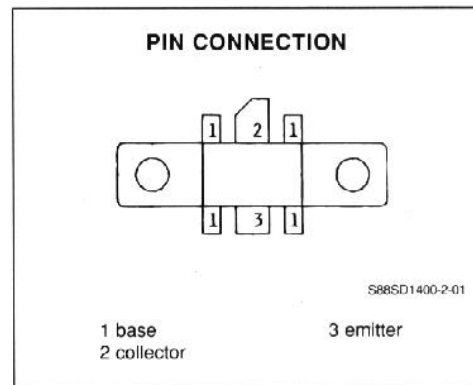
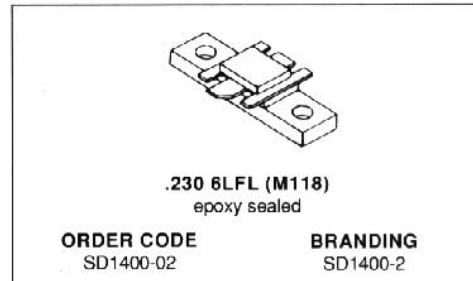


**RF & MICROWAVE TRANSISTORS
860-900MHz CLASS C, BASE STATIONS**

- CLASS C TRANSISTOR
- FREQUENCY 875MHz
- VOLTAGE 24V
- POWER OUT 14.0W
- POWER GAIN 9.7dB
- EFFICIENCY 55%
- GOLD METALLIZATION
- COMMON BASE



DESCRIPTION

The SD1400-2 is a 24V NPN epitaxial silicon Planar Transistor designed for base station applications in cellular telephone systems. The SD1400-2 uses matched input technology (tuned Q) to increase bandwidth and power gain over the 806 to 900MHz range. It Withstands 20:1 VSWR at rated conditions.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector - Base Voltage	55.0	V
V _{CEO}	Collector - Emitter Voltage	28.0	V
V _{CES}	Collector - Emitter Voltage	55.0	V
V _{EBO}	Emitter - Base Voltage	4.0	V
I _C	Collector Current	2.0	A
P _{tot}	Total Power Dissipation	57.5	W
T _{stg}	Storage Temperature	- 65 to 150	°C
T _j	Junction Temperature	200	°C

THERMAL DATA

R _{th(j-c)}	Junction-case Thermal Resistance	3.0	°C/W
----------------------	----------------------------------	-----	------

SD1400-2

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

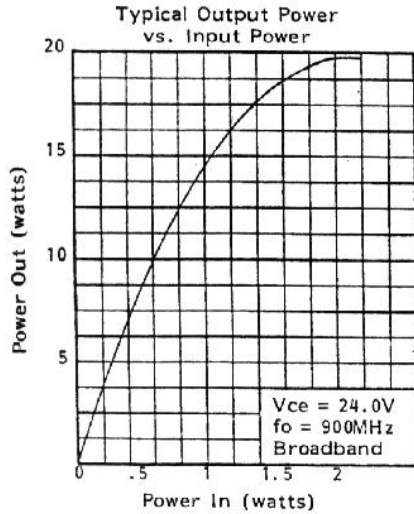
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CES}	$I_C = 50.0mA$	$V_{BE} = 0$	55.0			V
BV_{CEO}	$I_C = 50.0mA$	$I_B = 0$	28.0			V
BV_{EBO}	$I_E = 10.0mA$	$I_C = 0$	4.0			V
I_{CBO}	$V_{CB} = 15.0V$	$I_E = 0$			2.5	mA
h_{FE}	$V_{CE} = 5.0V$	$I_C = 1.0A$	20.0			

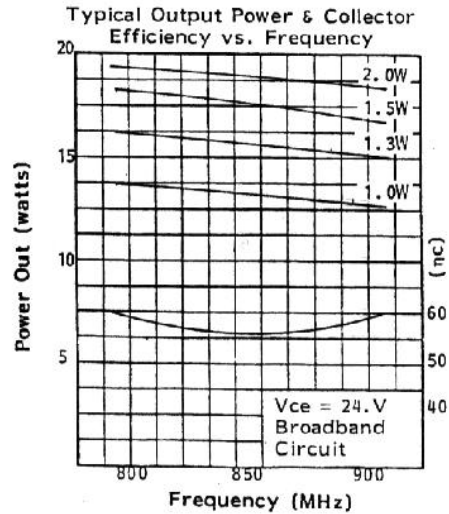
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_O	$f = 875MHz$	$V_{CE} = 24.0V$	$P_{IN} = 1.5W$	14.0			W
G_P	$f = 875MHz$	$V_{CE} = 24.0V$	$P_{IN} = 1.5W$	9.7			dB
η_C	$f = 875MHz$	$V_{CE} = 24.0V$	$P_{IN} = 1.5W$		55.0		%
C_{OB}	$f = 1MHz$	$V_{CB} = 24.0V$	$I_E = 0$		12.0		pF

APPLICATION INFORMATION (typical curves)



S88SD1400-2-02

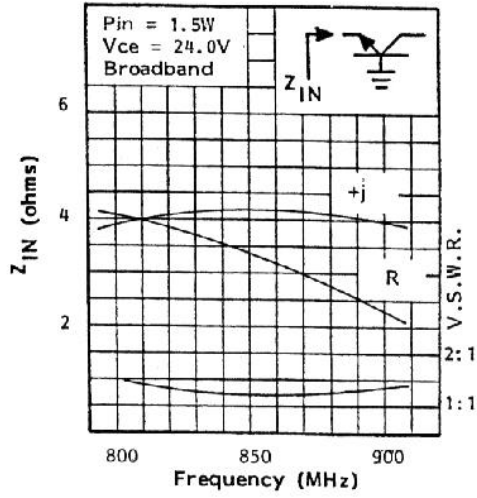


S88SD1400-2-03

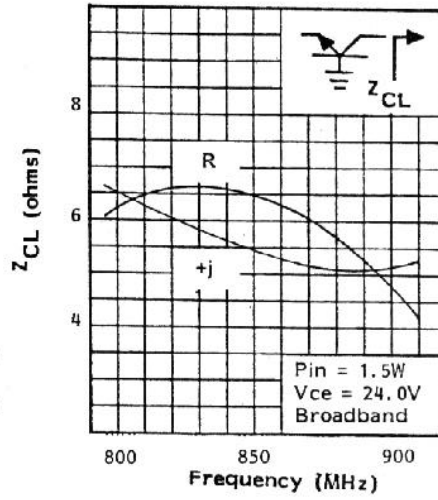
IMPEDANCE DATA (typical)

$Z_{IN} = 2.3 + j4.0\Omega$
 $Z_{CL} = 4.8 + j5.2\Omega$

$F = 900\text{MHz}$ $P_{out} = 14.0\text{W}$
 $V_{CE} = 24.0\text{V}$



S88SD1400-2-04

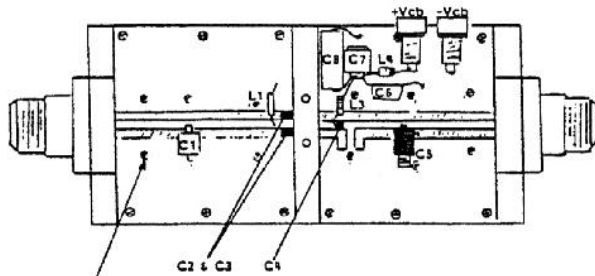


S88SD1400-2-05

SD1400-2

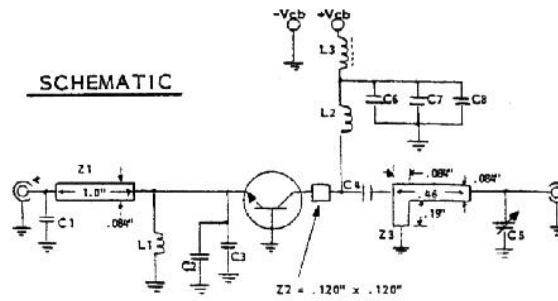
TEST CIRCUIT

LAY-OUT (800-900MHz Vcb = +25V)



Rivets through board to insure ground plane.

SCHMATIC



S88SD1400-2-06

PARTS LIST

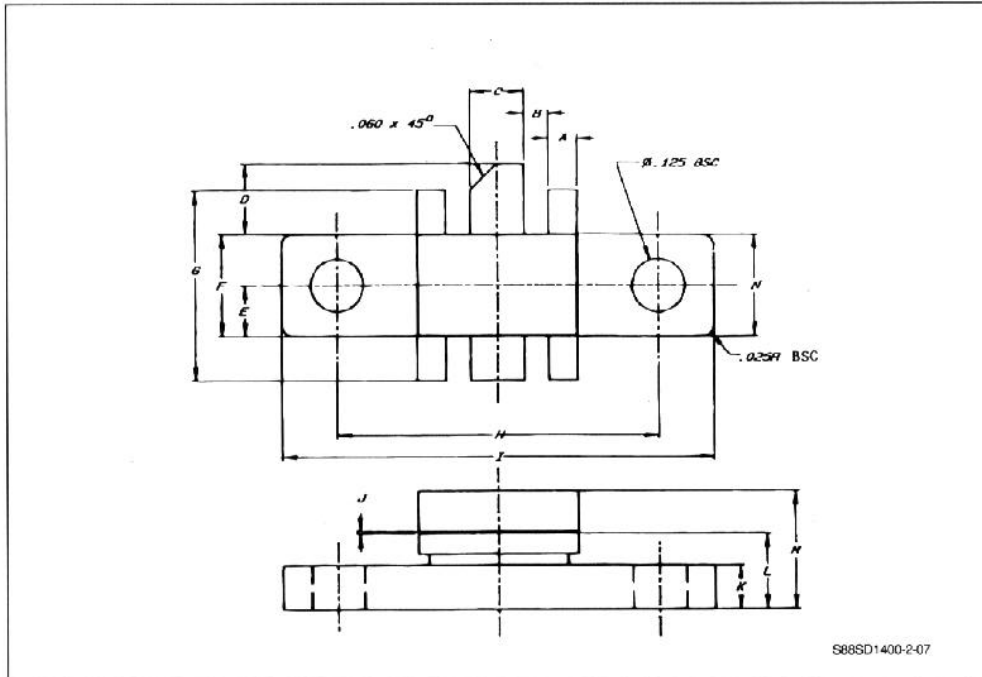
- C1 = 5pF Unelco
- C2 = 12pF ATC 100mils Chip Capacitor
- C3 = 12pF ATC 100mils Chip Capacitor
- C4 = 18pF ATC 100mils Chip Capacitor
- C5 = 0.6pF ATC 100mils Chip Capacitor
- C6 = 0.1μF Disc

- C7 = 1.000pF Unelco
- C8 = 47μF 63V Electrolytic
- L1 = .15mH Molded Choke
- L2 = #24 AWG insulated 12 turns with .090" diameter
- L3 = #22 Enamel with 2 turns in a Ferrocube Bead (ferrite) #56-590-65/38

Board Material : Glass Teflon 1/32" thick #3M K-6098

PACKAGE MECHANICAL DATA

.230 6LFL



S88SD1400-2-07

	Minimum Inches/mm	Maximum Inches/mm
A	.060/1.52	.070/1.78
B	.055/1.40 BSC	
C	.115/2.92	.125/3.18
D	.160/4.06 BSC	
E	.115/2.92 BSC	
F	.225/5.72	.235/5.97
G	.415/10.54	.4345/11.30

	Minimum Inches/mm	Maximum Inches/mm
H	.720/18.29	.730/18.52
I	.970/24.64	.980/24.89
J	.003/0.08	.007/0.18
K	.120/3.05	.130/3.30
L	.160/4.32	.180/4.57
M		.280/7.11
N	.225/5.72	.235/5.97