

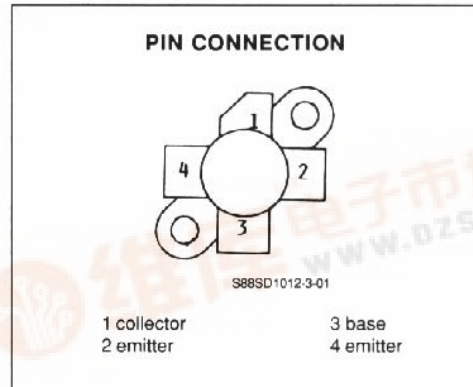
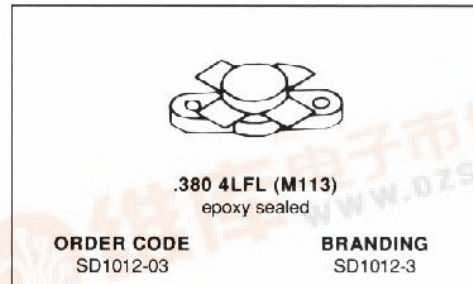


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SD1012-3

RF & MICROWAVE TRANSISTORS
130 ... 230MHz FM MOBILE APPLICATIONS

- FM CLASS C TRANSISTOR
- FREQUENCY 175MHz
- VOLTAGE 12.5V
- POWER OUT 6W
- POWER GAIN 9dB
- EFFICIENCY 50%
- COMMON EMITTER



DESCRIPTION

The SD1012-3 is a 12.5V epitaxial silicon NPN planar transistor designed primarily for VHF communications. This device utilizes a nichrome aluminium metallization system to achieve very high VSWR under severe 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	18.0	V
V_{CES}	Collector - Emitter Voltage	36.0	V
V_{EBO}	Emitter - Base Voltage	4.0	V
I_C	Collector Current	1.8	A
P_{tot}	Total Power Dissipation	20.0	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	8.75	$^{\circ}C/W$
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March 1989

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SD1012-3

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

STATIC

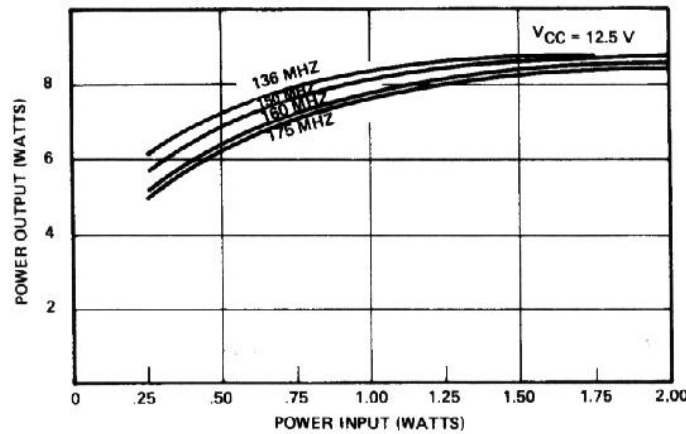
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CES}	$I_C = 5mA$	$V_{BE} = 0$	36.0			V
BV_{CEO}	$I_C = 10mA$	$I_B = 0$	18.0			V
BV_{EBO}	$I_E = 1mA$	$I_C = 0$	4.0			V
I_{CBO}	$V_{CB} = 15.0V$	$I_E = 0$			1.0	mA
h_{FE}	$V_{CE} = 5.0V$	$I_C = .25A$	5.0			

DYNAMIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
P_O	$f = 175MHz$	$V_{CE} = 12.5V$	6.0			W
G_P	$f = 175MHz$	$V_{CE} = 12.5V$	9.0			dB
η_C	$f = 175MHz$	$V_{CC} = 12.5V$	50			%
C_{OB}	$f = 1MHz$	$V_{CB} = 15.0V$ $I_E = 0$			20.0	pF

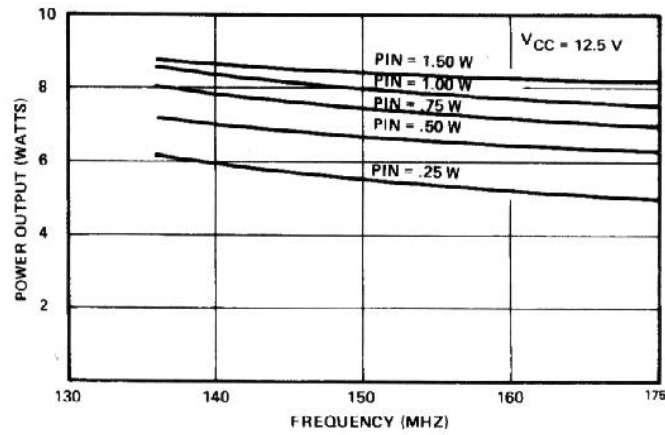
APPLICATION INFORMATION (typical curves)

POWER OUTPUT VS. POWER INPUT.



S88SD1012-3-02

POWER OUTPUT VS. FREQUENCY.

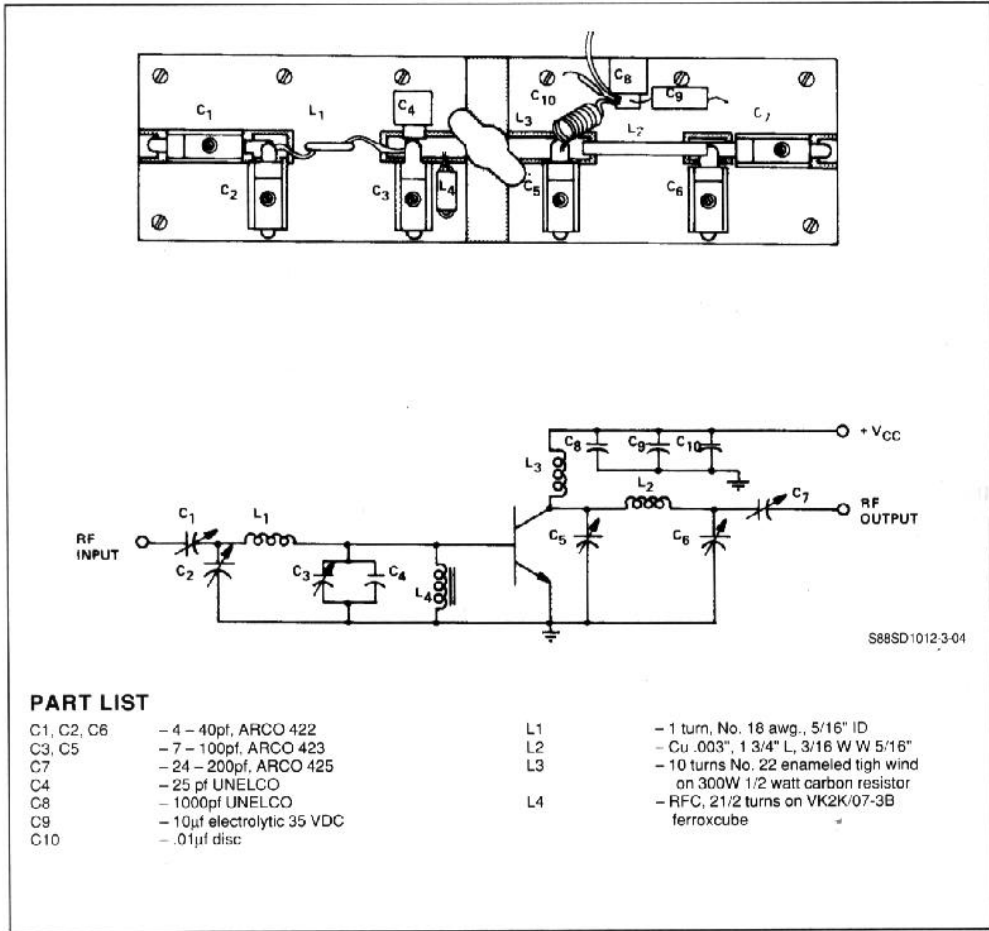


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IMPEDANCE VS. FREQUENCY

V _{CC}	P _{IN} (W)	P _{OUT} (W)	f _o (MHz)	Z _{SOURCE}	Z _{LOAD}
12.5V	1.0	8.10	150.	4.90 + J 3.46Ω	11.4 + J 4.56Ω
12.5V	1.0	7.70	175.	4.32 + J 3.04Ω	13.0 + J 7.81Ω

TEST CIRCUIT



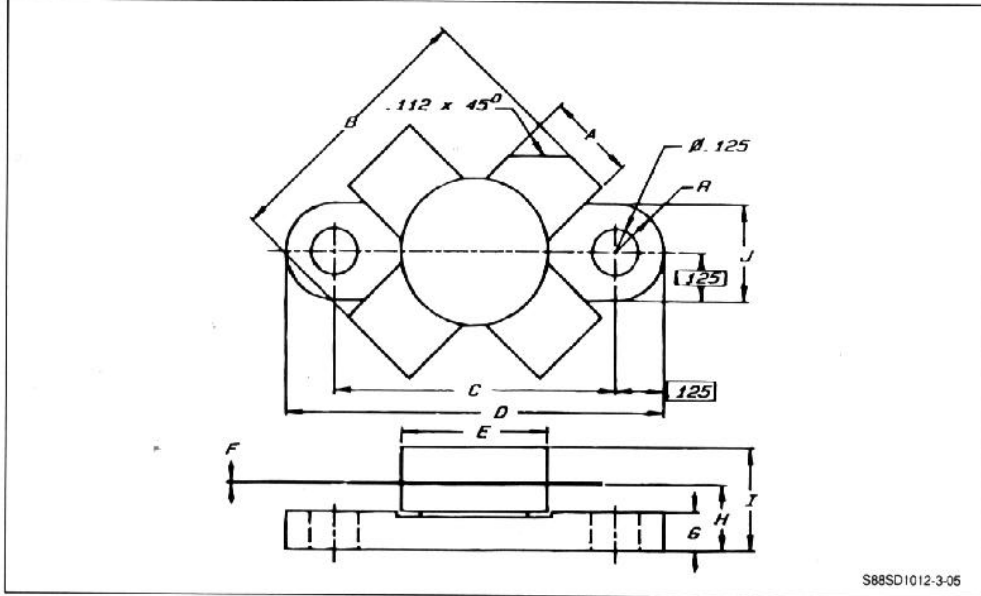
S88SD1012.3-04

PART LIST

C1, C2, C6	- 4 - 40pf, ARCO 422	L1	- 1 turn, No. 18 awg., 5/16" ID
C3, C5	- 7 - 100pf, ARCO 423	L2	- Cu .003", 1 3/4" L, 3/16 W W 5/16"
C7	- 24 - 200pf, ARCO 425	L3	- 10 turns No. 22 enameled tigh wind on 300W 1/2 watt carbon resistor
C4	- 25 pf UNELCO	L4	- RFC, 21 1/2 turns on VK2K/07-3B ferroxcube
C8	- 1000pf UNELCO		
C9	- 10uf electrolytic 35 VDC		
C10	- .01uf disc		

PACKAGE MECHANICAL DATA

.380 4LFL



S88SD1012-3-05

	Minimum Inches/mm	Maximum Inches/mm
A	.220/5.59	.230/5.84
B	.785/19.94	
C	.720/18.29	.730/18.54
D	.970/24.64	.980/24.89
E		.385/9.78
F	.004/0.10	.006/0.15
G	.085/2.16	.105/2.67
H	.160/4.06	.180/4.57
I		.280/7.11
J	.240/6.10	.255/6.48