

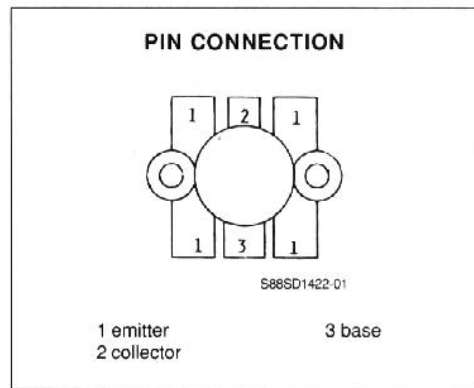
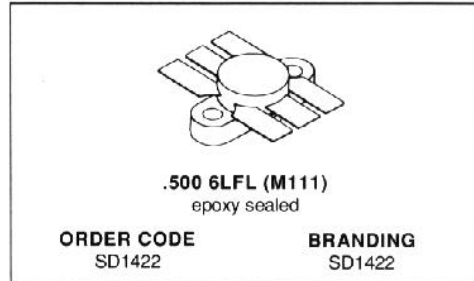


140 Commerce Drive  
 Montgomeryville, PA 18936-1013  
 Tel: (215) 631-9840

**SD1422**

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

- CLASS C TRANSISTOR
- FREQUENCY 470MHz
- VOLTAGE 12.5V
- POWER OUT 25.0W
- POWER GAIN 6.2dB
- COMMON EMITTER
- GOLD METALLIZATION



**DESCRIPTION**

The SD1422 is a 12.5V epitaxial silicon NPN planar transistor designed for broadband applications in the 450-512MHz land mobile radio band. This device utilizes diffused emitter resistors to withstand 20:1 VSWR at rated operating conditions.

**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
$V_{CES}$	Collector - Emitter Voltage	36	V
$V_{EBO}$	Emitter - Base Voltage	4.0	A
$I_C$	Collector Current	4.8	W
$P_{tot}$	Total Power Dissipation	70.0	$^{\circ}C$
$T_{stg}$	Storage Temperature	- 65 to + 150	$^{\circ}C$
$T_j$	Junction Temperature	+ 200	$^{\circ}C$

**THERMAL DATA**

$R_{th(j-c)}$	Junction-case Thermal Resistance	2.5	$^{\circ}C/W$
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March 1989

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**SD1422**

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$ )

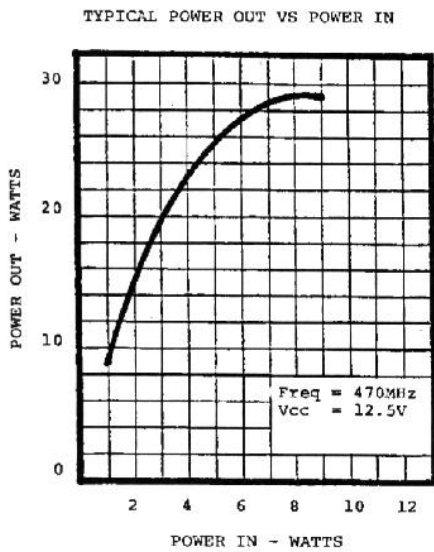
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CES}$	$I_C = 10mA$	$V_{BE} = 0$	36.0			V
$BV_{CEO}$	$I_C = 50mA$	$I_B = 0$	16.0			V
$BV_{EBO}$	$I_E = 5mA$	$I_C = 0$	4.0			V
$I_{CES}$	$V_{CE} = 12.5V$	$V_{BE} = 0$			5.0	mA
$h_{FE}$	$V_{CE} = 5.0V$	$I_C = 1.0A$	10.0			

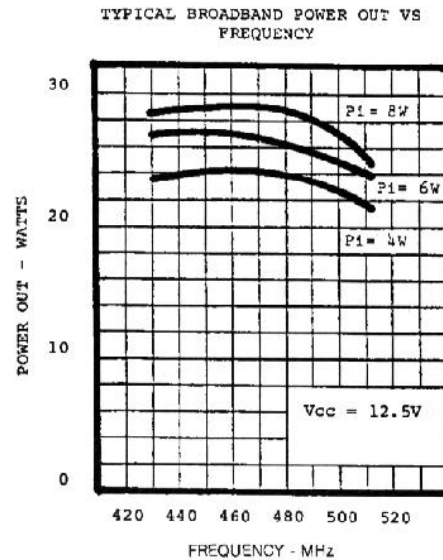
DYNAMIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$P_O$	$f = 470MHz$	$V_{CE} = 12.5V$	25.0			W
$G_p$	$f = 470MHz$	$V_{CE} = 12.5V$	6.2			dB
$C_{ob}$	$f = 1MHz$	$V_{CB} = 12.5V$		70.0		pF

**APPLICATION INFORMATION** (typical curves)

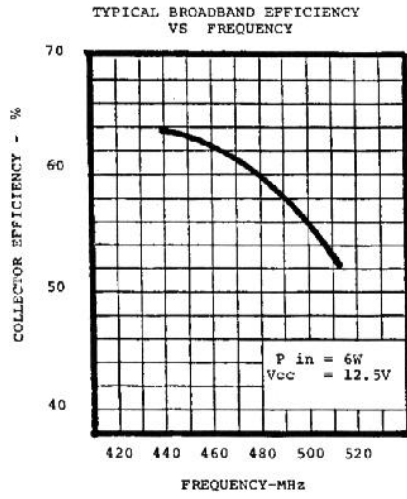


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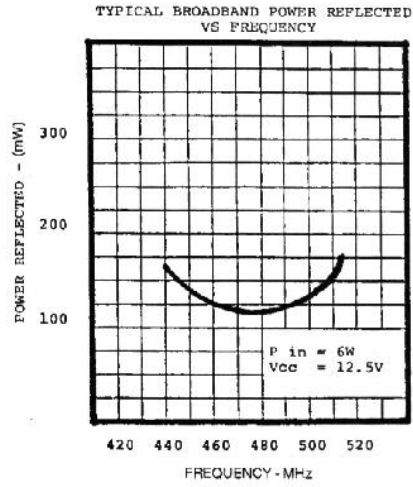


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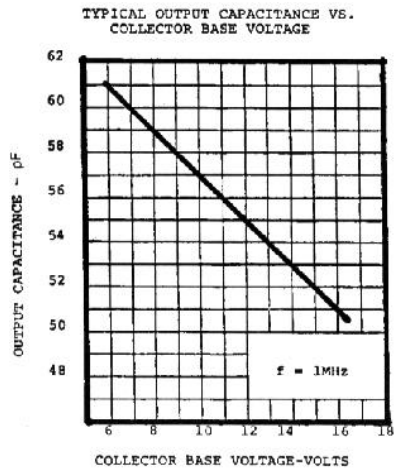
APPLICATION INFORMATION (typical curves) (continued)



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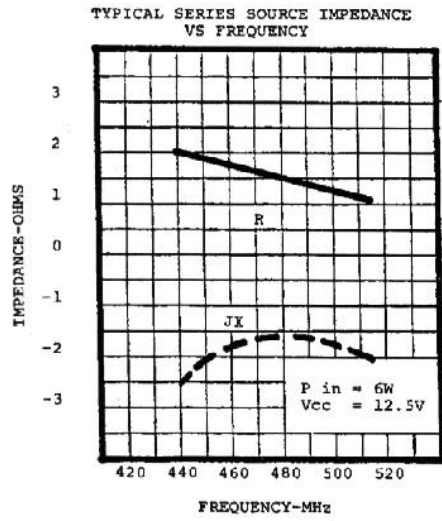
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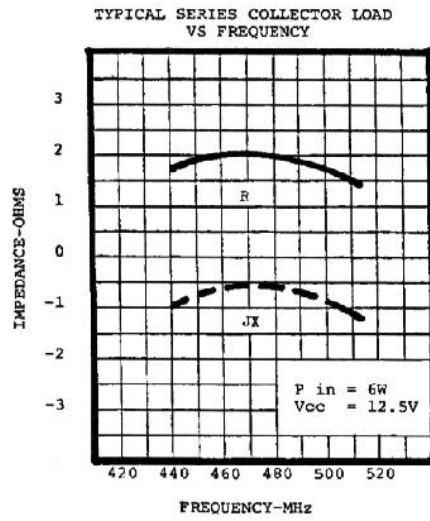
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**SD1422**

**IMPEDANCE DATA** (typical)

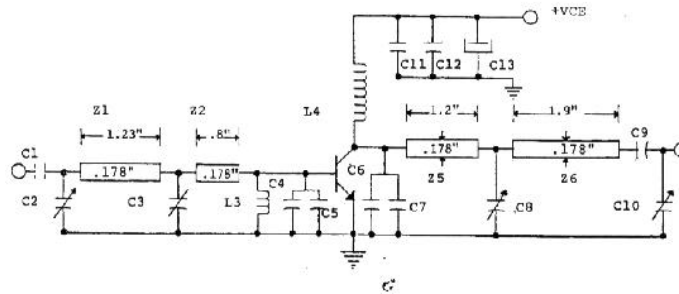
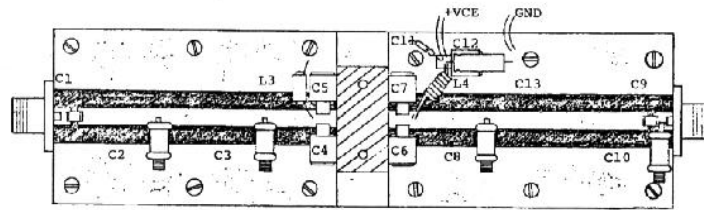


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S88SD1422-08

TEST CIRCUIT



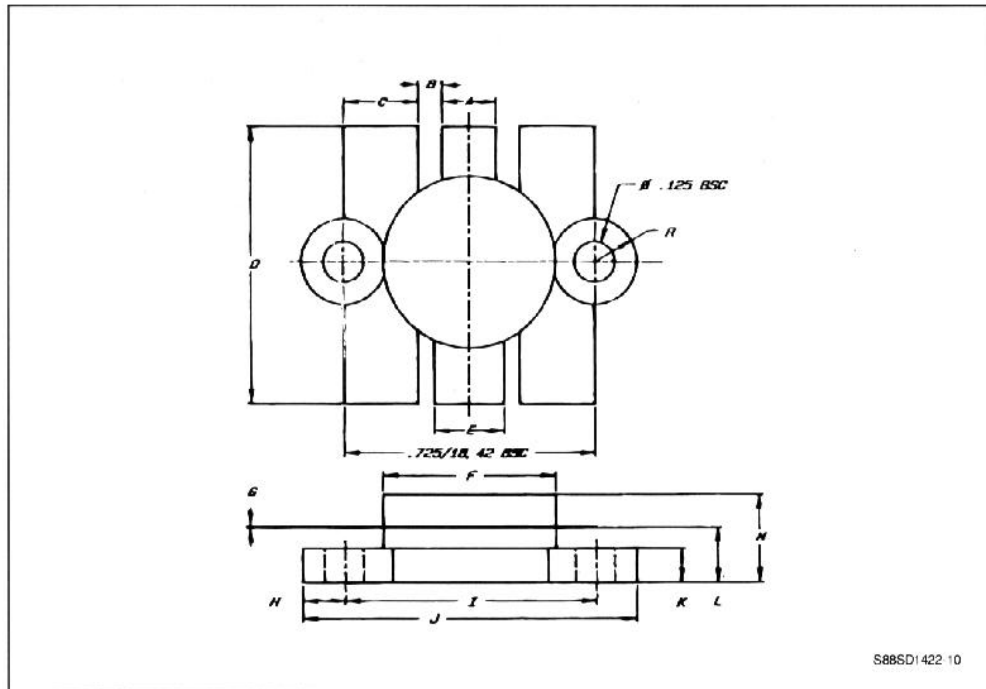
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- |             |   |     |   |
|-------------|---|-----|---|
| C1          | ATC 100 Mils Chip Capacitor 75pF        | C13 | Electronic Capacitor 8.2 $\mu$ F @ 25VDC    |
| C2, C3, C8, | Voltronics Air Variable 1-14pF          | Z1  | 50 $\Omega$ Microstrip .178"x1.23"          |
| C10         |   | Z2  | 50 $\Omega$ Microstrip .178"x.8"            |
| C4, C5      | Unelco 27pF                             | L3  | VK200 21/4B Ferracube 1 1/2 Turn            |
| C6, C7      | Unelco 36pF                             | L4  | 7 Turns /18AWG .2" I.D. with Wiring Spacing |
| C9          | ATC 100 Mils Chip Capacitor 750pF       | Z5  | 50 $\Omega$ Microstrip .178"x1.2"           |
| C11         | Eric Disk Capacitor .10 $\mu$ F @ 25VDC | Z6  | 50 $\Omega$ Microstrip .178"x1.9"           |
| C12         | Unelco 1000pF                           |     | BOARD MATERIAL 3M-K6098 1/16" Thick         |

**SD1422**

**PACKAGE MECHANICAL DATA**

.500 6LPL



	Minimum Inches/mm	Maximum Inches/mm
A	.150/3.43	.160/4.06
B	.045/1.14 BSC	
C	.210/5.33	.220/5.59
D	.835/21.21	.865/21.97
E	.200/5.08	.210/5.33
F	.490/12.45	.510/12.95
G	.002/0.05	.007/0.18

	Minimum Inches/mm	Maximum Inches/mm
H	.125/3.18 BSC	
I	.720/18.29	.730/18.54
J	.970/24.64	.980/24.89
K	.095/2.41	.105/2.67
L	.150/3.81	.170/4.32
M		.280/7.11