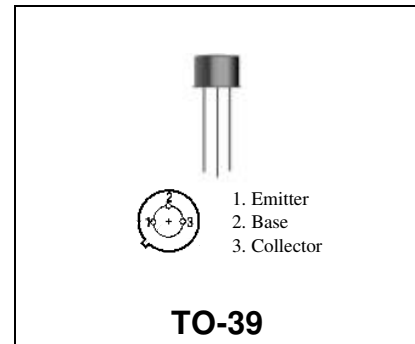


# SD1444

## RF & MICROWAVE TRANSISTORS 450-512MHz CLASS C MOBILE APPLICATIONS

### Features

- 470 MHz
- 12.5 VOLTS
- $P_{OUT} = 4.0$  WATTS
- $G_p = 12.0$  dB MINIMUM
- COMMON EMITTER



### DESCRIPTION:

The SD1444 is a 12.5V epitaxial silicon NPN planar transistor designed primarily for UHF communications. This device is packaged in a grounded emitter TO-39 package for increased power gain and optimum heat dissipation.

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	36.0	V
$V_{CEO}$	Collector-Emitter Voltage	16.0	V
$V_{EBO}$	Emitter – Base Voltage	4.0	V
$I_C$	Collector Current	0.40	A
$P_{tot}$	Total Power Dissipation	5.0	W
$T_{STG}$	Storage Temperature	-65 + 200	$^{\circ}C$
$T_J$	Junction Temperature	+200	$^{\circ}C$

### THERMAL DATA

$R_{TH(J-C)}$	Junction-case Thermal Resistance	35.0	$^{\circ}C/W$
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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> = 50 mA</b>	<b>V<sub>BE</sub> = 0</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</b>	<b>16</b>	---	---	<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 1 mA</b>	<b>I<sub>C</sub> = 0</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</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> = 50 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 = 470 MHz</b>	<b>V<sub>CE</sub> = 12.5 V</b>	<b>2.0</b>	---	---	<b>W</b>	
<b>G<sub>PE</sub></b>	<b>f = 470 MHz</b>	<b>V<sub>CE</sub> = 12.5 V</b>	<b>8.0</b>	---	---	<b>dB</b>	
<b>Cob</b>	<b>V<sub>CE</sub> = 15.0 V</b>	<b>f = 1 MHz</b>	<b>I<sub>E</sub> = 0</b>	---	---	<b>15.0</b>	<b>pf</b>

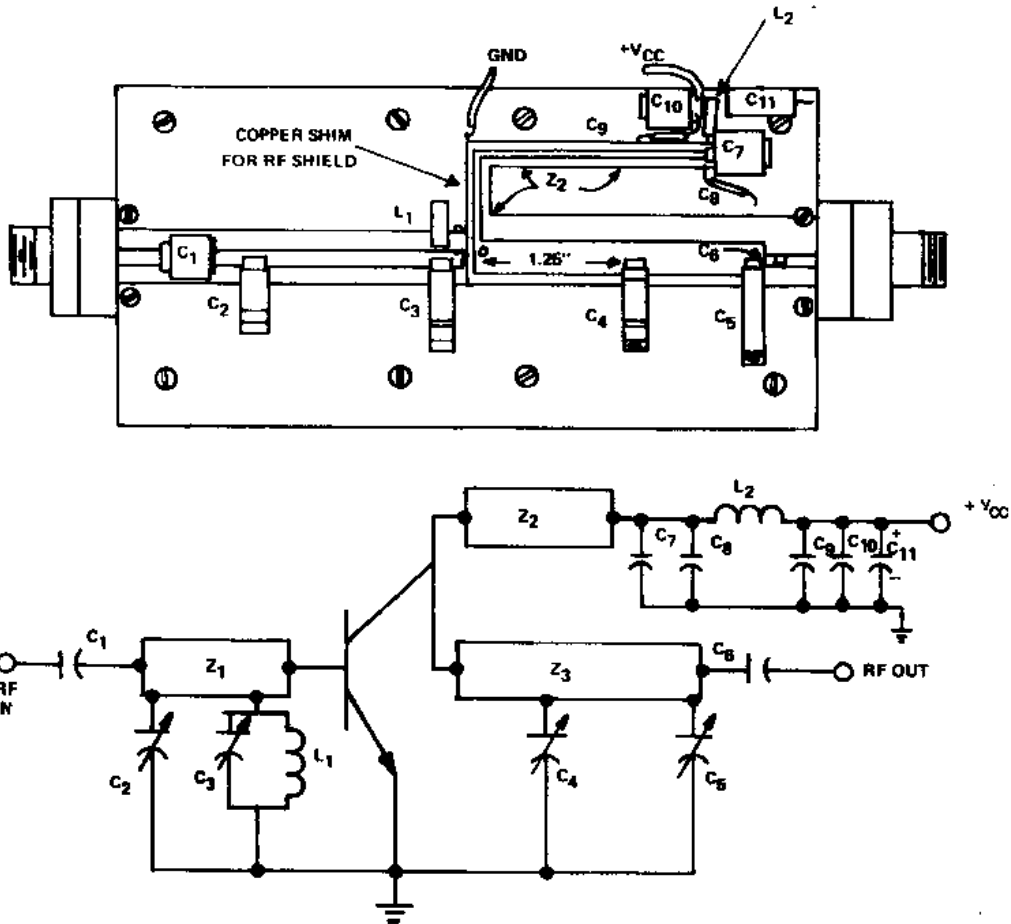
**IMPEDANCE DATA**

FREQ	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
<b>470 MHz</b>	<b>2.9 + j 0.6</b>	<b>15.6 – j 10.2</b>

**P<sub>OUT</sub> = 2W**  
**V<sub>CC</sub> = 12.5V**

**SD1444**

TEST CIRCUIT



**COMPONENT LIST**

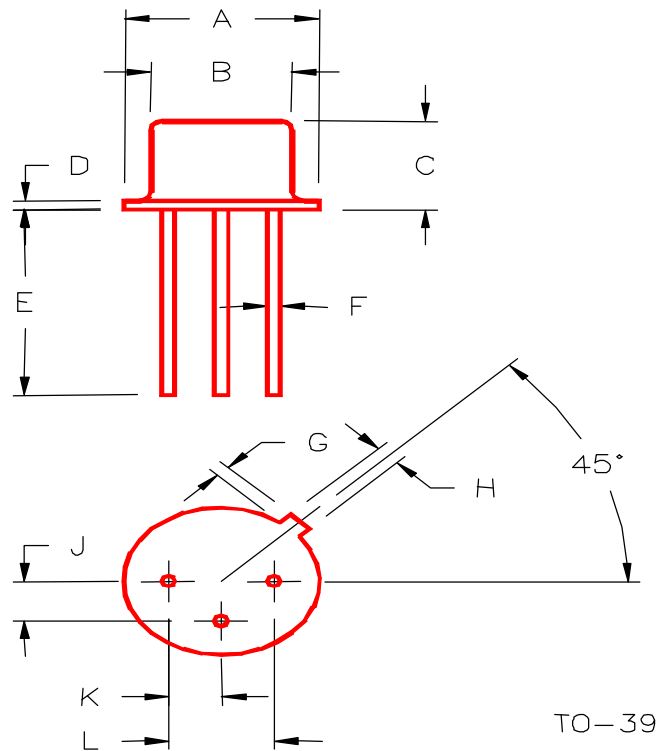
- C<sub>1</sub>, C<sub>7</sub>, C<sub>10</sub> 1000pf UNELCO
- C<sub>2</sub> 0.8 – 10pf, VOLTRONICS AJ10
- C<sub>3</sub>, C<sub>4</sub> 1.0 – 20pf, JOHANSON 5500
- C<sub>6</sub> 1.0 – 30pf, JOHANSON 5600
- C<sub>8</sub> 1000pf CHIP CAPACITOR
- C<sub>9</sub>, C<sub>9</sub> 0.01µf DISC-CERAMIC
- C<sub>11</sub> 10µf, 35V ELECTROLYTIC

- L<sub>1</sub> 0.47µh MOLDED CHOKE
  - L<sub>2</sub> 2.2µh MOLDED CHOKE
  - Z<sub>1</sub> 2.25" x 0.185"
  - Z<sub>2</sub> 2.50" x 0.0625"
  - Z<sub>3</sub> 2.25" x 0.185"
- BOARD MATERIAL – 3M-K6098,  
1/16" THK

S68SD1444-06

**PACKAGE MECHANICAL DATA**

**PACKAGE STYLE M246**



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.350/8,89	.370/9,40	J	.095/2,41	.105/2,67
B	.315/8,00	.335/8,51	K	.095/2,41	.105/2,67
C	.240/6,10	.260/6,60	L	.190/4,83	.210/5,33
D	.015/0,38	.045/1,14			
E	.500/12,70				
F	.016/0,41	.019/0,48			
G	.029/0,74	.040/1,02			
H	.028/0,71	.034/0,86			