RF Products
Microsemi
Progress Powered by Technology
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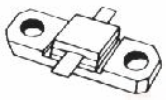
SD1512

RF & MICROWAVE TRANSISTORS MODE-S/JTIDS APPLICATIONS

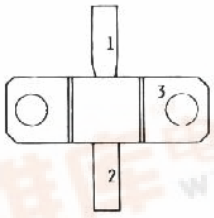
- DESIGNED FOR USE IN LONG PULSE L-BAND APPLICATIONS LIKE RADAR, JTIDS, ETC.
- EXTREMELY RUGGED
- THERMALLY STABLE
- GOLD METALLIZATION
- CAPABLE OF OPERATION AT400µs AND 20%
- STRIPLINE FLANGE PACKAGE



.250 x .250 2LFL (M124)
epoxy sealed

ORDER CODE	BRANDING
SD1512	SD1512

PIN CONNECTION



S88SD1512-01

1 collector
2 emitter
3 base

DESCRIPTION

The SD1512 is a gold metallized silicon NPN Planar Pulsed Transistor that has been designed for use in extended pulse width and duty cycle applications from 960 to 1220MHz. This device is extremely rugged, thermally stable, and is capable of operation at pulse widths of 400µs and a duty cycle of 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

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

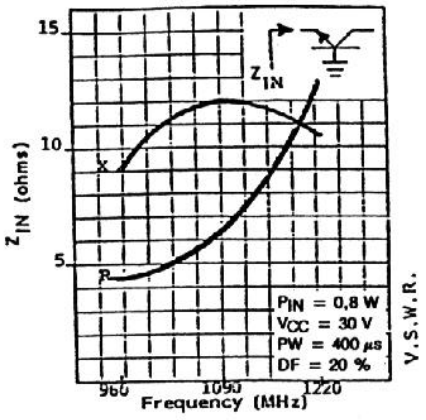
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CEO}	I_C = 10mA	I_B = 0	30.0			V
BV_{CES}	I_C = 25mA	V_{BE} = 0	65.0			V
BV_{EBO}	I_E = 10mA	I_C = 0	4.0			V
I_{CBO}	V_{CB} = 28.0V	I_E = 0			5.0	mA
h_{FE}	V_{CE} = 5.0V	I_C = 100.0mA	20.0			

DYNAMIC

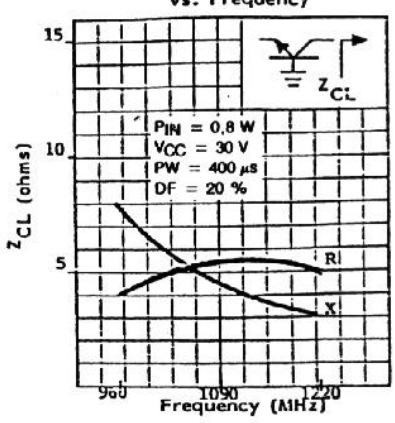
Symbol	Test Conditions				Value			Unit
					Min.	Typ.	Max.	
P_O	f = 960 to 1220MHz	V_{CE} = 30.0V	PW = 400µs	DC = 20%	5.0			W
P_G	f = 960 to 1220MHz	V_{CE} = 30.0V	PW = 400µs	DC = 20%	7.0			dB

Typical Input Impedance
vs. Frequency



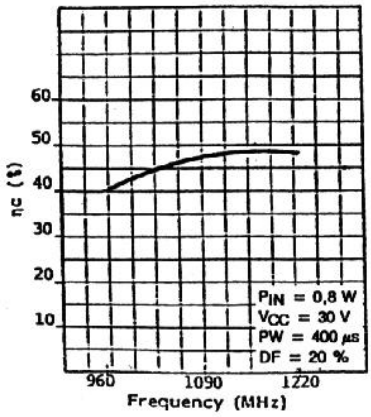
S88SD1512-02

Typical Collector Load Impedance
vs. Frequency



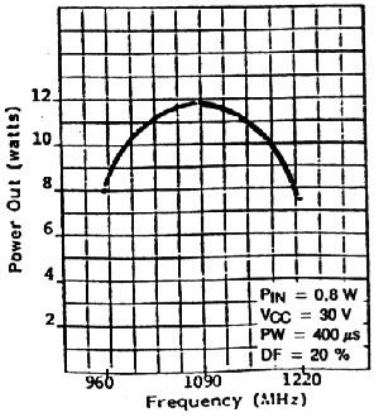
S88SD1512-03

Typical Collector Efficiency
vs. Frequency

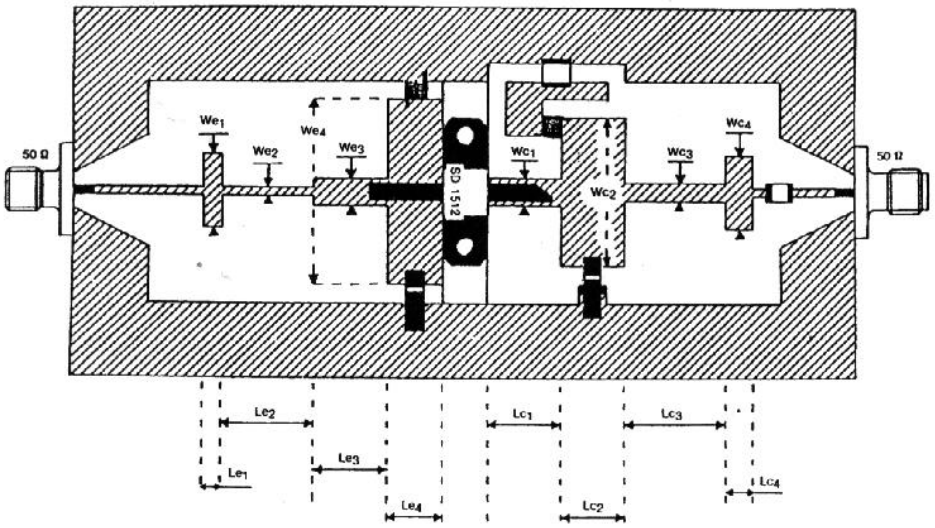


S88SD1512-04

Typical Output Power
vs. Frequency



S88SD1512-05



Bandwith : 960 – 1220MHz
Pulse width : 400µs
Duty factor : 20%

Power In : 1W
Power Out : 5W
Collector voltage : 30V

S88SD1512 06

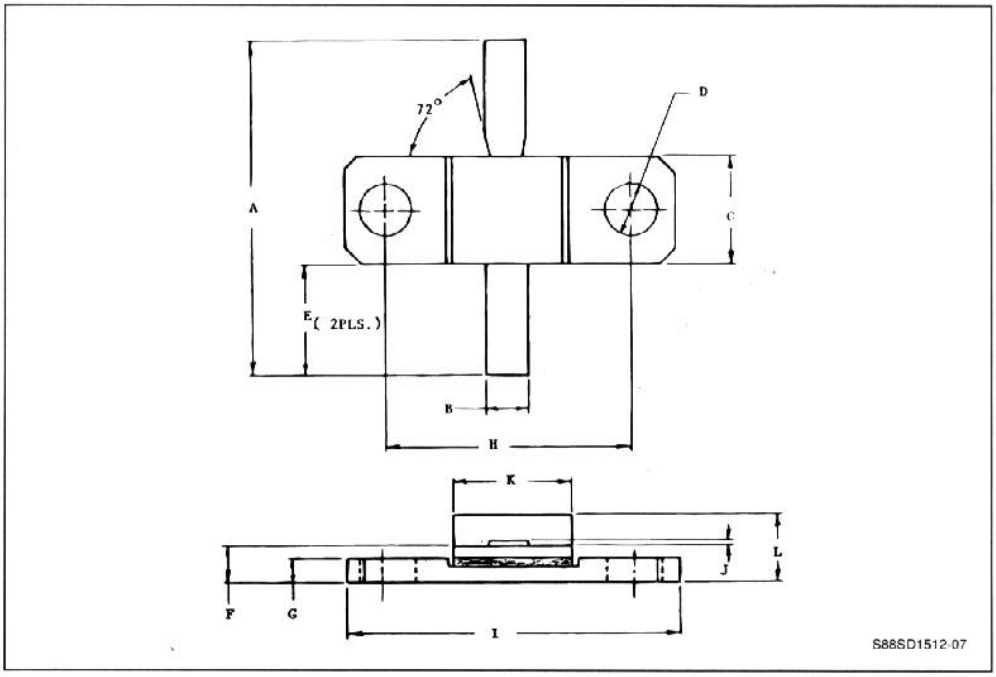
Substrate : Dielectric constant : 6
Dielectric thickness : 30mils (762µm)

Dielectric constant : 10.2
Dielectric thickness : 25mils (635µm)

	Line	Width		Length		Line	Width		Length	
		Mils	mm	Mils	mm		Mils	mm	Mils	mm
Input Circuit	L_1	395	10	100	2.5	L_1	245	6.2	80	2
	L_2	40	1	490	12.5	L_2	20	0.5	395	10
	L_3	120	3	395	10	L_3	70	1.8	315	8
	L_4	1 "	25.5	205	5.2	L_4	640	16.2	160	4
Output Circuit	L_1	155	4	415	10.5	L_1	100	2.5	330	8.5
	L_2	790	20	355	9	L_2	500	12.7	275	7
	L_3	80	2	550	14	L_3	45	1.1	435	11
	L_4	395	10	140	3.5	L_4	245	6.2	110	2.7

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