RF Products
Microsemi
Progress Powered by Technology
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SD1013

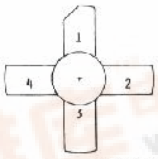
RF & MICROWAVE TRANSISTORS 108-152MHz APPLICATIONS

- FM CLASS C TRANSISTOR
- FREQUENCY 150MHz
- VOLTAGE 28V
- POWER OUT 10W
- POWER GAIN 10dB
- EFFICIENCY 55%TYP
- COMMON EMITTER

.380 4L STUD (M135)
epoxy sealed

ORDER CODE	BRANDING
SD1013	SD1013

PIN CONNECTION



S88SD1013-01

1 collector
2 emitter
3 base
4 emitter

DESCRIPTION

The SD1013 is a 28V epitaxial silicon NPN planar transistor designed for 108-152 MHz FM applications.
This device utilizes diffused emitter resistors to achieve infinite VSWR at rated operating conditions.

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector - Base Voltage	65.0	V
V_{CEO}	Collector - Emitter Voltage	35.0	V
V_{CES}	Collector - Emitter Voltage	65.0	V
V_{EBO}	Emitter - Base Voltage	4.0	V
I_C	Collector Current	1.0	A
P_{tot}	Total Power Dissipation	13.0	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	13.5	°C/W

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 20mA	I_E = 0	65.0			V
BV_{CES}	I_C = 200mA	V_{BE} = 0	65.0			V
BV_{CEO}	I_C = 200mA	I_B = 0	35.0			V
BV_{EBO}	I_E = 10.0mA	I_C = 0	4.0			V
I_{CBO}	V_{CB} = 30.0V	I_E = 0			1.0	mA
h_{FE}	V_{CE} = 5.0V	I_C = 200mA	5.0			

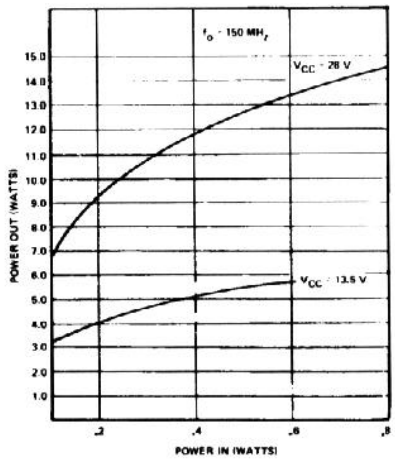
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_O	f = 150MHz	V_{CC} = 28.0V		10.0			W
G_P	f = 150MHz	V_{CC} = 28.0V		10.0			dB
C_{ob}	f = 1MHz	V_{CB} = 30.0V	I_E = 0			15	pF

When used at 13.5Volts performances are :
P_{OUT} = 3.5Watt typical.
G_P = 10.5dB typical.

APPLICATION INFORMATION (typical curves)

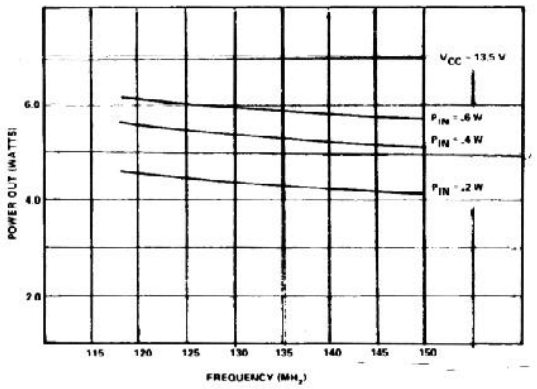
POWER OUT VS POWER IN



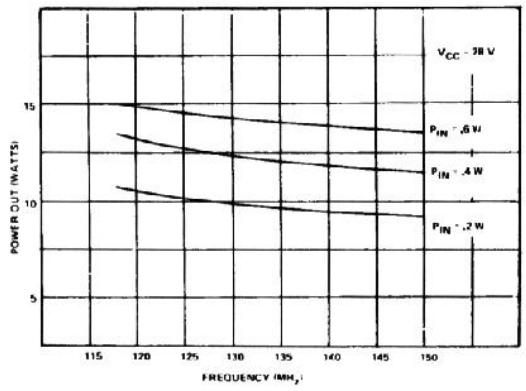
S88-SD1013-02

APPLICATION INFORMATION (typical curves)

POWER OUT VS FREQUENCY (13.5V, 28V)



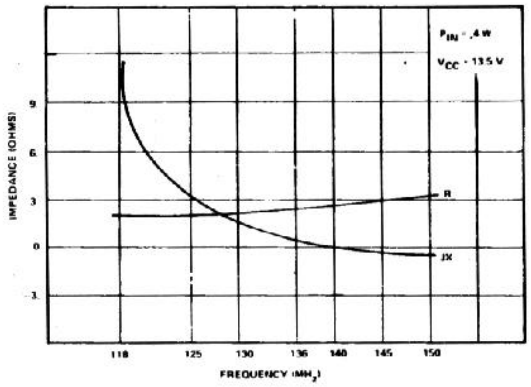
S88-SD1013-03



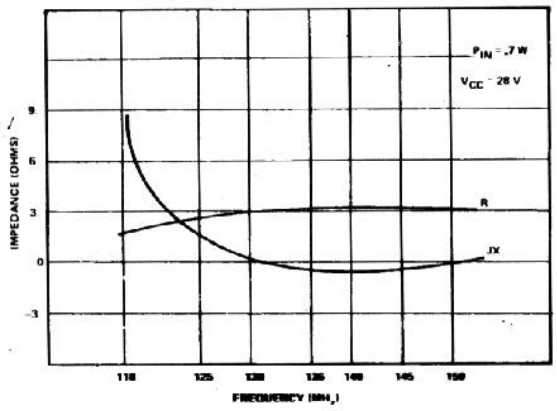
S88-SD1013-04

IMPEDANCES DATAS (typical)

SERIES SOURCE IMPEDANCE VS FREQUENCY (13.5V, 28V)



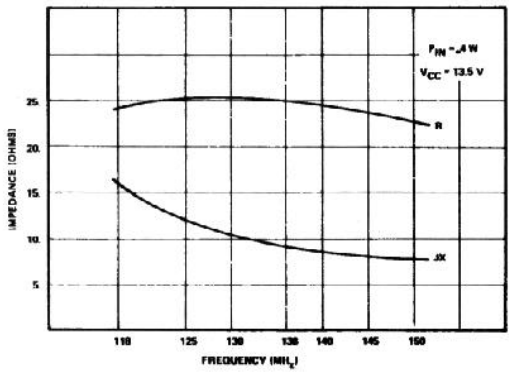
S88-SD1013-05



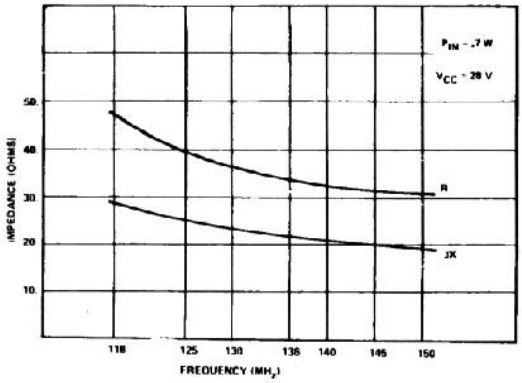
S88-SD1013-06

IMPEDANCES DATAS (typical)(continued)

SERIES COLLECTOR LOAD IMPEDANCE VS FREQUENCY (13.5V, 28V)

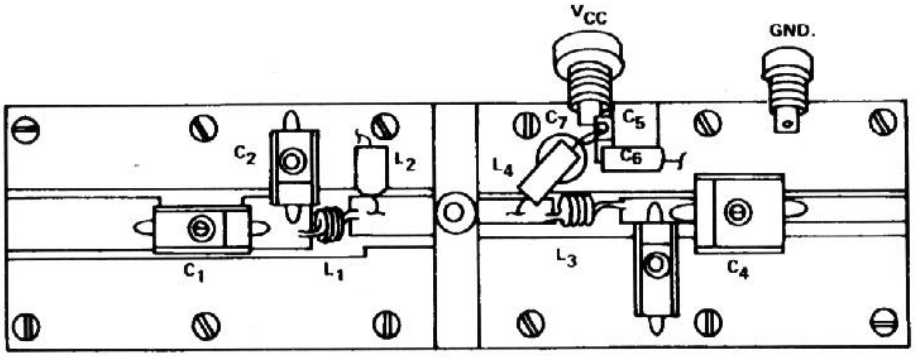


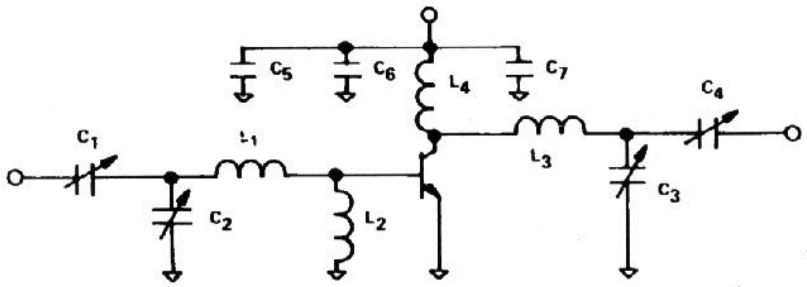
S88-SD1013-07



S88-SD1013-08

TEST FIXTURE



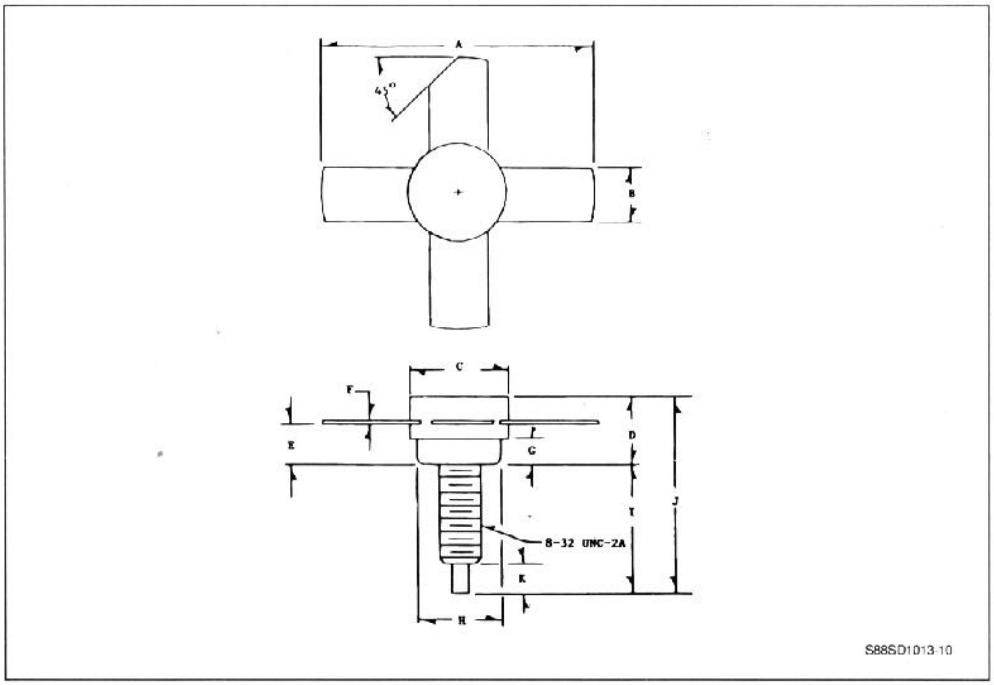


S88-SD1013-09

C_1, C_2	ARCO 422	C_7	.01pf CERAMIC DISC
C_3	ARCO 421	L_1	3T #22, 1/8 ID
C_4	ARCO 464	L_2	RFC FERROXCUBE
C_5	1000pf UNELCO	L_3	3T #18, 1/4 ID
C_6	10µf, ELECTROLYTIC 35V	L_4	.47µh MOLDED CHOKE.

PACKAGE MECHANICAL DATA

. 380 4L STUD



	Minimum Inches	Maximum Inches
A	.980	
B	.220	.230
C	.370	.385
D		.275
E	.155	.175
F	.004	.007

	Minimum Inches	Maximum Inches
G	.090	.100
H	.320	.330
I	.450	.490
J		.750
K	.100	.130