

**DESCRIPTION**

The MS1504 is a 13.6 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications. The MS1504 utilizes an emitter ballasted die geometry to withstand severe load mismatch conditions.

**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

**KEY FEATURES**

- 160 MHz
- 13.6 Volts
- Common Emitter
- $P_{OUT} = 30$  W Min.
- $G_P = 10.0$  dB Gain

**APPLICATIONS/BENEFITS**

- VHF Mobile Applications

**ABSOLUTE MAXIMUM RATINGS ( $T_{CASE} = 25^{\circ}C$ )**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	36	V
$V_{CEO}$	Collector-Emitter Voltage	18	V
$V_{CES}$	Collector-Emitter Voltage	36	V
$V_{EBO}$	Emitter-Base Voltage	4.0	V
$I_C$	Device Current	8.0	A
$P_{DISS}$	Power Dissipation	70	W
$T_J$	Junction Temperature	+200	$^{\circ}C$
$T_{STG}$	Storage Temperature	-65 to +150	$^{\circ}C$

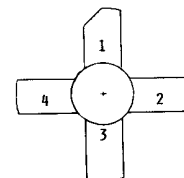


**.380 4LSTUD(M135)**  
epoxy sealed

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.2	$^{\circ}C/W$
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**PIN CONNECTION**



- 1 collector                      3 base  
2 emitter                         4 emitter

**STATIC ELECTRICAL SPECIFICATIONS (T<sub>CASE</sub> = 25°C)**

Symbol	Test Conditions	MS1504			Units
		Min.	Typ.	Max.	
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 15 mA</b> <b>V<sub>BE</sub> = 0 mA</b>	36	—	—	V
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 50 mA</b> <b>I<sub>B</sub> = 0 mA</b>	18	—	—	V
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 5 mA</b> <b>I<sub>C</sub> = 0 mA</b>	4.0	—	—	V
<b>I<sub>CBO</sub></b>	<b>V<sub>CB</sub> = 15 V</b> <b>I<sub>E</sub> = 0 mA</b>	—	—	5	mA
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V</b> <b>I<sub>C</sub> = 250 mA</b>	20	—	200	—

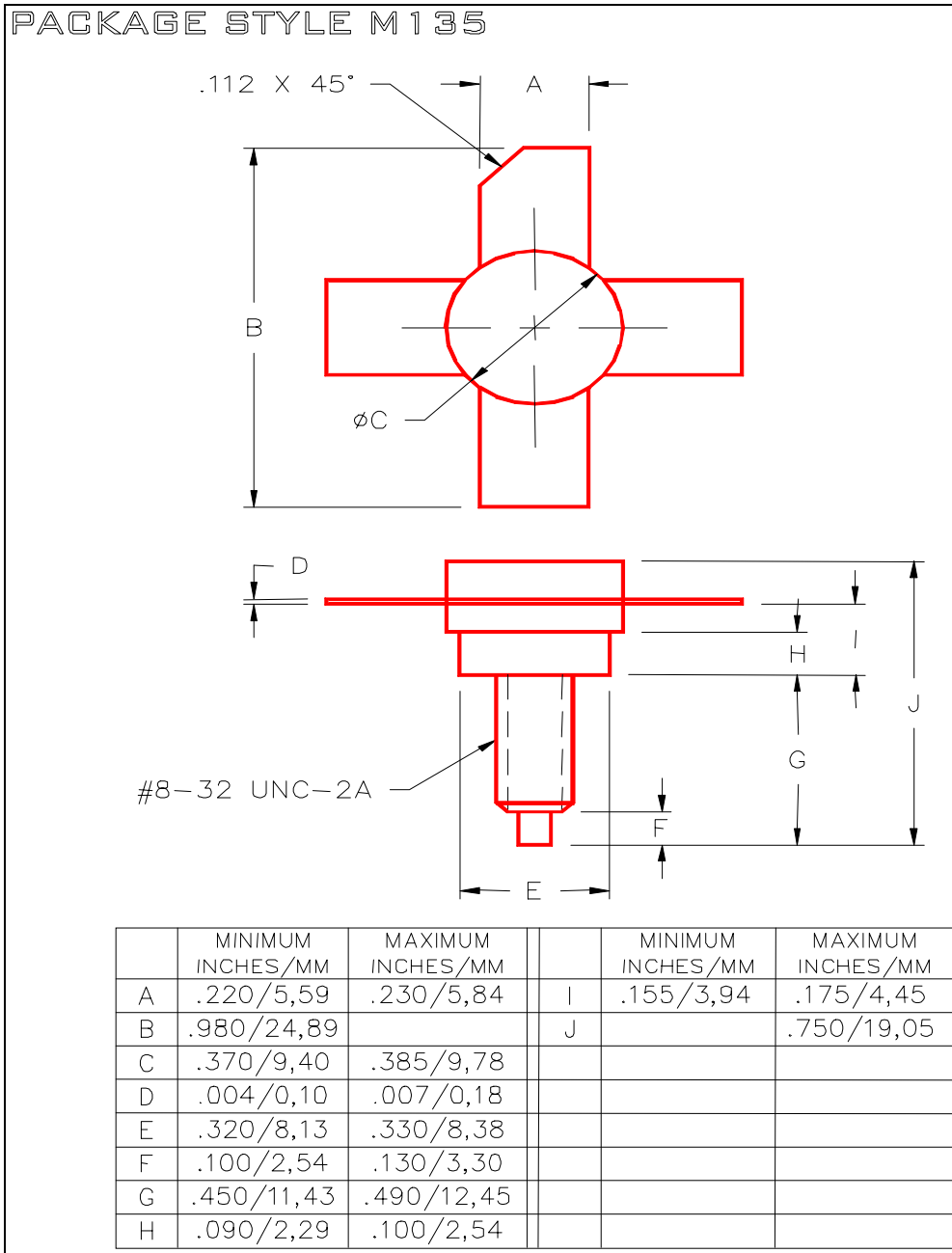
**DYNAMIC ELECTRICAL SPECIFICATIONS (T<sub>CASE</sub> = 25°C)**

Symbol	Test Conditions	MS1504			Units
		Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 160 MHz</b> <b>P<sub>IN</sub> = 3.0 W</b> <b>V<sub>CE</sub> = 13.6 V</b>	30	—	—	W
<b>G<sub>p</sub></b>	<b>f = 160 MHz</b> <b>P<sub>IN</sub> = 3.0 W</b> <b>V<sub>CE</sub> = 13.6 V</b>	10	—	—	dB
<b>C<sub>OB</sub></b>	<b>f = 1 MHz</b> <b>V<sub>CB</sub> = 15 V</b>	—	—	95	pF

**IMPEDANCE DATA**

Freq.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
175 MHz	1.0 + j 0.4	2.3 + j 0.1

**P<sub>IN</sub> = 3.0 W**  
**V<sub>CE</sub> = 12.5 V**





MS1504

RF & MICROWAVE TRANSISTORS

PRODUCT PREVIEW

www.Microsemi.com

NOTES