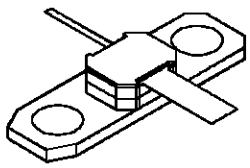
SGS-THOMSON MICROELECTRONICS

SD1530-08

RF & MICROWAVE TRANSISTORS AVIONICS APPLICATIONS

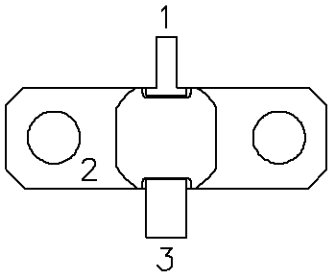
- DESIGNED FOR HIGH POWER PULSED IFF, DME, TACAN APPLICATIONS
- 40 WATTS (typ.) IFF 1030 - 1090 MHz
- 35 WATTS (min.) DME 1025 - 1150 MHz
- 25 WATTS (typ.) TACAN 960 - 1215 MHz
- 9.0 dB MIN. GAIN
- REFRACTORY GOLD METALLIZATION
- EMITTER BALLASTING AND LOW THERMAL RESISTANCE FOR RELIABILITY AND RUGGEDNESS
- INFINITE LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT MATCHED, COMMON BASE CONFIGURATION



.250 SQ. 2LFL (M105)
hermetically sealed

ORDER CODE	BRANDING
SD1530-08	1530-8

PIN CONNECTION



1. Collector
2. Base
3. Emitter

DESCRIPTION

The SD1530-08 is a gold metallized silicon, NPN power transistor designed for applications requiring high peak power and low duty cycles such as IFF, DME and TACAN. The SD1530-08 is packaged in the .250" input matched hermetic stripline flange package resulting in improved broadband performance and a low thermal resistance.

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CEO}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	2.6	A
P_{DISS}	Power Dissipation	87.5	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	2.0	°C/W

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 10 mA	I_E = 0 mA	65	—	—	V
BV_{CES}	I_C = 25 mA	V_{BE} = 0 V	65	—	—	V
BV_{EBO}	I_E = 1 mA	I_C = 0 mA	3.5	—	—	V
I_{CES}	V_{CE} = 50 V	I_E = 0 mA	—	—	5	mA
h_{FE}	V_{CE} = 5 V	I_C = 500 mA	10	—	200	

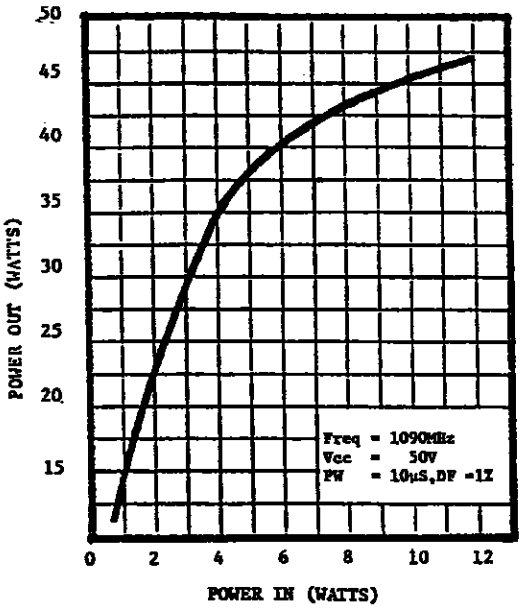
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1025 – 1150 MHz	P_{IN} = 5.0 W	V_{CE} = 50 V	35	—	—	W
P_G	f = 1025 – 1150 MHz	P_{IN} = 5.0 W	V_{CE} = 50 V	8.5	—	—	dB
η_C	f = 1025 – 1150 MHz	P_{IN} = 5.0 W	V_{CE} = 50 V	30	—	—	%

Note: Pulse Width = 10μSec, Duty Cycle = 1%
This device is suitable for use under other pulse width/duty cycle conditions.
Please contact the factory for specific applications assistance.

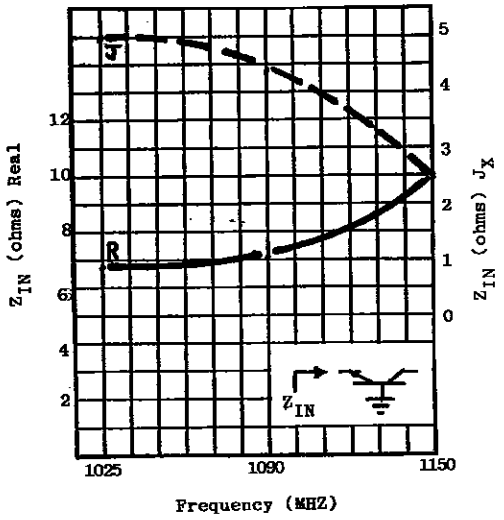
TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

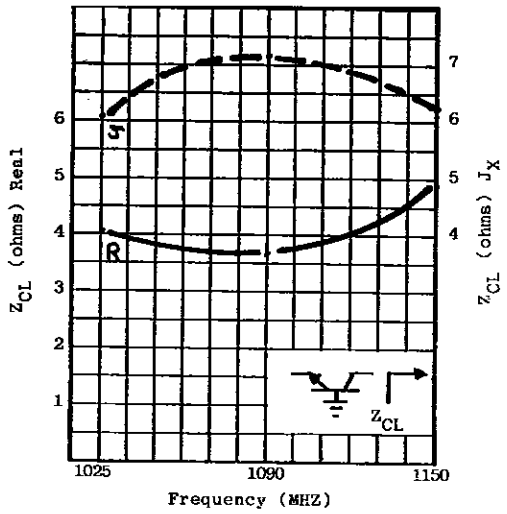


IMPEDANCE DATA

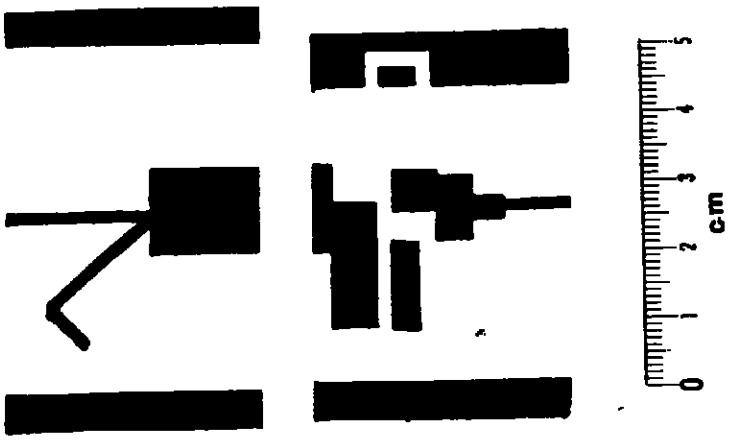
TYPICAL INPUT IMPEDANCE

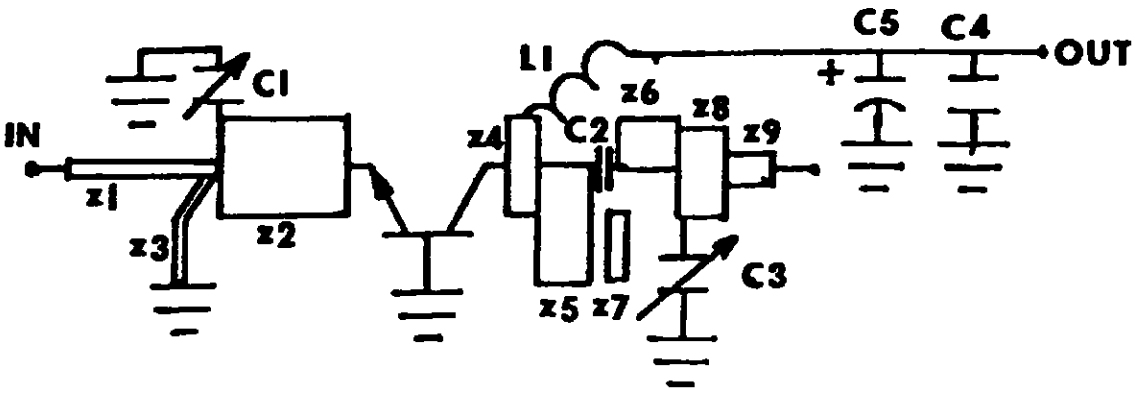


TYPICAL COLLECTOR LOAD IMPEDANCE



TEST CIRCUIT AND PC BOARD LAYOUT

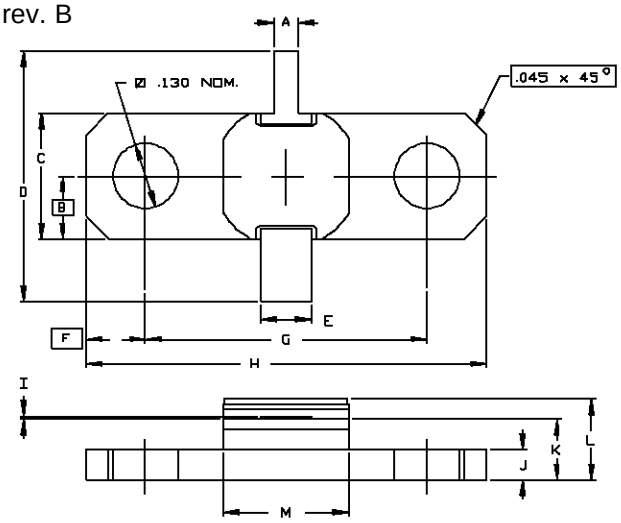




C1, C3	:	0.6 - 4.5pF, Johanson Gigatrim
C2	:	470pF ATC Chip Capacitor
C4	:	1000pF ATC Chip Capacitor
C5	:	1000µF, 63V, Electrolytic Capacitor
L1	:	4.5 Turns #22 AWG Wire
Z1	:	500mm Line
Z2	:	.450” Wire Line Length .600”
Z3	:	50Ω Shunt Line
Z4	:	.110” x .490”
Z5	:	.250” x .700”
Z6	:	.250” x .225”
Z7	:	Ground
Z8	:	.185” x .360”
Z9	:	.180” x .120”

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0105 rev. B



SGS-THOMSON MICROELECTRONIC			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.045/1,14	.055/1,40	K	.112/2,84	.132/3,35
B	.125/3,18		L		.175/4,45
C	.245/6,22	.255/6,48	M	.245/6,22	.257/6,53
D	1.235/31,37				
E	.095/2,41	.105/2,67			
F	.120/3,05				
G	.557/14,15	.567/14,40			
H	.795/20,19	.805/20,45			
I	.002/0,05	.006/0,15			
J	.057/1,45	.067/1,70			