

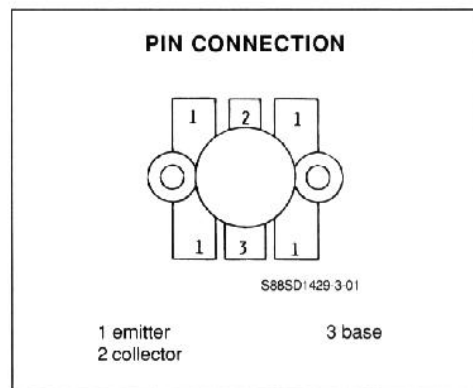
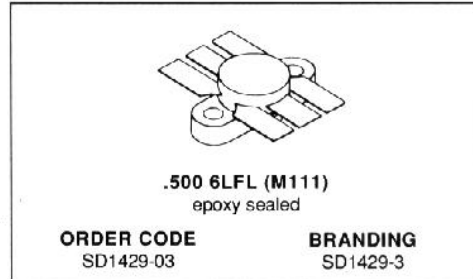


140 Commerce Drive  
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**SD1429-3**

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

- CLASS C TRANSISTOR
- FREQUENCY 470MHz
- VOLTAGE 12.5V
- POWER OUT 15.0W
- POWER GAIN 7.5dB
- COMMON EMITTER



**DESCRIPTION**

The type SD1429-3 is a 12.5V epitaxial silicon NPN planar transistor designed primarily for UHF communications. It withstands infinite 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	V
$I_C$	Collector Current	3.4	A
$P_{tot}$	Total Power Dissipation	37.5	W
$T_{stg}$	Storage Temperature	- 65 to + 150	$^{\circ}C$
$T_j$	Junction Temperature	+ 200	$^{\circ}C$

**THERMAL DATA**

$R_{th(j-c)}$	Junction-case Thermal Resistance	4.6	$^{\circ}C/W$
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February 1989

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**SD1429-3**

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

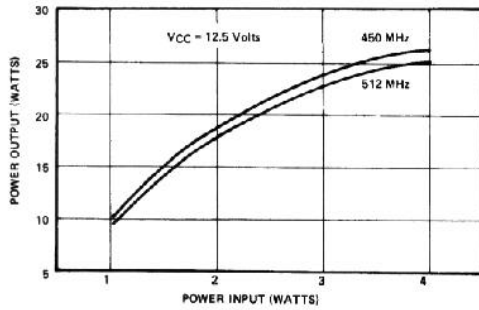
**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CES}$	$I_C = 50mA$	$V_{BE} = 0$	36.0			V
$BV_{CEO}$	$I_F = 50mA$	$I_B = 0$	16.0			V
$BV_{EBO}$	$I_E = 10mA$	$I_C = 0$	4.0			V
$I_{CES}$	$V_{CE} = 15V$	$V_{BE} = 0$			5.0	mA
$h_{FE}$	$V_{CE} = 5.0V$	$I_C = 500A$	20.0			

**DYNAMIC**

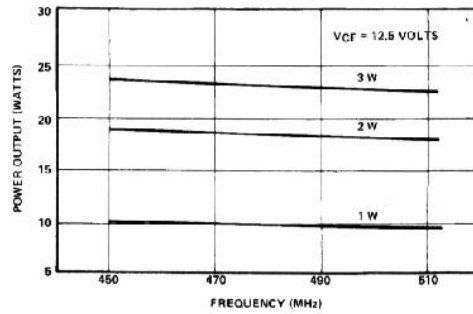
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$P_O$	$f = 470MHz$	$V_{CE} = 12.5V$	15.0			W
$G_P$	$f = 470MHz$	$V_{CE} = 12.5V$	7.5			dB
$C_{Ob}$	$f = 1MHz$	$V_{CB} = 12.0V$			50.0	pF

**APPLICATION INFORMATION** (typical curves)



**POWER OUTPUT VS POWER INPUT**

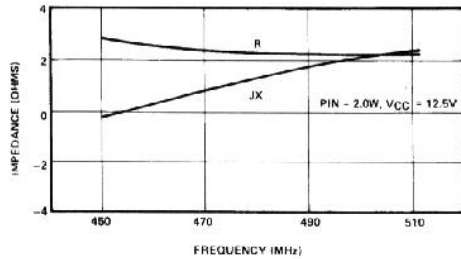
S88SD1429-3-02



**POWER OUTPUT VS FREQUENCY**

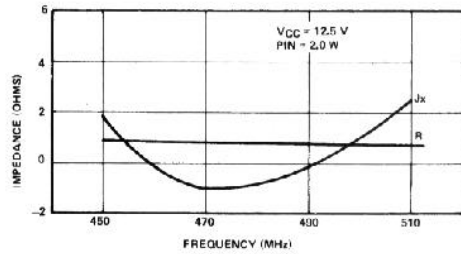
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**IMPEDANCE INFORMATION**



COLLECTOR LOAD IMPEDANCE VS FREQUENCY

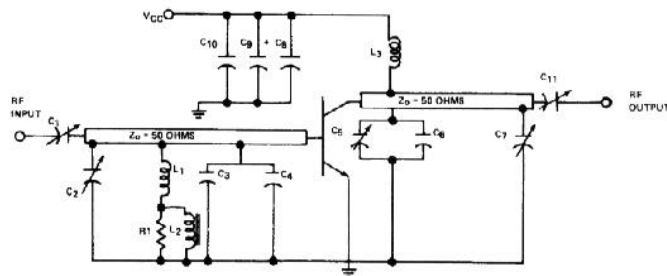
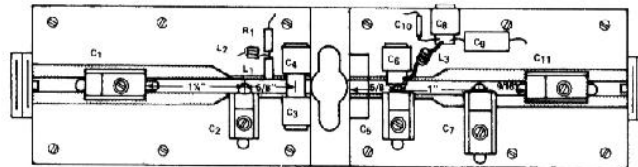
S88SD1429-3-04



SOURCE IMPEDANCE VS FREQUENCY

S88SD1429-3-05

**TEST CIRCUIT**



S88SD1429-3-06

**COMPONENT LIST**

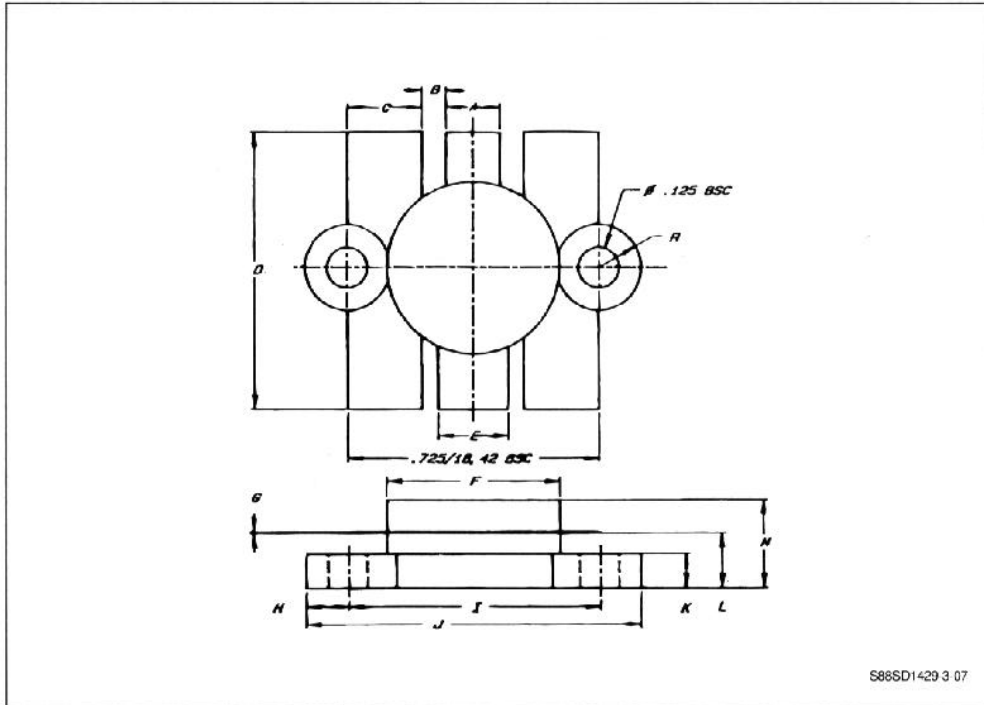
- C1, C11 4-40pF, ARCO 422
- C2, 0.9-7pF, ARCO400
- C3, C4, 20pF, UNELCO
- C5, 1.5-20pF, ARCO
- C6, 15pF, UNELCO
- C7, 2-25pF, ARCO421
- C8, 1000pF, UNELCO
- C9, 10 $\mu$ F, ELECTROLYTIC, 3EVD

- C10, 0.47 $\mu$ F, ERIE RED CAP
- L1, 0.10 $\mu$ H, MOLDED CHOKE
- L2, 6 TURNS #28 AWG THRU FERROCUBE SLEEVE #3B1
- L3, 6 TURNS, #20AWG, 0.20ID
- R1, 56 $\Omega$ , 1/4 WATT
- Z<sub>0</sub>, 50 $\Omega$  LINE
- BOARD MATERIAL - DOUBLE SIDED
- COPPER 1/16" THK, 3M-K-6098
- MOUNTED ON 3/8" BRASS PLATES

**SD1429-3**

**PACKAGE MECHANICAL DATA**

.500 6LFL



588SD1429-3-07

	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