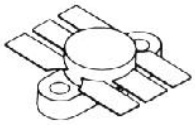
RF Products
Microsemi
Progress Powered by Technology

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

SD1422

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

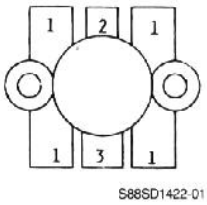
- CLASS C TRANSISTOR
- FREQUENCY 470MHz
- VOLTAGE 12.5V
- POWER OUT 25.0W
- POWER GAIN 6.2dB
- COMMON EMITTER
- GOLD METALLIZATION



.500 6LFL (M111)
epoxy sealed

ORDER CODE	BRANDING
SD1422	SD1422

PIN CONNECTION



S88SD1422-01

1 emitter
2 collector
3 base

DESCRIPTION

The SD1422 is a 12.5Vepitaxial 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°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	°C
T_{stg}	Storage Temperature	– 65 to + 150	°C
T_j	Junction Temperature	+ 200	°C

THERMAL DATA

$R_{th(j-c)}$	Junction-case Thermal Resistance	2.5	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C)

STATIC

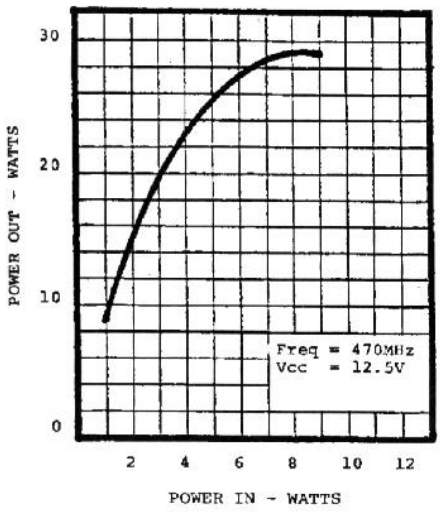
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CES}	I_C = 10mA	V_{BE} = 0	36.0			V
BV_{CEO}	I_C = 50mA	I_B = 0	16.0			V
BV_{EBO}	I_E = 5mA	I_C = 0	4.0			V
I_{CES}	V_{CE} = 12.5V	V_{BE} = 0			5.0	mA
h_{FE}	V_{CE} = 5.0V	I_C = 1.0A	10.0			

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	I_E = 0		70.0		pF

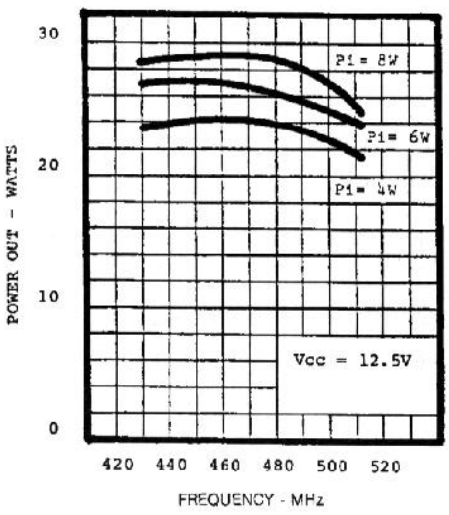
APPLICATION INFORMATION (typical curves)

TYPICAL POWER OUT VS POWER IN



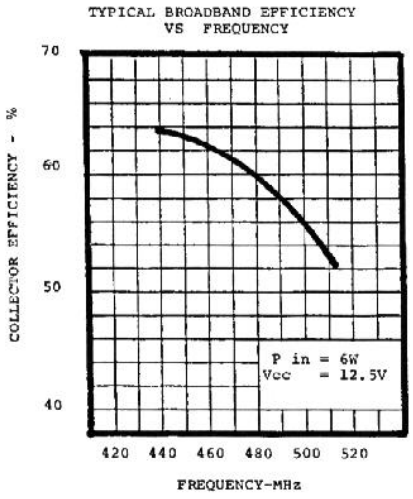
S88SD1422-02

TYPICAL BROADBAND POWER OUT VS FREQUENCY

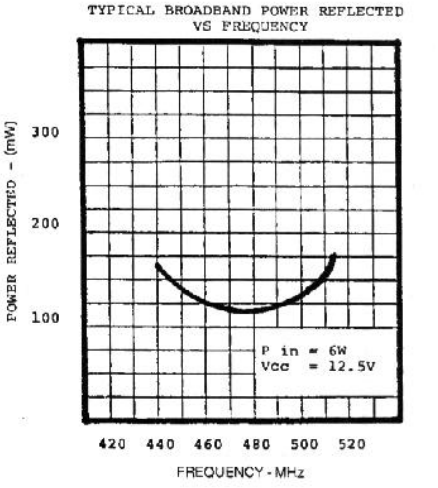


S88S1422 03

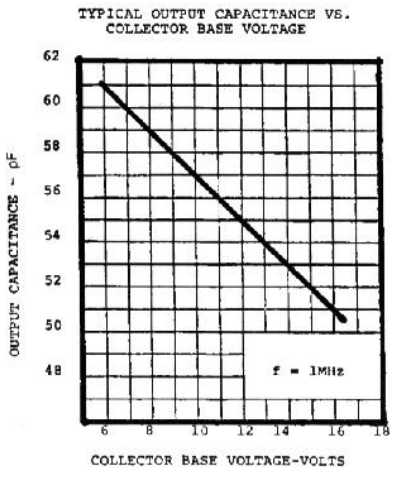
APPLICATION INFORMATION (typical curves) (continued)



S88SD1422 04

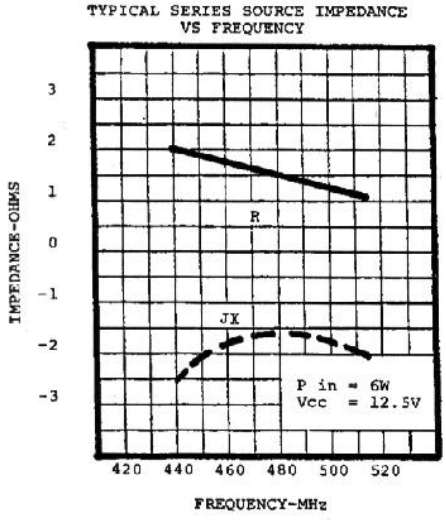


S88S1422-05

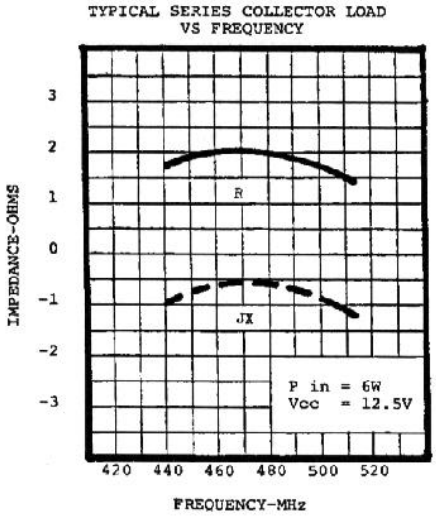


S88SD1422-06

IMPEDANCE DATA (typical)

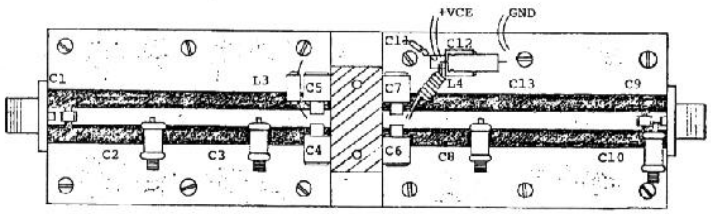


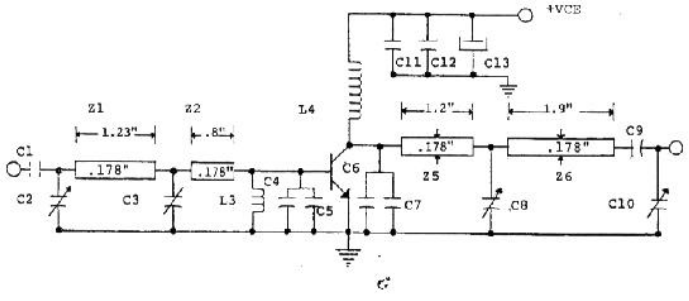
S88SD1422-07



S88S1422-08

TEST CIRCUIT



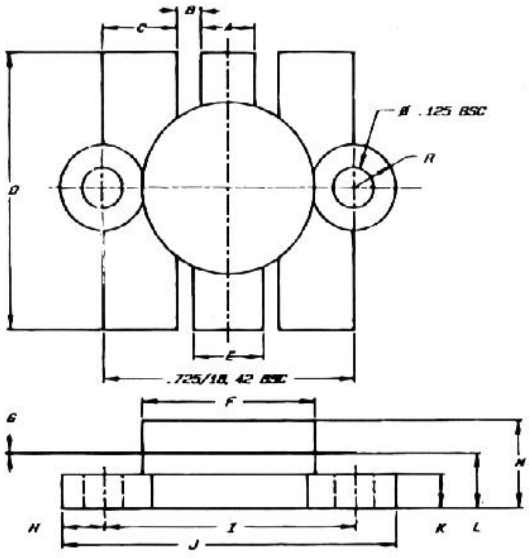


S88S1422-09

C1	ATC 100 Mils Chip Capacitor 75pF	C13	Emectronic Capacitor 8.2µF@ 25VCD
C2, C3, C8, C10	Voltronics Air Variable 1-14pF	Z1	50Ω Microstrip .178"x1.23"
		Z2	50Ω 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	50Ω Microstrip .178"x1.2"
C11	Eric Disk Capacitor .10µF@ 25VDC	Z6	50Ω Microstrip .178"x1.9"
C12	Unelco 1000pF	BOARD MATERIAL 3M-K6098 1/16" Thick	

PACKAGE MECHANICAL DATA

.500 6LPL



S88SD1422.10

	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