

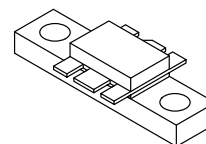
The RF Line UHF Linear Power Transistor

... designed for 24 Volt UHF large-signal common emitter amplifier applications in industrial and commercial FM equipment operating in the 380 to 512 MHz frequency range, i.e., cellular radio base stations.

- 380–512 MHz
- 15 W — P_{out}
- 24 V — V_{CC}
- High Gain — 11 dB Min, Class AB
- Gold Metallization for Reliability

TP5015

15 W, 380–512 MHz
UHF LINEAR
POWER TRANSISTOR
NPN SILICON



CASE 319-07, STYLE 2
(EB)

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-----------|-------------|------------------------------|
| Emitter–Base Voltage | V_{EBO} | 4.0 | Vdc |
| Total Device Dissipation @ $T_C = 70^\circ\text{C}$ Derate above 70°C | P_D | 18 0.143 | Watts W/ $^\circ\text{C}$ |
| Operating Junction Temperature | T_J | 200 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | –65 to +200 | $^\circ\text{C}$ |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|-----|---------------------------|
| Thermal Resistance, Junction to Case ($T_C = 70^\circ\text{C}$) | $R_{\theta JC}$ | 7.0 | $^\circ\text{C}/\text{W}$ |

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

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

OFF CHARACTERISTICS

| | | | | | |
|---|---------------|-----|---|----|------|
| Emitter–Base Breakdown Voltage ($I_E = 5.0\text{ mA}$, $I_C = 0$) | $V_{(BR)EBO}$ | 4.0 | — | — | Vdc |
| Collector–Emitter Breakdown Voltage ($I_C = 10\text{ mA}$, $R_{BE} = 75\ \Omega$) | $V_{(BR)CER}$ | 40 | — | — | Vdc |
| Collector–Emitter Leakage ($V_{CE} = 26\text{ V}$, $R_{BE} = 75\ \Omega$) | I_{CER} | — | — | 10 | mAdc |

ON CHARACTERISTICS

| | | | | | |
|---|----------|----|---|-----|---|
| DC Current Gain ($I_C = 100\text{ mA}$, $V_{CE} = 10\text{ V}$) | h_{FE} | 15 | — | 100 | — |
|---|----------|----|---|-----|---|

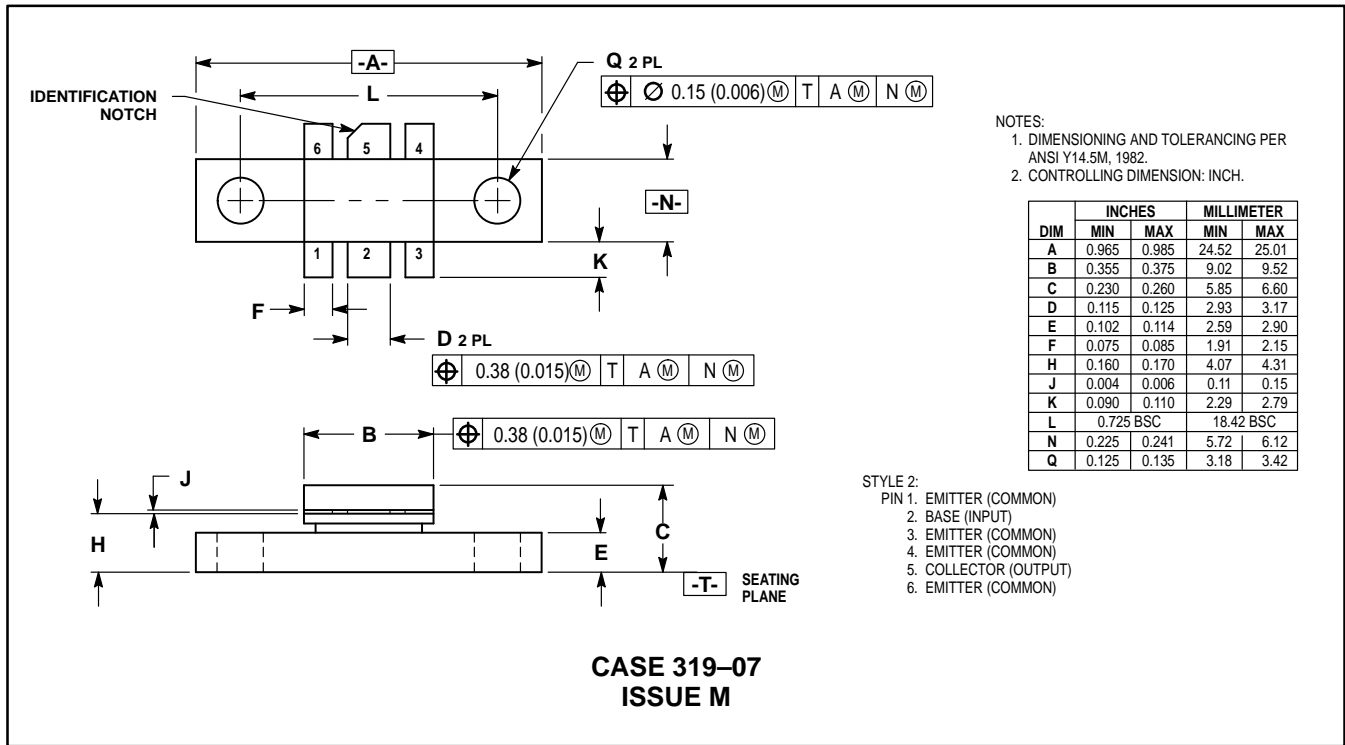
DYNAMIC CHARACTERISTICS

| | | | | | |
|---|----------|---|----|----|----|
| Output Capacitance ($V_{CB} = 24\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$) | C_{ob} | — | 16 | 25 | pF |
|---|----------|---|----|----|----|

FUNCTIONAL TESTS

| | | | | | |
|---|----------|----|----|---|----|
| Common–Emitter Amplifier Power Gain ($V_{CE} = 24\text{ V}$, $P_{out} = 15\text{ W}$, $f = 470\text{ MHz}$, $I_Q = 50\text{ mA}$) | G_{PE} | 11 | — | — | dB |
| Collector Efficiency ($V_{CE} = 24\text{ V}$, $P_{out} = 15\text{ W}$, $f = 470\text{ MHz}$, $I_Q = 50\text{ mA}$) | η_c | 50 | 60 | — | % |

PACKAGE DIMENSIONS



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