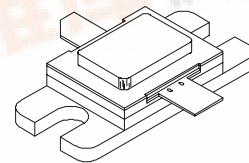


**SD1542-04**

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



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

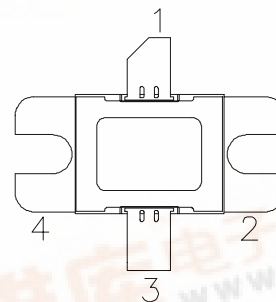
ORDER CODE
SD1542-04

BRANDING
SD1542-4

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.

PIN CONNECTION



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

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

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	—

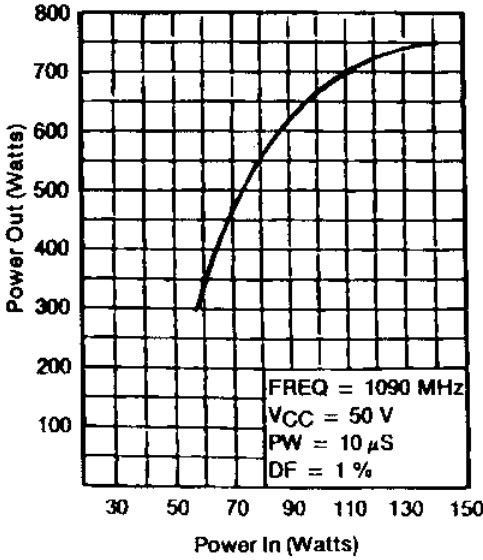
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1090\text{ MHz}$	$P_{IN} = 150\text{ W}$	$V_{CE} = 50\text{ V}$	600	—	—	W
G_P	$f = 1090\text{ MHz}$	$P_{IN} = 150\text{ W}$	$V_{CE} = 50\text{ V}$	6.0	—	—	dB

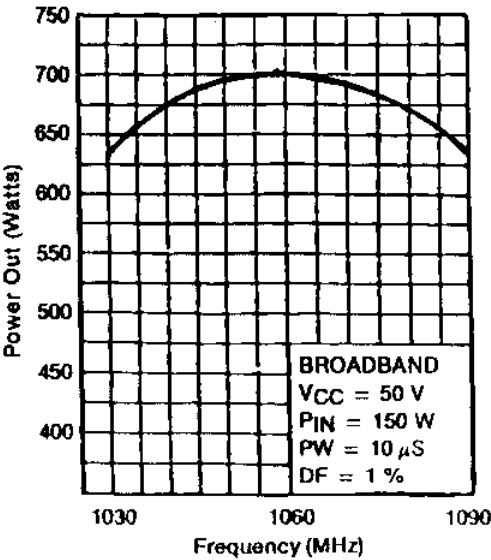
Note: Pulse Width = 10 μ Sec, Duty Cycle = 1%

TYPICAL PERFORMANCE

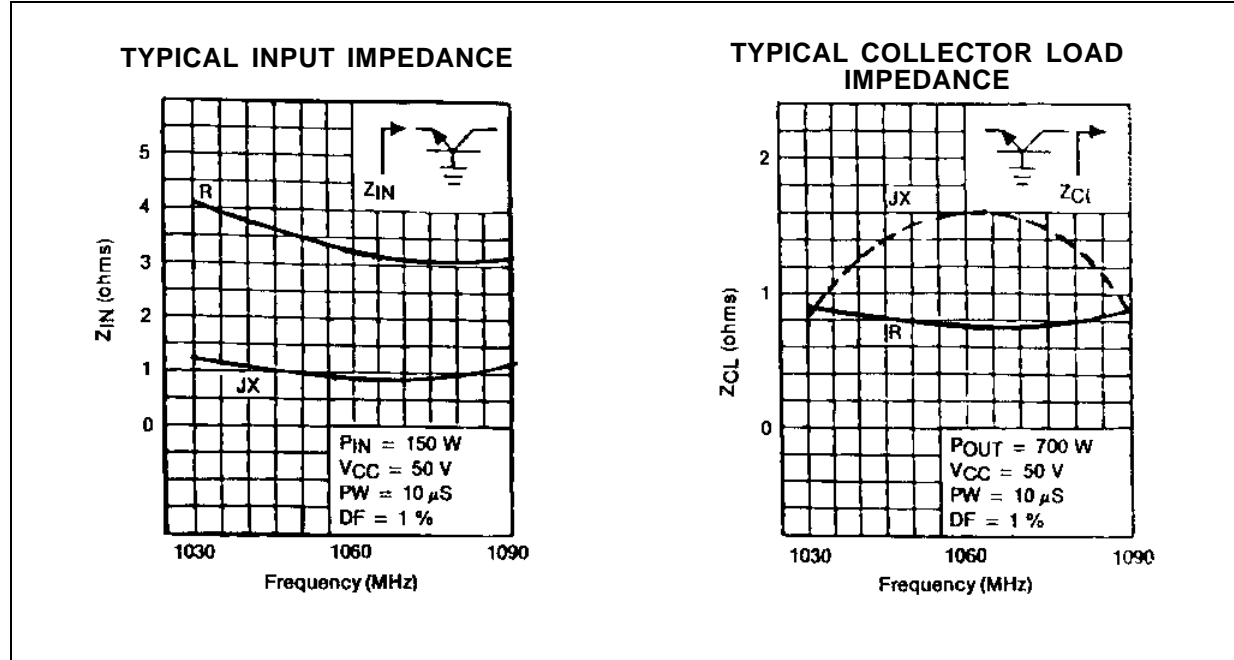
POWER OUTPUT vs POWER INPUT



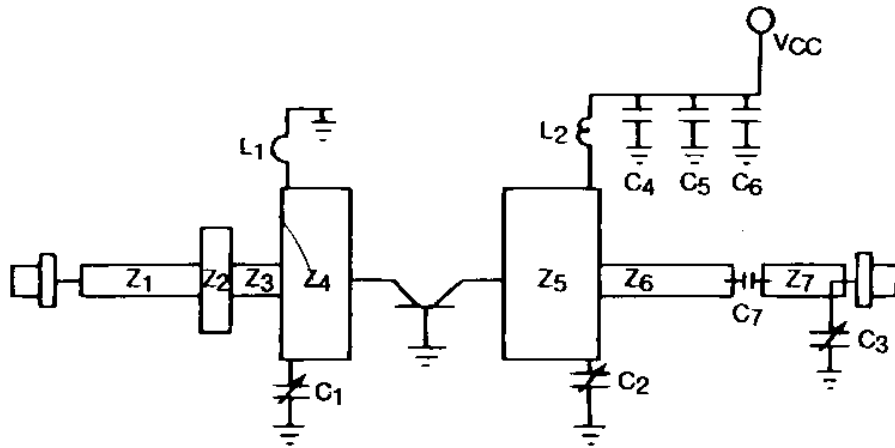
POWER OUTPUT vs FREQUENCY



IMPEDANCE DATA



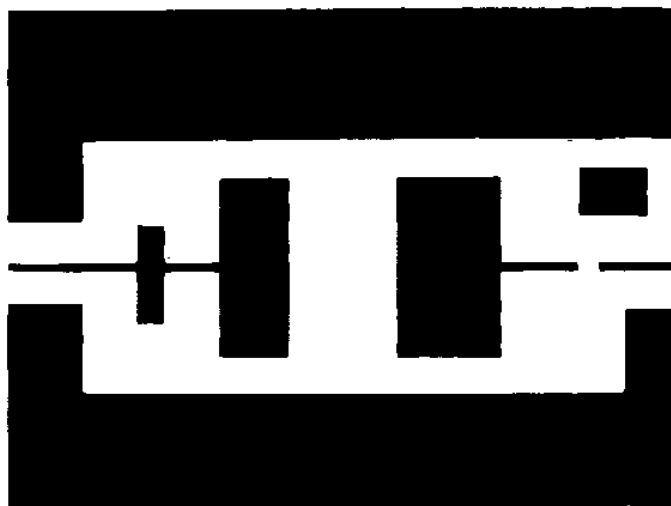
TEST CIRCUIT



C1, C2, : .8 - 4.8pF Gigatrim
 C3 : 120pF Chip Capacitor
 C4 : 120pF Chip Capacitor
 C5 : 680pF Chip Capacitor
 C6 : 1000 μ F 63Vdc Electrolytic
 C7 : 56pF Chip Capacitor
 L1 : 100mils Wide Brass Strip
 L2 : #18 AWG Wire

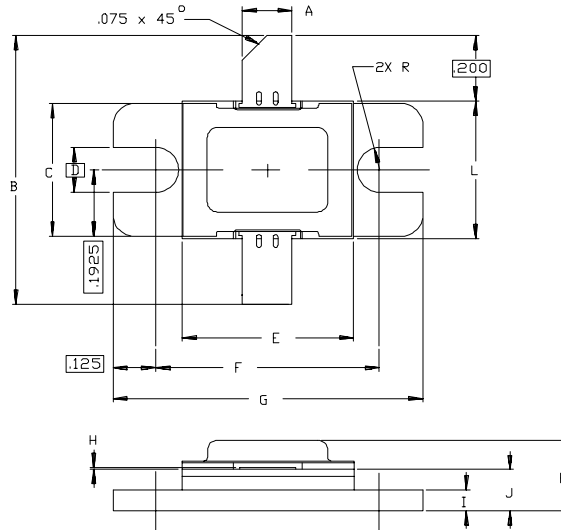
Z1 : 510 mils x 20mils
 Z2 : 120mils x 380mils
 Z3 : 210mils x 20mils
 Z4 : 270mils x 725mils
 Z5 : 400mils x 720mils
 Z6 : 340mils x 20 mils
 Z7 : 245mils x 20 mils

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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