

## MS1506

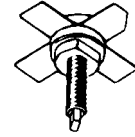
### RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

#### Features

- 160 MHz
- 13.6 VOLTS
- $P_{OUT} = 40$  WATTS
- $G_P = 9.0$  dB MINIMUM
- COMMON EMITTER CONFIGURATION

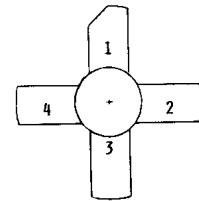
#### DESCRIPTION:

The MS1506 is a 13.6 volt Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications. The MS1506 utilizes an emitter ballasted die geometry to withstand severe load mismatch conditions.



.380 4LSTUD(M135)  
epoxy sealed

#### PIN CONNECTION



1 collector  
2 emitter

3 base  
4 emitter

#### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}C$ )

Symbol			
$V_{CBO}$	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	$^{\circ}C$

#### Thermal Data

$R_{TH(J-C)}$	Junction-case Thermal Resistance	1.2	$^{\circ}C/W$
---------------	----------------------------------	-----	---------------

**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> = 15 mA</b>	<b>V<sub>BE</sub> = 0 mA</b>		<b>36</b>	---	---	<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 50 mA</b>	<b>I<sub>B</sub> = 0 mA</b>		<b>18</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 5 mA</b>	<b>I<sub>C</sub> = 0 mA</b>		<b>4.0</b>	---	---	<b>V</b>
<b>I<sub>CBO</sub></b>	<b>V<sub>CB</sub> = 15 V</b>	<b>I<sub>E</sub> = 0 mA</b>		---	---	<b>5</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V</b>	<b>I<sub>C</sub> = 250 mA</b>		<b>20</b>	---	<b>200</b>	---

**DYNAMIC**

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 160 MHz</b>	<b>P<sub>IN</sub> = 5.0 W</b>	<b>V<sub>CE</sub> = 13.6 V</b>	<b>40</b>	---	---	<b>W</b>
<b>G<sub>P</sub></b>	<b>f = 160 MHz</b>	<b>P<sub>IN</sub> = 5.0 W</b>	<b>V<sub>CE</sub> = 13.6 V</b>	<b>9</b>	---	---	<b>dB</b>
<b>Cob</b>	<b>V<sub>CE</sub> = 12.5V</b>	<b>f = 1 MHz</b>		---	<b>95</b>	---	<b>pf</b>

**IMPEDANCE DATA**

FREQ	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
<b>160 MHz</b>	<b>1.0 + j0.4</b>	<b>2.3 + j0.1</b>

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

**MS1506**

**PACKAGE MECHANICAL DATA**

