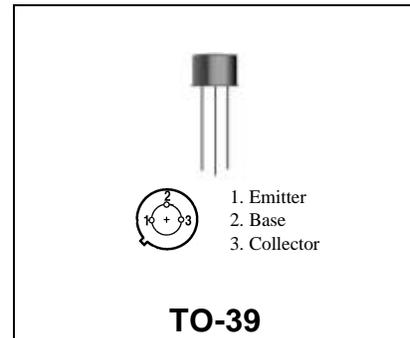


**RF & MICROWAVE TRANSISTORS  
450-512MHz CLASS C MOBILE APPLICATIONS**

**Features**

- 470 MHz
- 12.5 VOLTS
- P<sub>OUT</sub> = 4.0 WATTS
- G<sub>p</sub> = 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<sub>case</sub> = 25°C)**

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	36.0	V
V <sub>CEO</sub>	Collector-Emitter Voltage	16.0	V
V <sub>EBO</sub>	Emitter – Base Voltage	4.0	V
I <sub>C</sub>	Collector Current	0.40	A
P <sub>tot</sub>	Total Power Dissipation	5.0	W
T <sub>STG</sub>	Storage Temperature	-65 + 200	°C
T <sub>J</sub>	Junction Temperature	+200	°C

**THERMAL DATA**

R <sub>TH(J-C)</sub>	Junction-case Thermal Resistance	35.0	°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

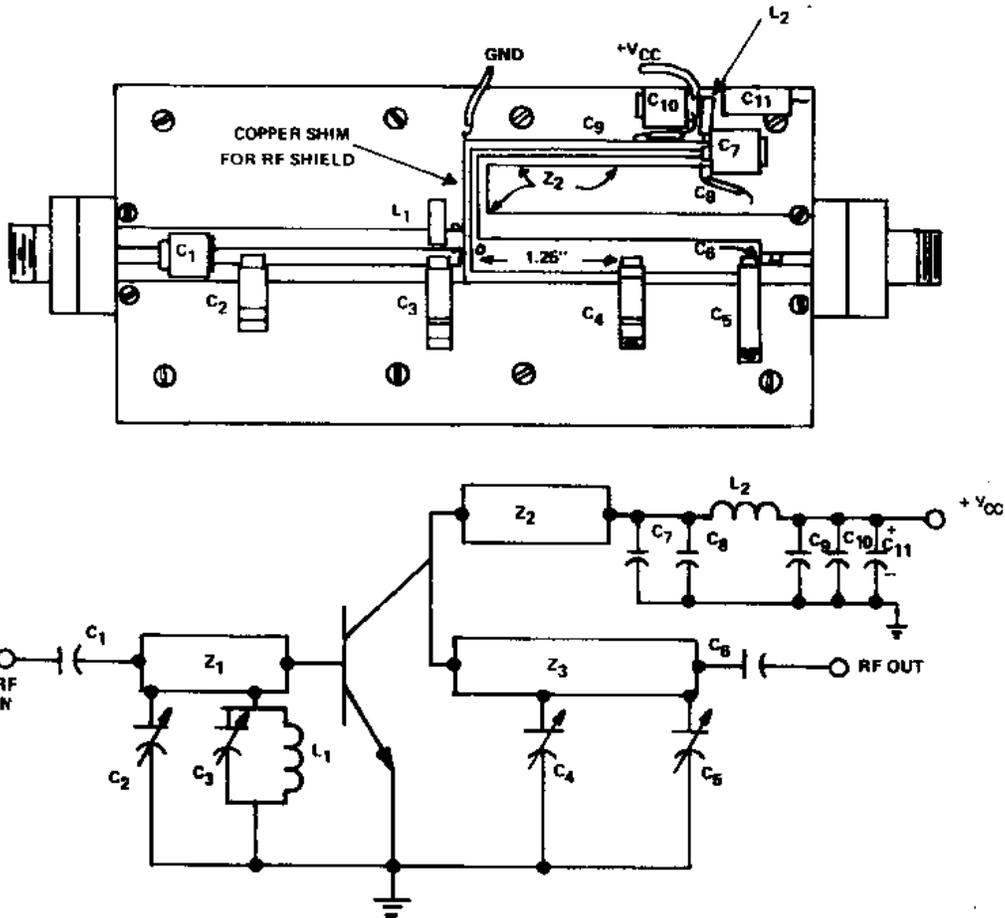
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 470 MHz</b>	<b>V<sub>CE</sub> = 12.5 V</b>	<b>2.0</b>	---	---	<b>W</b>	
<b>G<sub>PE</sub></b>	<b>f = 470 MHz</b>	<b>V<sub>CE</sub> = 12.5 V</b>	<b>8.0</b>	---	---	<b>dB</b>	
<b>Cob</b>	<b>V<sub>CE</sub> = 15.0 V</b>	<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**

**TEST CIRCUIT**



**COMPONENT LIST**

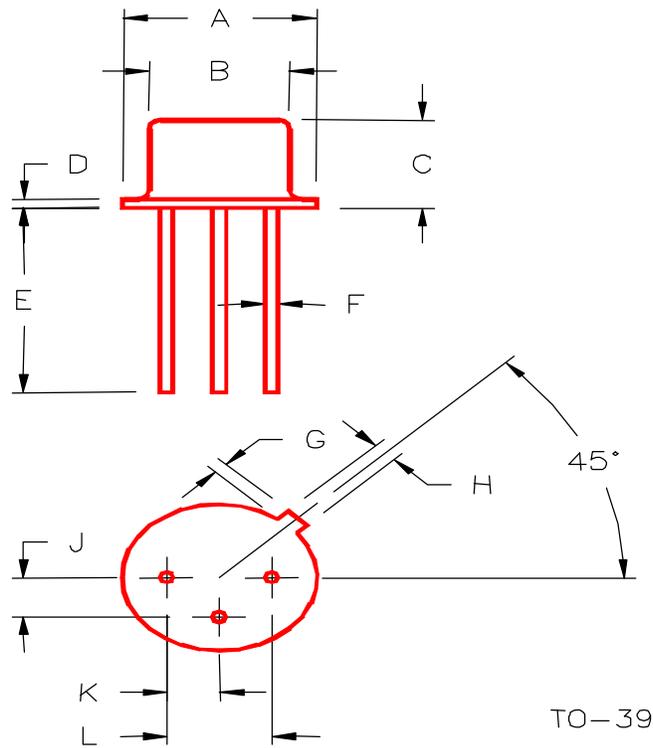
C <sub>1</sub> , C <sub>7</sub> , C <sub>10</sub>	1000pf UNELCO
C <sub>2</sub>	0.8 – 10pf, VOLTRONICS AJ10
C <sub>3</sub> , C <sub>4</sub>	1.0 – 20pf, JOHANSON 5500
C <sub>6</sub>	1.0 – 30pf, JOHANSON 5600
C <sub>8</sub>	1000pf CHIP CAPACITOR
C <sub>9</sub> , C <sub>9</sub>	0.01µf DISC-CERAMIC
C <sub>11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