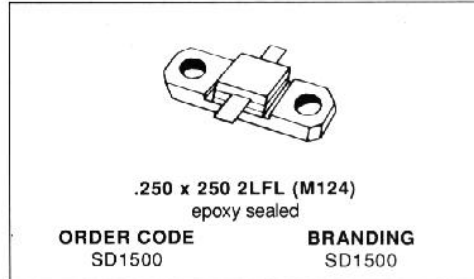


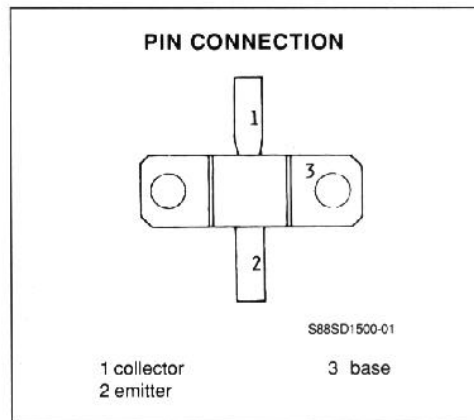
**RF & MICROWAVE TRANSISTORS
L BAND RADAR APPLICATIONS**

- DESIGNED FOR USE IN LONG PULSE L-BAND APPLICATIONS LIKE RADAR, JTIDS, ETC.
- EXTREMELY RUGGED
- THERMALLY STABLE
- GOLD METALLIZATION
- CAPABLE OF OPERATION AT GREATER THAN 500 μ s AND 20%
- STRIPLINE FLANGE PACKAGE



DESCRIPTION

The SD1500 is a gold metallized silicon NPN Planar Pulsed Transistor that has been designed for use in extended pulse width and duty cycle applications from 1200 to 1400MHz. This device is extremely rugged, thermally stable, and is capable of operation at pulse widths in excess of 500 μ s and duty cycles greater than 20%.



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

Symbol	Parameter	Value	Unit
V _{CBO}	Collector - Base Voltage	65.0	V
V _{CEO}	Collector - Emitter Voltage	30.0	V
V _{EBO}	Emitter - Base Voltage	4.0	V
I _C	Collector Current (max.)	2.0	A
P _{TOT}	Total Device Dissipation at + 25°C	53.0	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	3.3	°C/W
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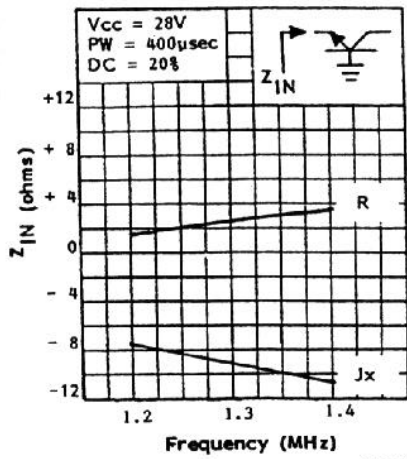
SD1500**ELECTRICAL CHARACTERISTICS** ($T_{\text{case}} = 25^{\circ}\text{C}$)**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CEO}	$I_{\text{C}} = 10\text{mA}$	$I_{\text{B}} = 0$	30.0			V
BV_{CES}	$I_{\text{C}} = 25\text{mA}$	$V_{\text{BE}} = 0$	65.0			V
BV_{EBO}	$I_{\text{E}} = 10\text{mA}$	$I_{\text{C}} = 0$	4.0			V
I_{CEO}	$V_{\text{CB}} = 28.0\text{V}$	$I_{\text{E}} = 0$			5.0	mA
h_{FE}	$V_{\text{CE}} = 5.0\text{V}$	$I_{\text{C}} = 100.0\text{mA}$	20.0			

DYNAMIC

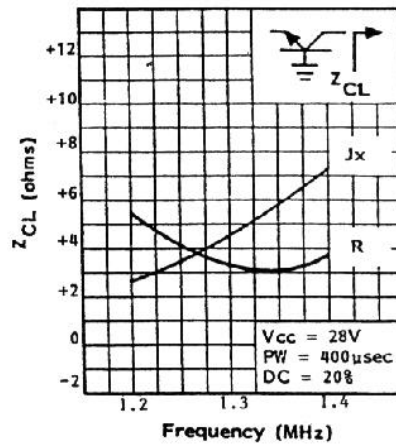
Symbol	Test Conditions				Value			Unit
					Min.	Typ.	Max.	
P_{O}	$f = 1400\text{MHz}$	$V_{\text{CE}} = 28\text{V}$	$\text{PW} = 400\mu\text{s}$	$\text{DC} = 20\%$	5.0			W
P_{G}	$f = 1400\text{MHz}$	$V_{\text{CE}} = 28\text{V}$	$\text{PW} = 400\mu\text{s}$	$\text{DC} = 20\%$	7.0			dB
Z_{in}	$f = 1400\text{MHz}$	$V_{\text{CE}} = 28\text{V}$	$P_{\text{in}} = 1.0\text{W}$			3.7-j10.6		Ω
Z_{cl}	$f = 1400\text{MHz}$	$V_{\text{CE}} = 28.0\text{V}$	$P_{\text{in}} = 1.0\text{W}$			3.5+j7.3		Ω

TYPICAL INPUT IMPEDANCE vs. FREQUENCY



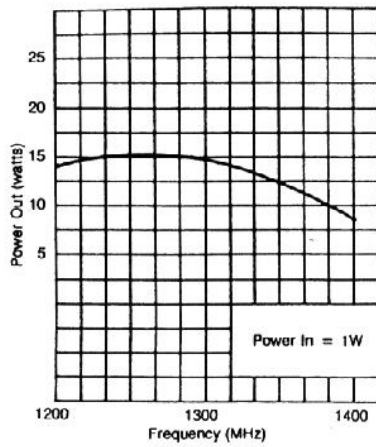
S88SD1500-02

TYPICAL COLLECTOR LOAD IMPEDANCE vs. FREQUENCY



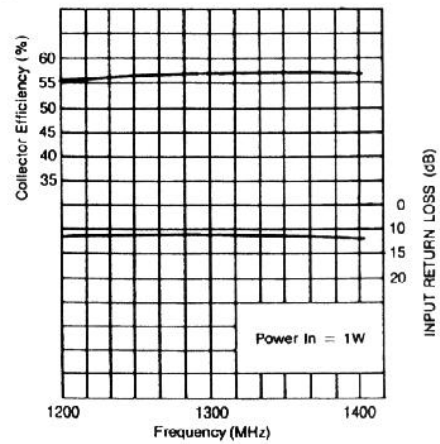
S88SD1500-03

TYPICAL POWER OUTPUT vs. FREQUENCY



S88SD1500-04

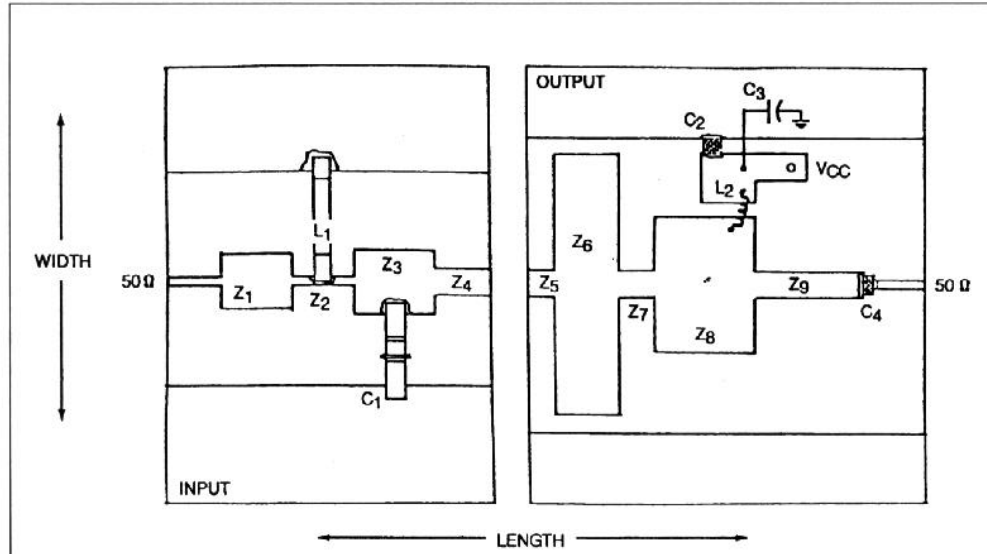
TYPICAL COLLECTOR EFFICIENCY INPUT RETURN LOSS vs. FREQUENCY



S88SD1500-05

SD1500

TEST FIXTURE

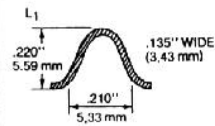


S88SD1500-06

BOARD MATERIAL : 3-M E₆ E_r = 6
THK : 0.030" (0.762 mm)

Line	Length		Width	
	Inches	mm	Inches	mm
Z ₁	0.514	13.06	0.270	6.86
Z ₂	0.399	10.14	0.038	0.97
Z ₃	0.504	12.80	0.320	8.13
Z ₄	0.525	13.34	0.120	3.05
Z ₅	0.194	4.93	0.153	3.89
Z ₆	0.500	12.70	1.168	29.67
Z ₇	0.200	5.08	0.153	3.89
Z ₈	0.500	12.70	0.490	12.45
Z ₉	0.680	17.27	0.153	3.89

C₁ = 0.8 - 8pF GIGA-TRIM
C₂ = 820pF AJC
C₃ = 1000μF
C₄ = 120pF AJC

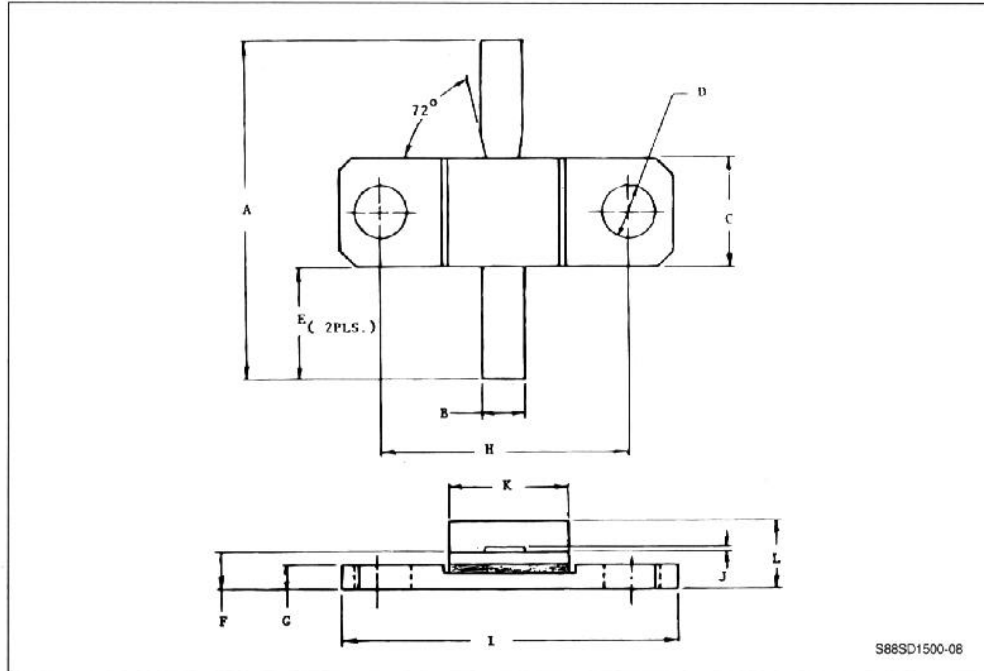


L₂ 4 1/2 turns @ 24 WIRE

S88SD1500-07

PACKAGE MECHANICAL DATA

.250 x .250 2LFL



	Minimum Inches/mm	Maximum Inches/mm
A	.750/19.05	
B	.095/2.41	.105/2.67
C	.245/6.22	.255/6.48
D	.120/3.05	.130/3.30
E	.350/8.89	
F	.075/1.91	.100/2.54

	Minimum Inches/mm	Maximum Inches/mm
G	.058/1.47	.064/1.63
H	.555/14.10	.570/14.48
I	.795/20.19	.805/20.45
J	.003/0.08	.006/0.15
K	.245/6.22	.255/6.48
L	.150/3.81	.160/4.06