

# MS1406

## RF & MICROWAVE TRANSISTORS FM MOBILE APPLICATIONS

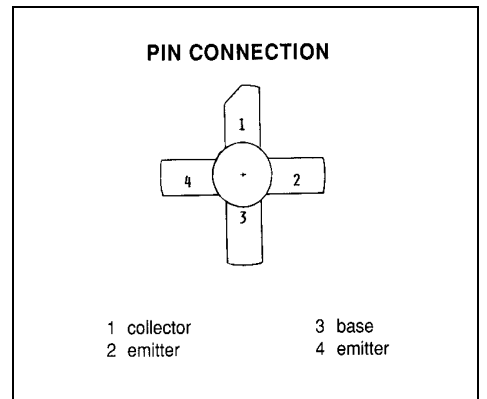
### Features

- 175MHz
- 12.5 VOLTS
- GOLD METALIZATION
- Pout = 20WATTS
- Gp = 8.0 dB MINIMUM
- COMMON EMITTER CONFIGURATION



### DESCRIPTION:

The MS1406 is a silicon NPN transistor designed for 12.5V AM Class C amplifiers operating in the 118–136 MHz aviation band and for 28V FM Class C amplifiers used in ground station transmitters. Diffused emitter ballast and gold metalization provide maximum ruggedness and reliability.



### ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector- Base Voltage	65	V
V <sub>CEO</sub>	Collector-Emitter Voltage	35	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>C</sub>	Continuous Collector Current	3.0	A
P <sub>D</sub>	Total Dissipation	30	W
T <sub>j</sub>	Junction Temperature	200	°C
T <sub>STG</sub>	Storage Temperature	-65 to +200	°C

### Thermal Data

R <sub>TH(J-C)</sub>	Thermal Resistance Junction-case	5.8	°C/W
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**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)  
STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 200 mA</b>	<b>V<sub>BE</sub> = 0 mA</b>	<b>65</b>	---	---	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 200 mA</b>	<b>I<sub>B</sub> = 0 mA</b>	<b>35</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 10 mA</b>	<b>I<sub>C</sub> = 0 mA</b>	<b>4.0</b>	---	---	<b>V</b>
<b>I<sub>CB0</sub></b>	<b>V<sub>CB</sub> = 30 V</b>	<b>I<sub>E</sub> = 0 mA</b>	---	---	<b>1.0</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V</b>	<b>I<sub>C</sub> = 200 mA</b>	<b>10</b>	---	<b>200</b>	---

**DYNAMIC**

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 175MHz</b>	<b>P<sub>IN</sub> = 3.0W</b>	<b>V<sub>CE</sub> = 28V</b>	<b>20</b>	---	---	<b>W</b>
<b>G<sub>P</sub></b>	<b>f = 175MHz</b>	<b>P<sub>IN</sub> = 3.0W</b>	<b>V<sub>CE</sub> = 28V</b>	<b>8.2</b>	---	---	<b>dB</b>
<b>η<sub>C</sub></b>	<b>f = 175MHz</b>	<b>P<sub>IN</sub> = 3.0W</b>	<b>V<sub>CE</sub> = 28V</b>	<b>60</b>	---	---	<b>%</b>
<b>C<sub>OB</sub></b>	<b>V<sub>CB</sub> = 30V</b>	<b>f = 1 MHz</b>		---	---	<b>35</b>	<b>pf</b>

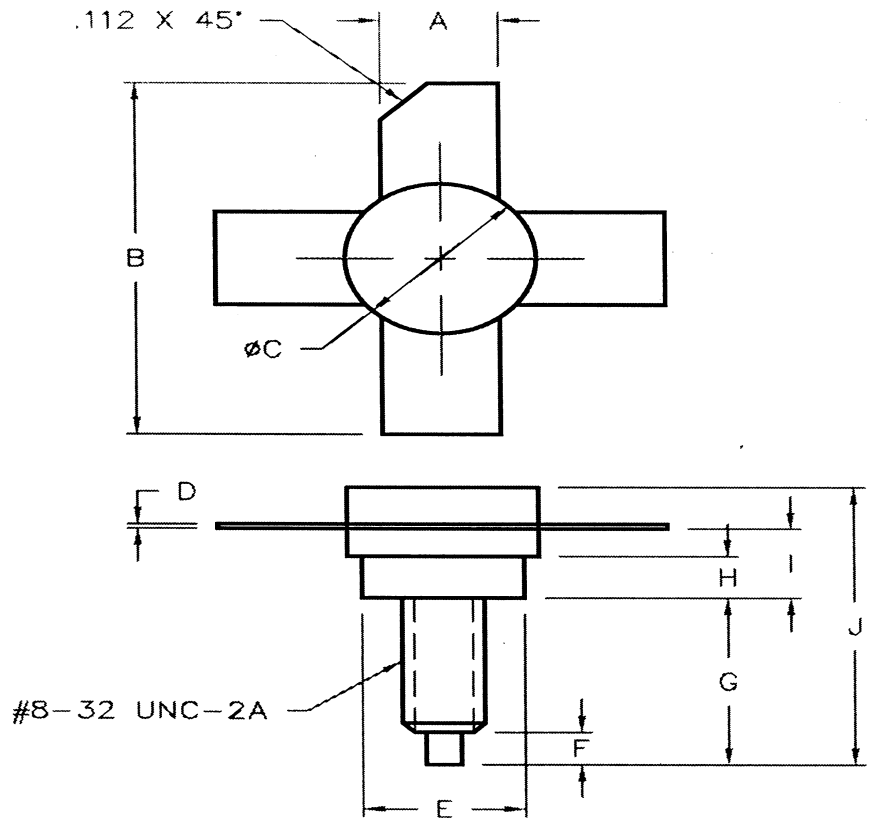
**IMPEDANCE DATA**

FREQ	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
<b>175 MHz</b>	<b>1.1 + j1.15</b>	<b>9.0 - j9.60</b>

**P<sub>IN</sub> = 3.0W**  
**V<sub>CC</sub> = 28V**

**PACKAGE MECHANICAL DATA**

**PACKAGE STYLE M135**



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I	.155/3,94	.175/4,45
B	.980/24,89		J		.750/19,05
C	.370/9,40	.385/9,78			
D	.004/0,10	.007/0,18			
E	.320/8,13	.330/8,38			
F	.100/2,54	.130/3,30			
G	.450/11,43	.490/12,45			
H	.090/2,29	.100/2,54			