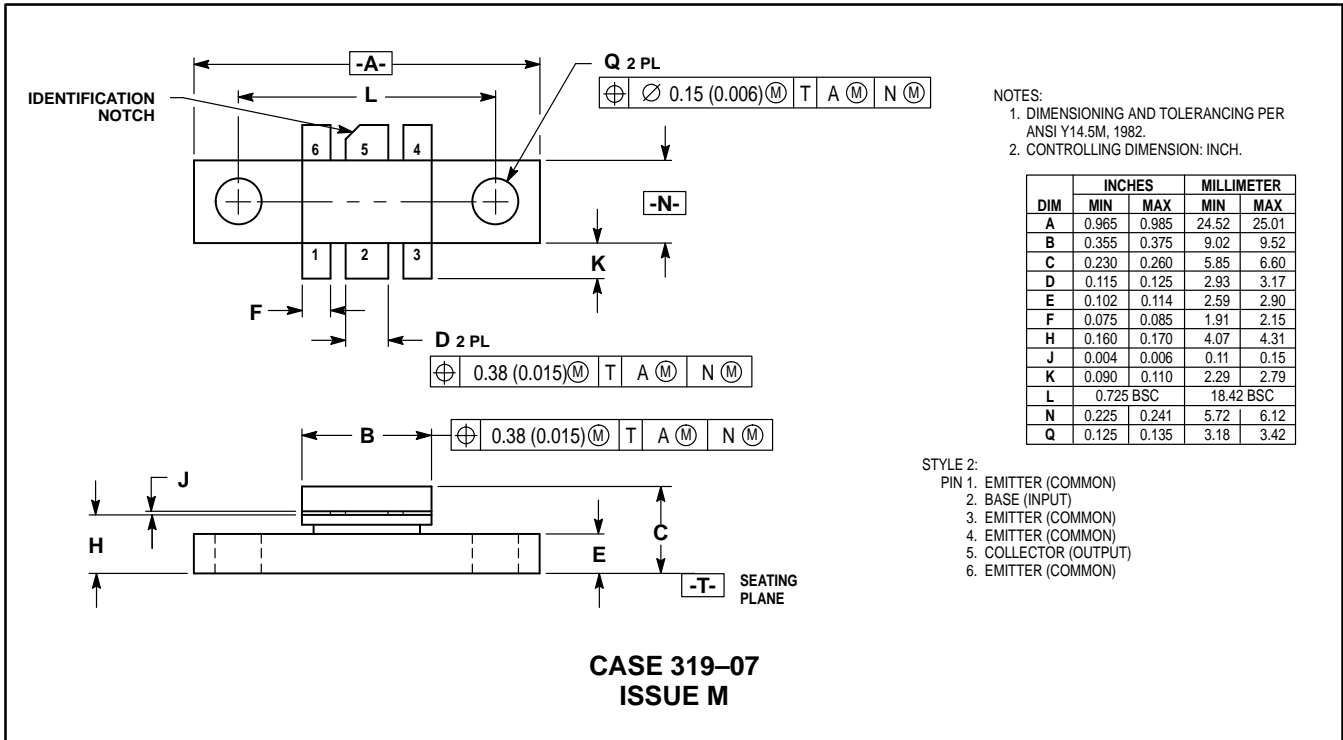
### FUNCTIONAL TESTS

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)	$\eta_c$	45	—	—	%

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



## PACKAGE DIMENSIONS



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

DIM	INCHES		MILLIMETER	
	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)

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