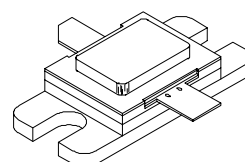


RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

- 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.

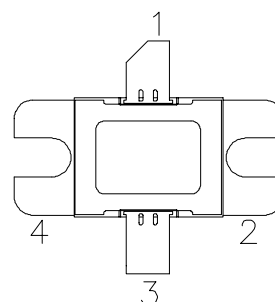


.400 x .500 2LFL (M112)
hermetically sealed

ORDER CODE
SD1542-04

BRANDING
SD1542-4

PIN CONNECTION



- | | |
|--------------|------------|
| 1. Collector | 3. Emitter |
| 2. Base | 4. Base |

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°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	°C
T _{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

R _{TH(j-c)}	Junction-Case Thermal Resistance	0.06	°C/W
----------------------	----------------------------------	------	------

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	—

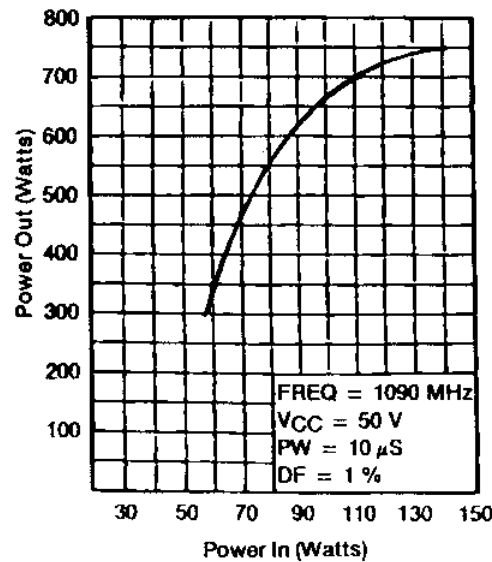
DYNAMIC

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

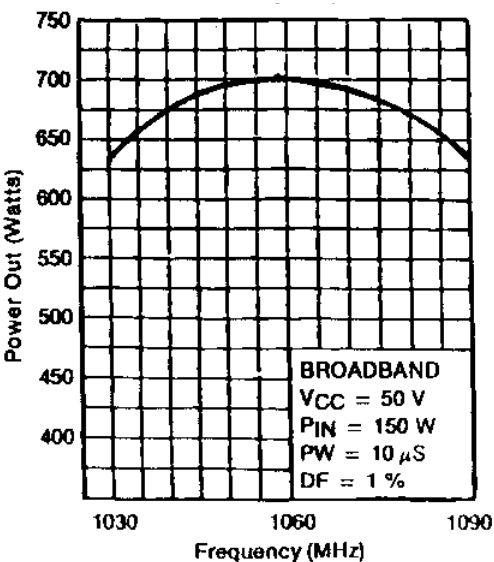
Note: Pulse Width = 10μSec, Duty Cyle = 1%

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

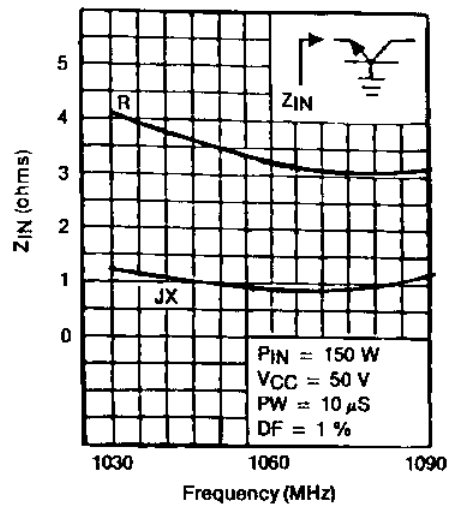


POWER OUTPUT vs FREQUENCY

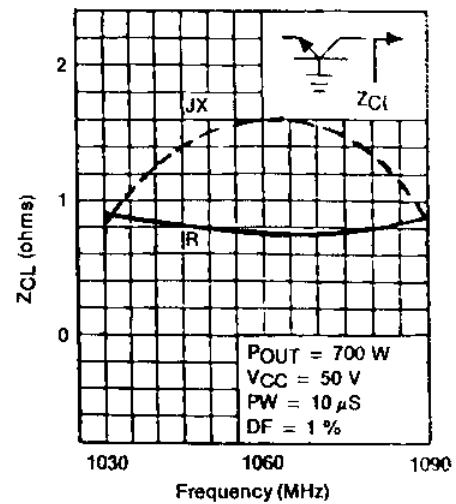


IMPEDANCE DATA

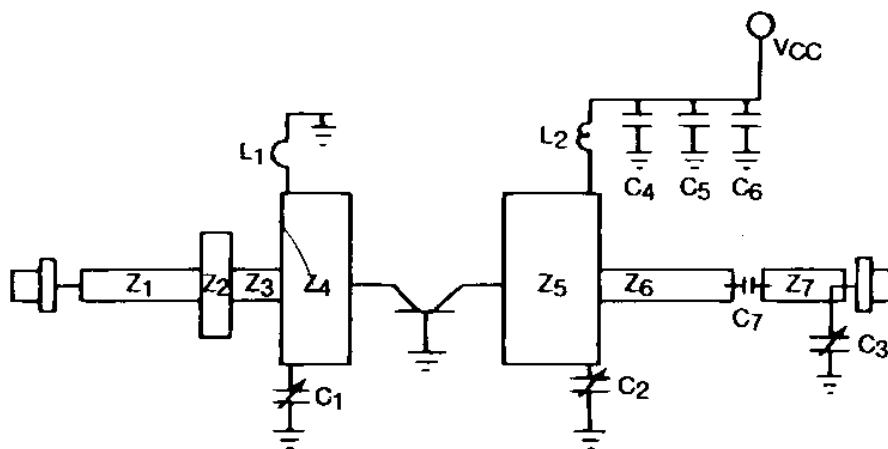
TYPICAL INPUT IMPEDANCE



TYPICAL COLLECTOR LOAD IMPEDANCE

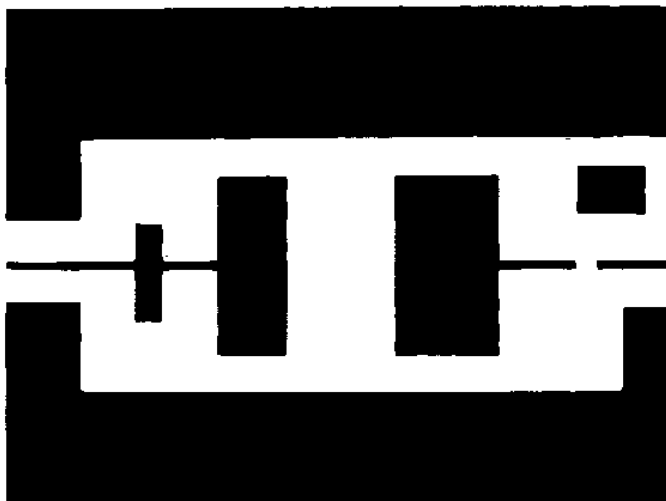


TEST CIRCUIT



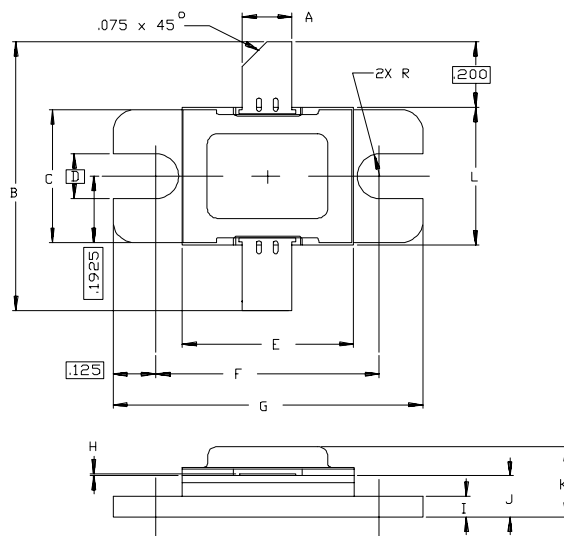
C1, C2,		Z1	: 510 mils x 20mils
C3	: .8 - 4.8pF Gigatrim	Z2	: 120mils x 380mils
C4	: 120pF Chip Capacitor	Z3	: 210mils x 20mils
C5	: 680pF Chip Capacitor	Z4	: 270mils x 725mils
C6	: 1000 μ F 63Vdc Electrolytic	Z5	: 400mils x 720mils
C7	: 56pF Chip Capacitor	Z6	: 340mils x 20 mils
L1	: 100mils Wide Brass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

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may results from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A