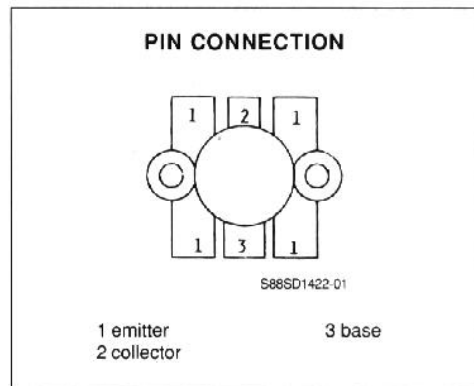
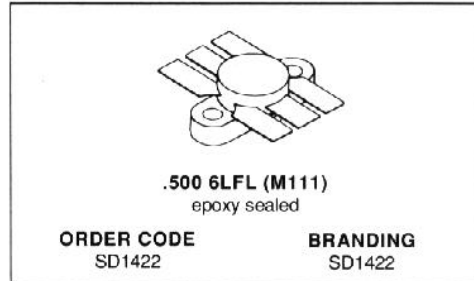


**RF & MICROWAVE TRANSISTORS**  
**450 - 512MHz CLASS C, MOBILE APPLICATIONS**

- 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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**SD1422**

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

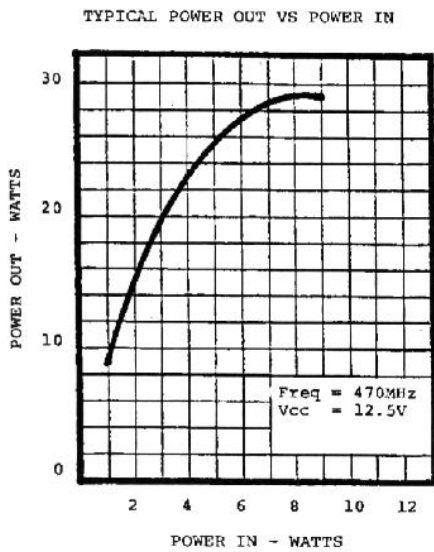
**STATIC**

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			

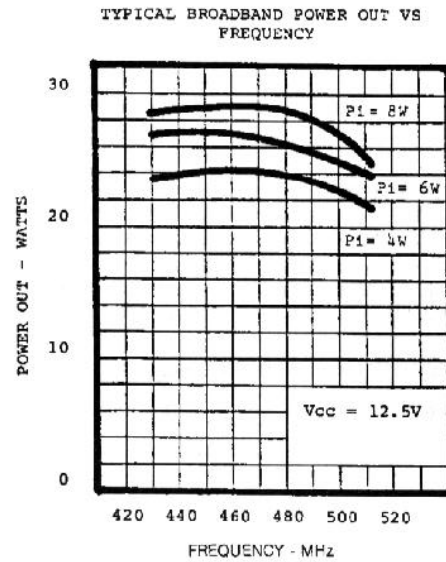
**DYNAMIC**

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)

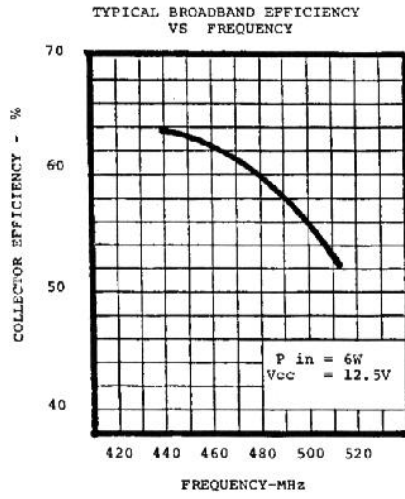


S88SD1422-02

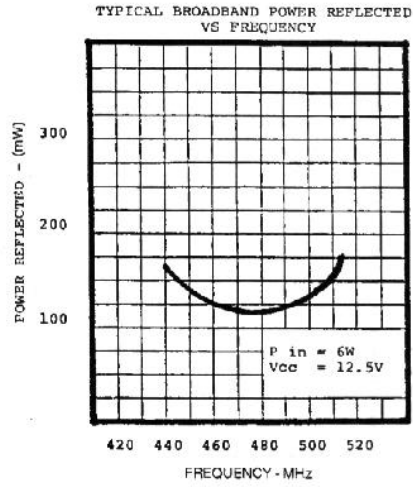


S88S1422 03

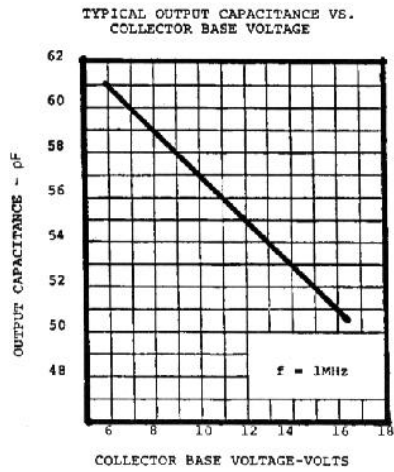
APPLICATION INFORMATION (typical curves) (continued)



S88SD1422-04

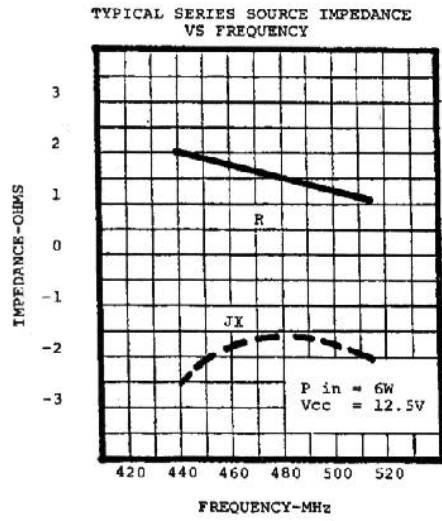


S88SD1422-05

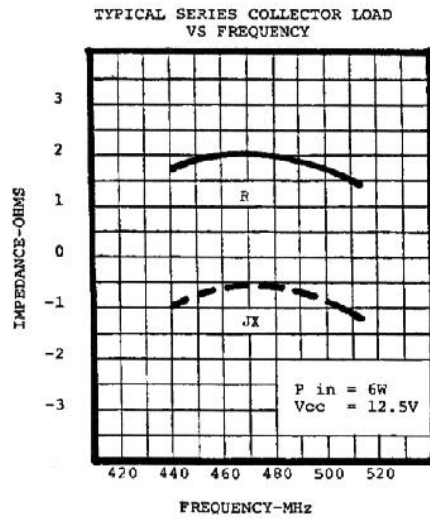


S88SD1422-06

IMPEDANCE DATA (typical)

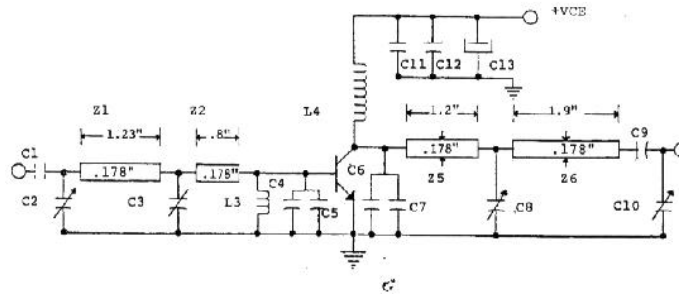
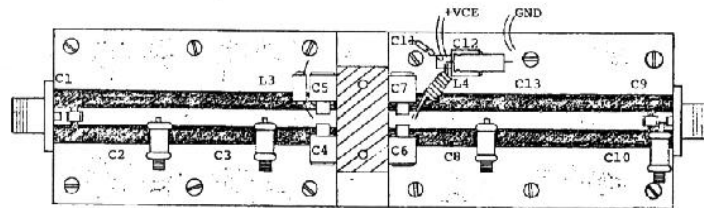


S88SD1422-07



S88SD1422-08

## TEST CIRCUIT



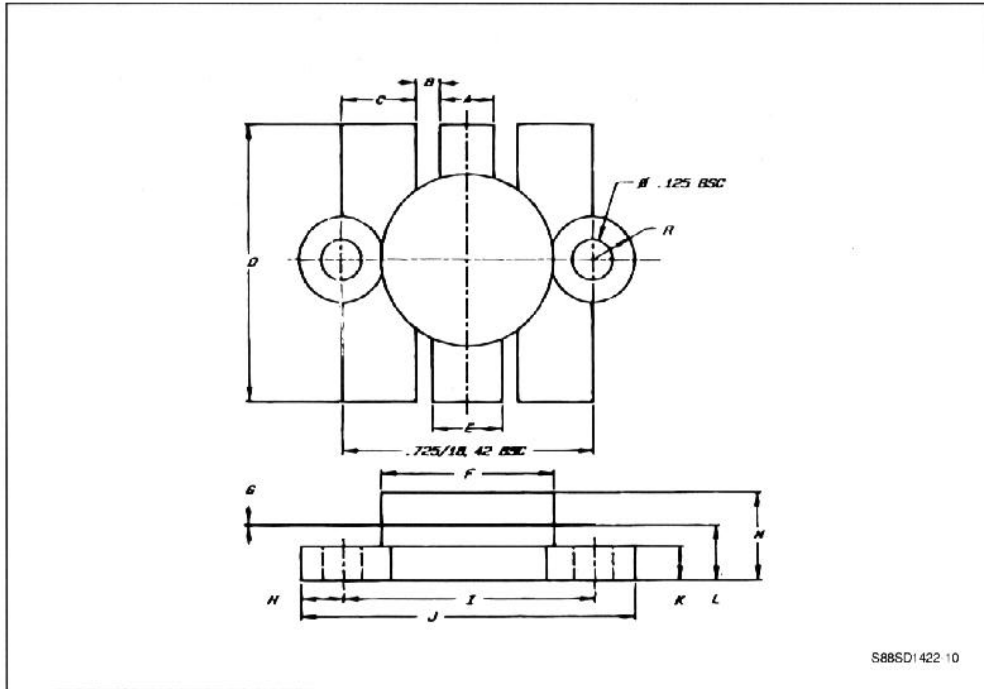
S88S1422-09

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 38pF	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