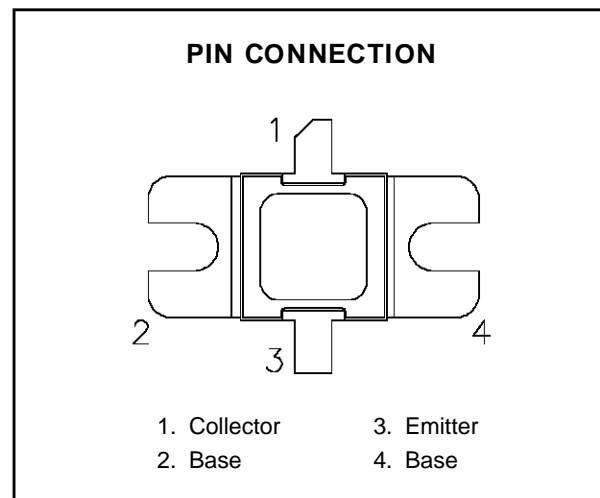
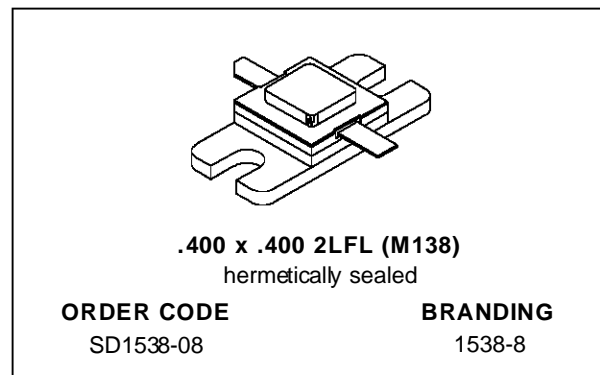


**RF & MICROWAVE TRANSISTORS  
AVIONICS APPLICATIONS**

- DESIGNED FOR HIGH POWER PULSE IFF, DME, AND TACAN APPLICATIONS
- 200 W (typ.) IFF 1030 - 1090 MHz
- 150 W (min.) DME 1025 - 1150 MHz
- 140 W (typ.) TACAN 960 - 1215 MHz
- 7.8 dB MIN. GAIN
- REFRACTORY GOLD METALLIZATION
- BALLASTING AND LOW THERMAL RESISTANCE FOR RELIABILITY AND RUGGEDNESS
- 30:1 LOAD VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT AND OUTPUT MATCHED, COMMON BASE CONFIGURATION

**DESCRIPTION**

The SD1538-08 is a gold metallized, silicon NPN power transistor. The SD1538-08 is designed for applications requiring high peak power and low duty cycles such as IFF, DME and TACAN. The SD1538-08 is packaged in a metal/ceramic package with internal input/output matching, resulting in improved broadband performance and low thermal resistance.


**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	11	A
$P_{DISS}$	Power Dissipation	583	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	0.30	$^{\circ}C/W$
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# SD1538-08

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 10mA	I <sub>E</sub> = 0mA	65	—	—	V
BV <sub>CES</sub>	I <sub>C</sub> = 25mA	V <sub>BE</sub> = 0V	65	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 5mA	I <sub>C</sub> = 0mA	3.5	—	—	V
I <sub>CES</sub>	V <sub>CE</sub> = 50V	I <sub>E</sub> = 0mA	—	—	10	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 300mA	5	—	—	—

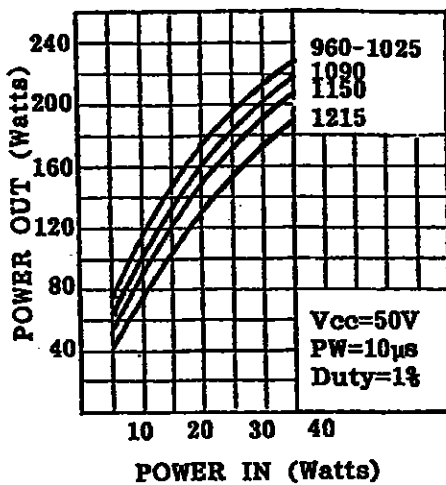
### DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 1025 – 1150 MHz	P <sub>IN</sub> = 25 W	V <sub>CE</sub> = 50 V	150	—	—	W
P <sub>G</sub>	f = 1025 – 1150 MHz	P <sub>IN</sub> = 25 W	V <sub>CE</sub> = 50 V	7.8	—	—	dB

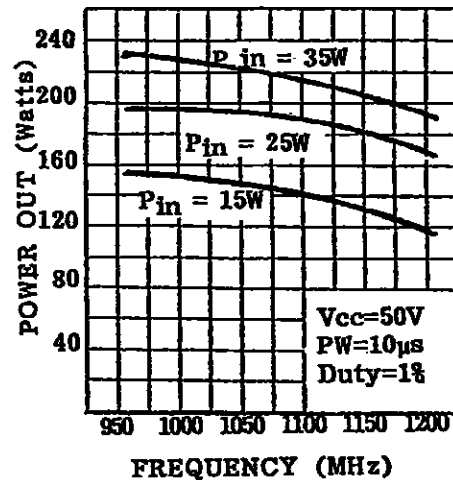
Note: Pulse Width = 10μSec, Duty Cycle = 1%

## TYPICAL PERFORMANCE

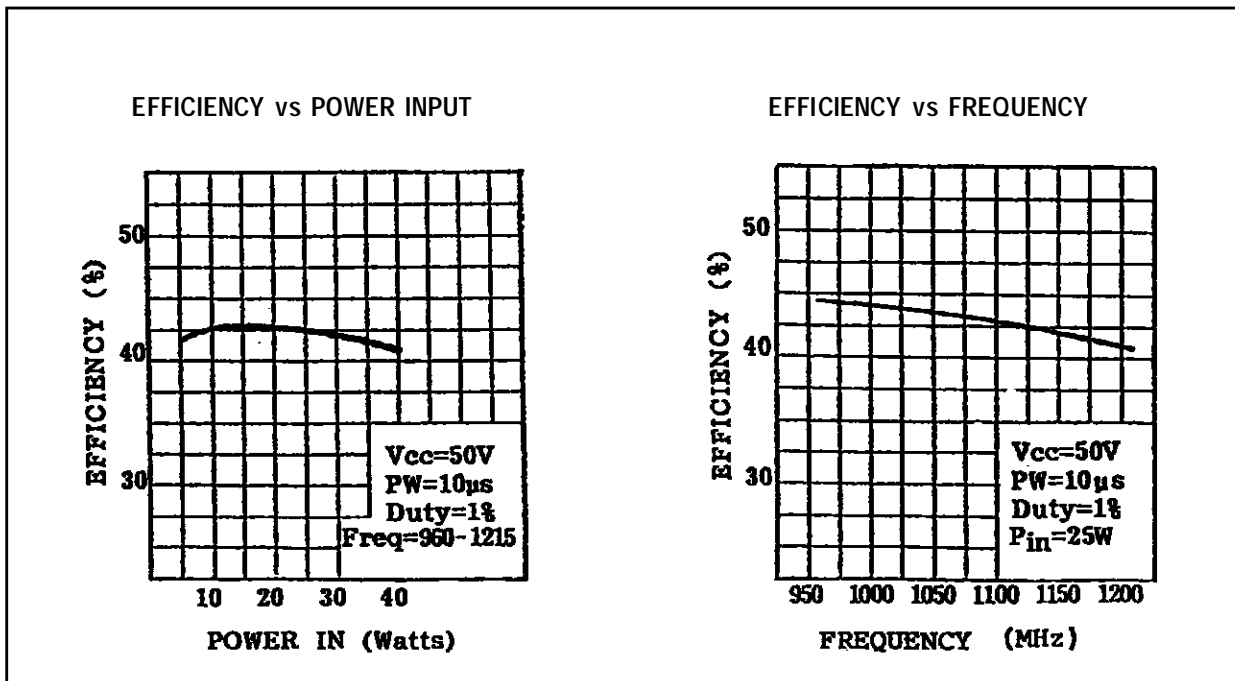
POWER OUTPUT vs POWER INPUT



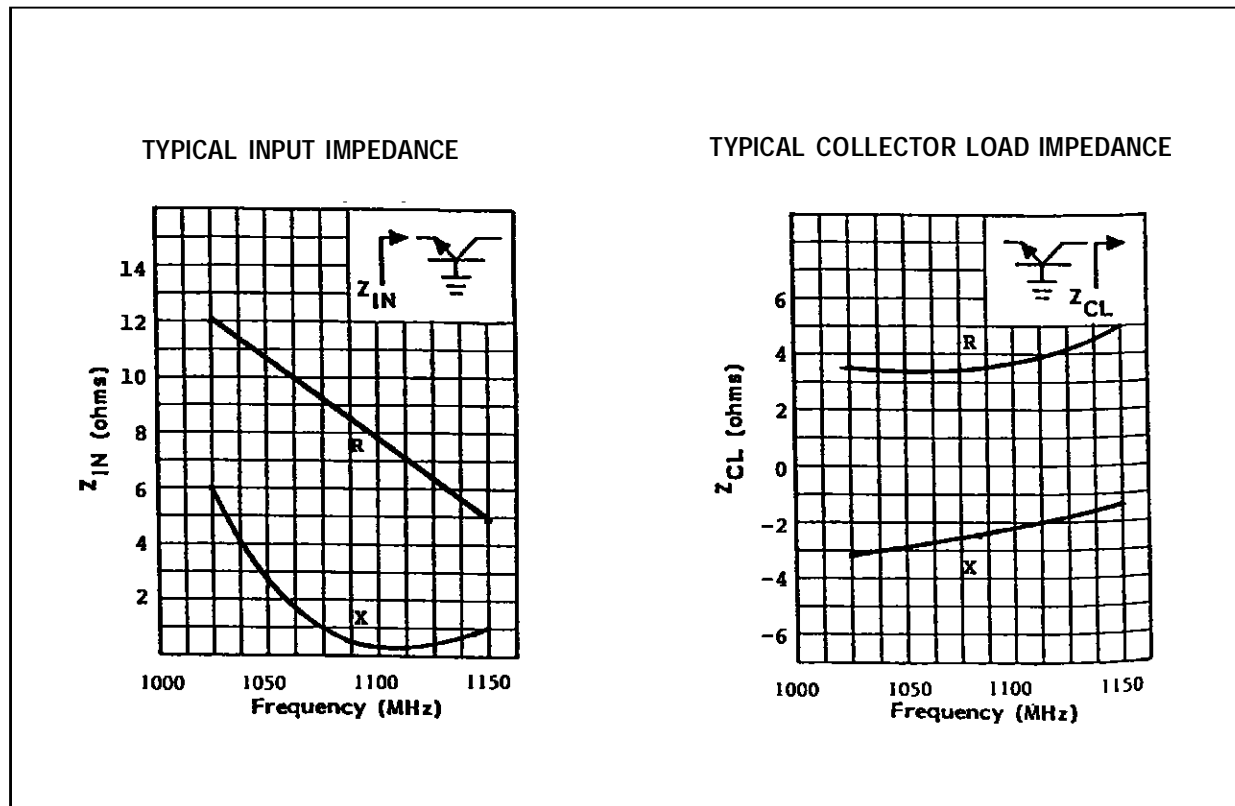
POWER OUTPUT vs FREQUENCY



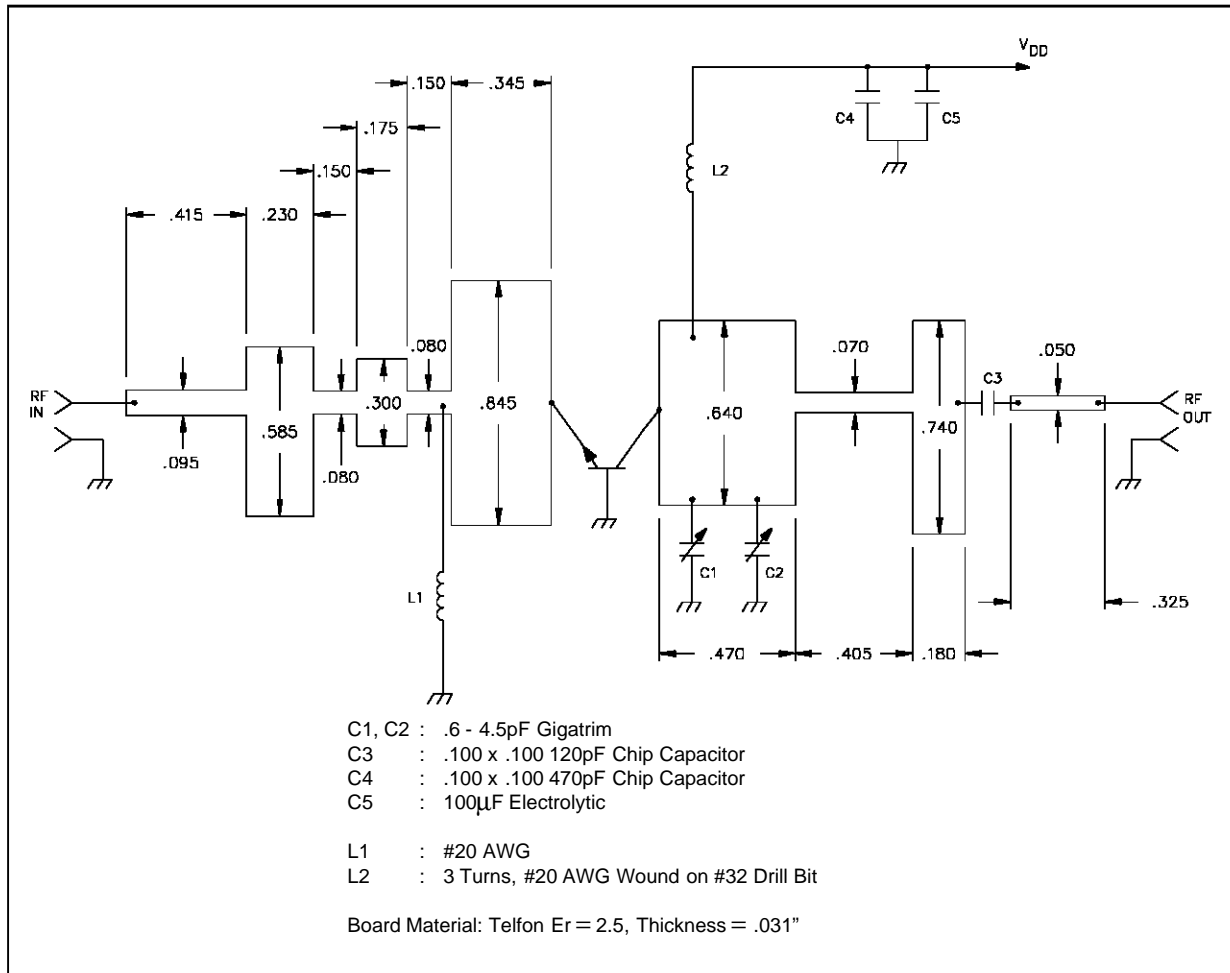
## TYPICAL PERFORMANCE (cont'd)



## IMPEDANCE DATA

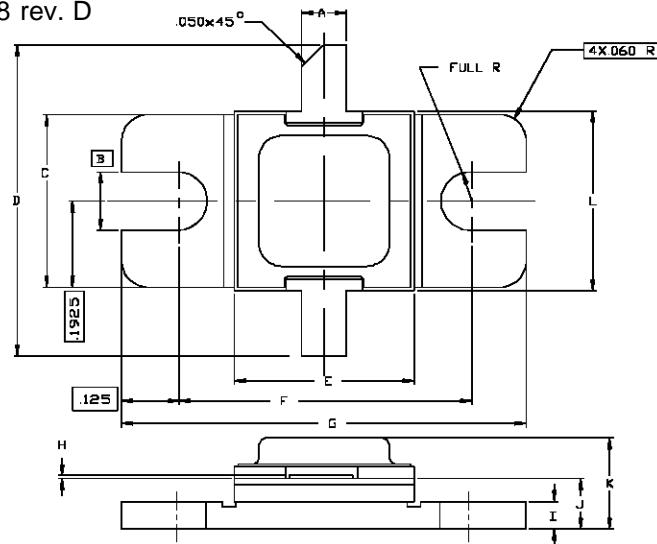


TEST CIRCUIT



## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0138 rev. D



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.095/2,41	.105/2,67	K		.230/5,84
B	.130/3,30		L	.395/10,03	.407/10,33
C	.380/9,65	.390/9,91			
D	.780/19,81				
E	.395/10,03	.407/10,33			
F	.645/16,38	.655/16,64			
G	.895/22,73	.905/22,99			
H	.002/0,05	.006/0,15			
I	.055/1,40	.065/1,65			
J	.110/2,79	.130/3,30			

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