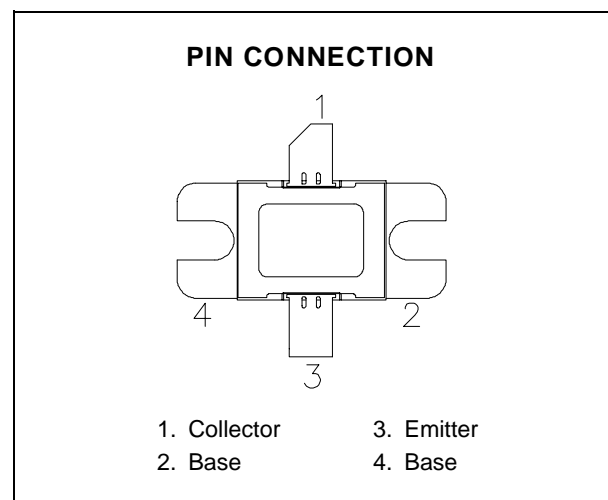
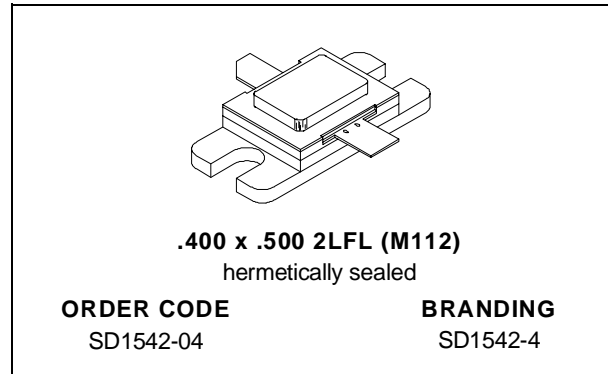


**RF & MICROWAVE TRANSISTORS
AVIONICS APPLICATIONS**

- DESIGNED FOR HIGH POWER PULSED IFF
- 600 WATTS (min.) IFF 1030/1090 MHz
- REFRACTORY GOLD METALLIZATION
- 6.0 dB MIN. GAIN
- BALLASTING AND LOW THERMAL REISTANCE FOR RELIABILITY AND RUGGEDNESS
- 30:1 LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT MATCHED, COMMON BASE CONFIGURATION

DESCRIPTION

The SD1542-04 is a hermetically sealed, gold metallized, silicon NPN power transistor. The SD1542-04 is designed for applications requiring high peak power and low duty cycles such as IFF. The SD1542-04 is packaged in a hermetic metal/ceramic package with internal input matching, resulting in improved broadband performance and low thermal reistance.


ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CES}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	40	A
P_{DISS}	Power Dissipation	1350	W
T_J	Junction Temperature	+200	$^{\circ}C$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}C$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.06	$^{\circ}C/W$
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SD1542-04

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CBO}	I _C = 25mA	I _E = 0mA	65	—	—	V
BV _{EBO}	I _E = 10mA	I _C = 0mA	3.5	—	—	V
I _{CES}	V _{CE} = 50V	I _E = 0mA	—	—	35	mA
h _{FE}	V _{CE} = 5V	I _C = 1A	5	—	200	—

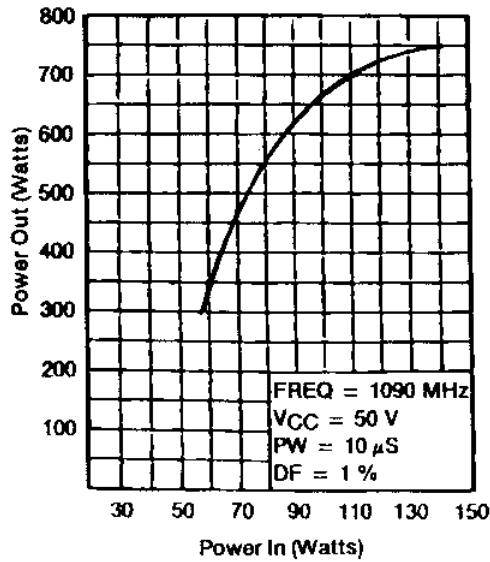
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 1090 MHz	P _{IN} = 150 W	V _{CE} = 50 V	600	—	—	W
G _P	f = 1090 MHz	P _{IN} = 150 W	V _{CE} = 50 V	6.0	—	—	dB

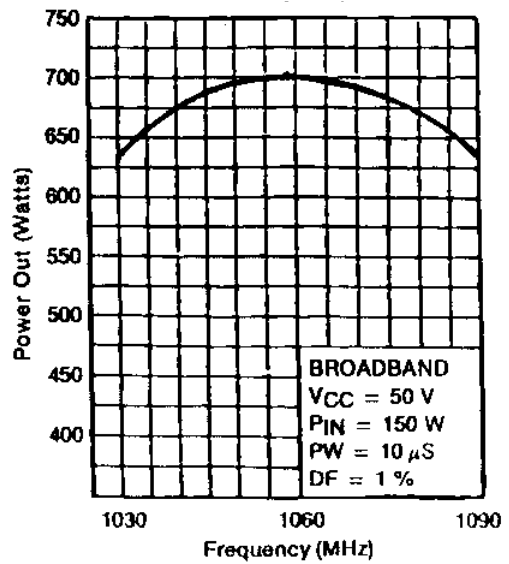
Note: Pulse Width = 10μSec, Duty Cycle = 1%

TYPICAL PERFORMANCE

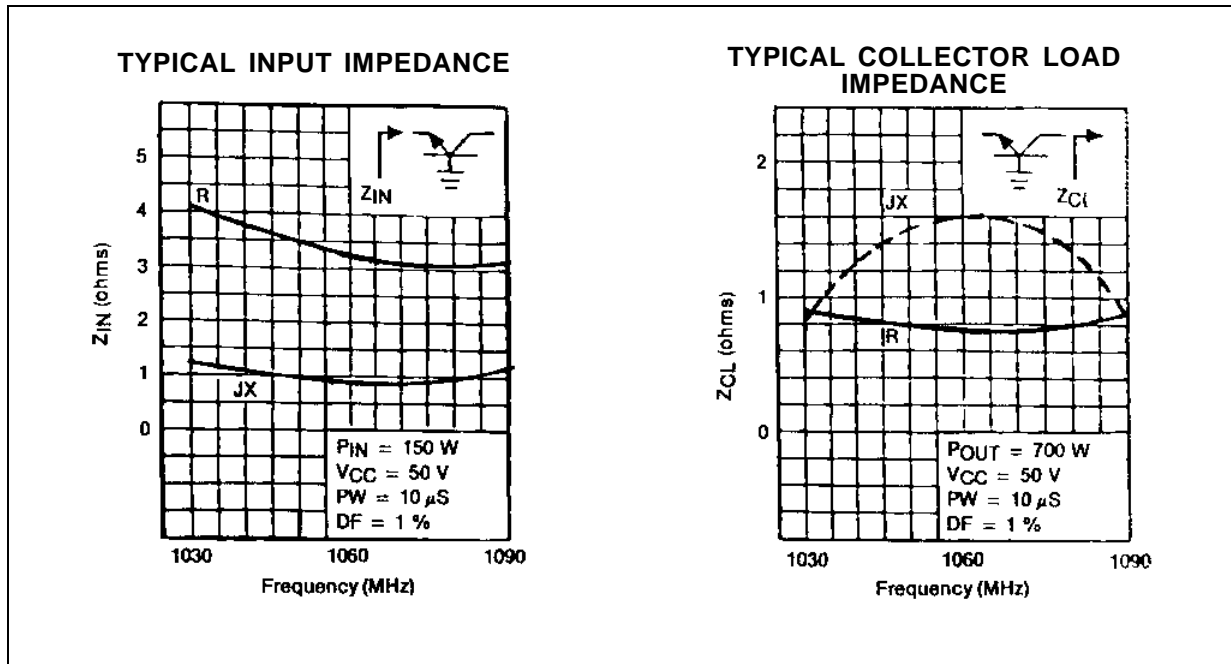
POWER OUTPUT vs POWER INPUT



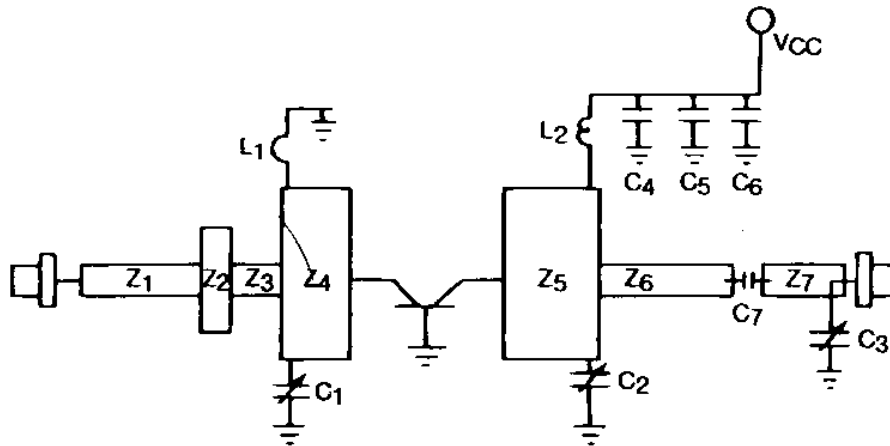
POWER OUTPUT vs FREQUENCY



IMPEDANCE DATA



TEST CIRCUIT



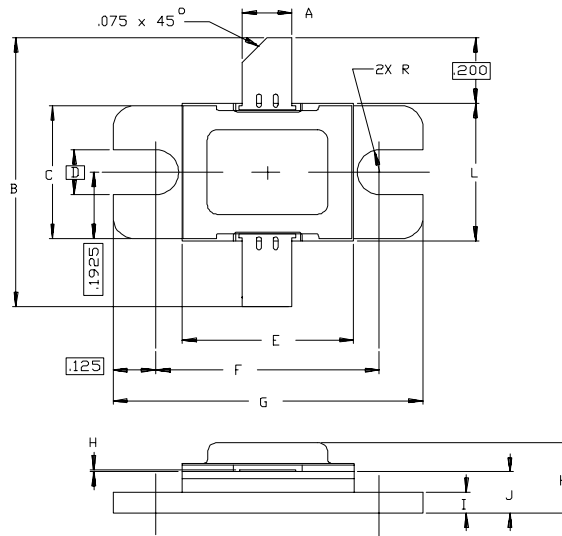
- | | | | |
|---------|-----------------------------------|---------------------|---------------------|
| C1, C2, | Z1 | : 510 mils x 20mils | |
| C3 | : .8 - 4.8pF Gigatrim | Z2 | : 120mils x 380mils |
| C4 | : 120pF Chip Capacitor | Z3 | : 210mils x 20mils |
| C5 | : 680pF Chip Capacitor | Z4 | : 270mils x 725mils |
| C6 | : 1000 μ F 63Vdc Electrolytic | Z5 | : 400mils x 720mils |
| C7 | : 56pF Chip Capacitor | Z6 | : 340mils x 20 mils |
| L1 | : 100mils Wide Brass Strip | Z7 | : 245mils x 20 mils |
| L2 | : #18 AWG Wire | | |

CIRCUIT BOARD LAYOUT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0112



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.145/3,68	.155/3,93
B	.750/19,05	
C	.380/9,65	.390/9,91
D	.130/3,30	
E	.495/12,57	.507/12,88
F	.640/16,26	.655/16,64
G	.890/22,61	.910/23,11
H	.002/0,05	.006/0,15
I	.055/1,40	.065/1,65
J	.115/2,92	.135/3,43
K		.230/5,84
L	.395/10,03	.407/10,34

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