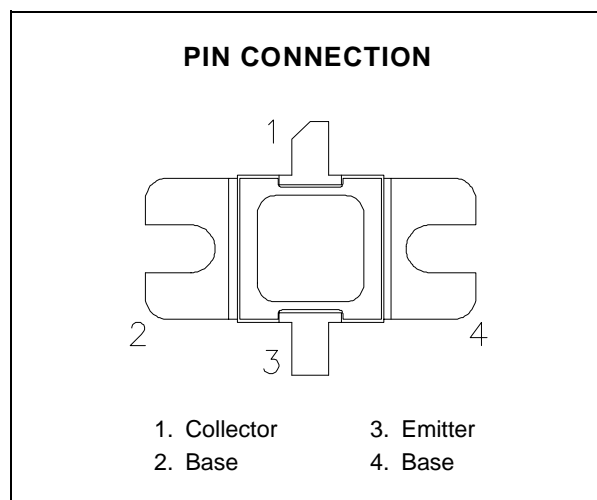
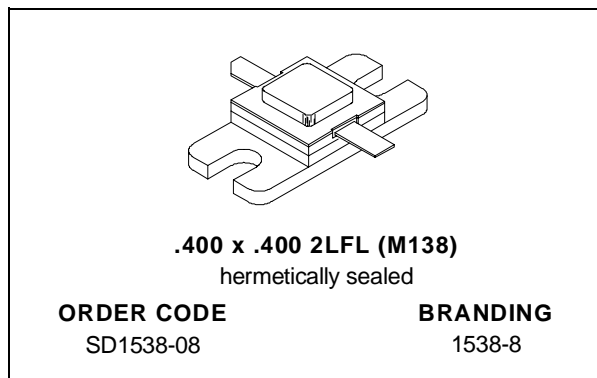


**RF & MICROWAVE TRANSISTORS  
 AVIONICS APPLICATIONS**

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

**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 10mA$	$I_E = 0mA$	65	—	—	V
$BV_{CES}$	$I_C = 25mA$	$V_{BE} = 0V$	65	—	—	V
$BV_{EBO}$	$I_E = 5mA$	$I_C = 0mA$	3.5	—	—	V
$I_{CES}$	$V_{CE} = 50V$	$I_E = 0mA$	—	—	10	mA
$h_{FE}$	$V_{CE} = 5V$	$I_C = 300mA$	5	—	—	—

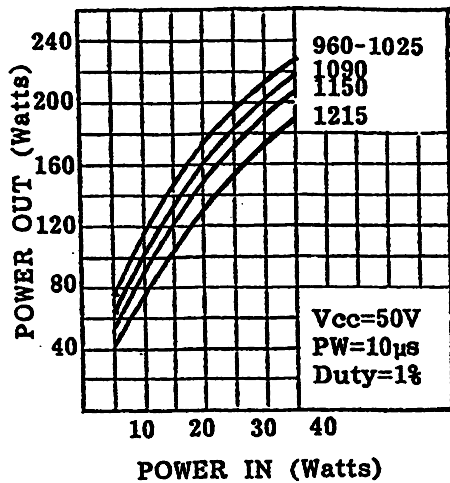
**DYNAMIC**

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{OUT}$	$f = 1025 - 1150$ MHz	$P_{IN} = 25$ W	$V_{CE} = 50$ V	150	—	—	W
$P_G$	$f = 1025 - 1150$ MHz	$P_{IN} = 25$ W	$V_{CE} = 50$ V	7.8	—	—	dB

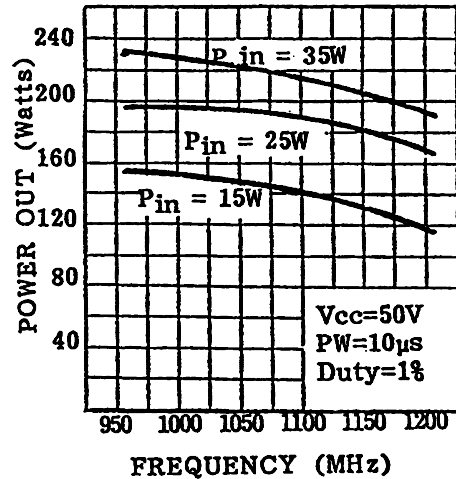
Note: Pulse Width =  $10\mu Sec$ , Duty Cycle = 1%

**TYPICAL PERFORMANCE**

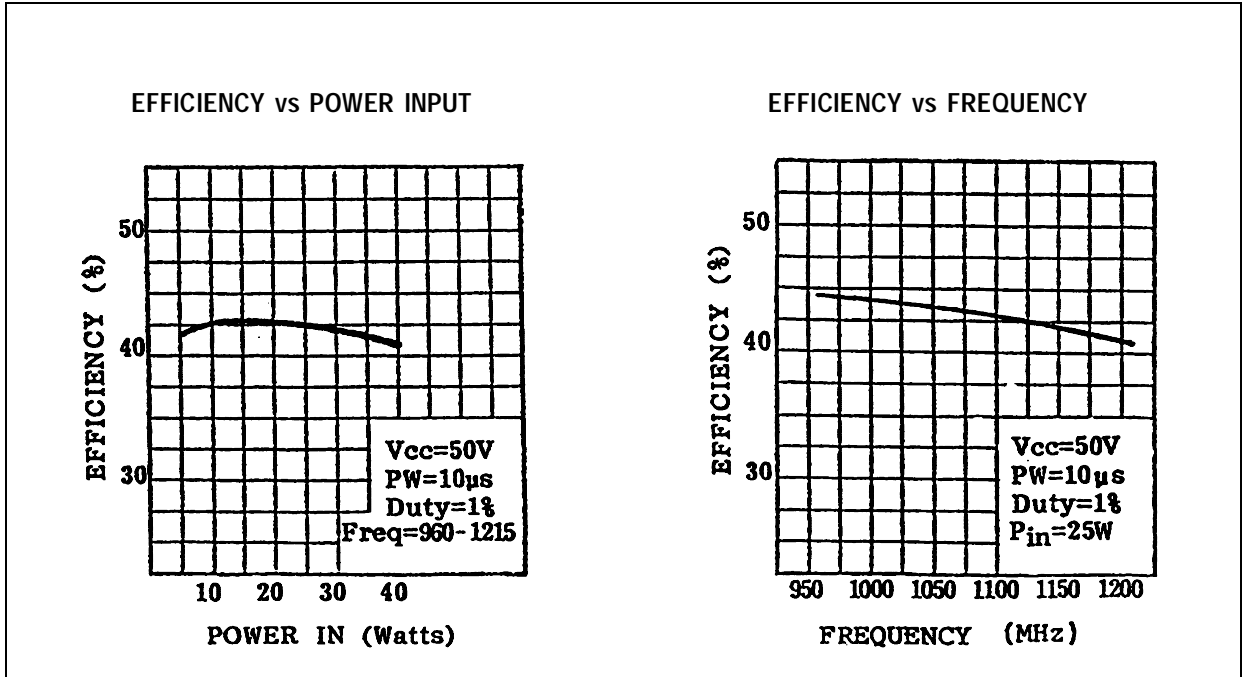
POWER OUTPUT vs POWER INPUT



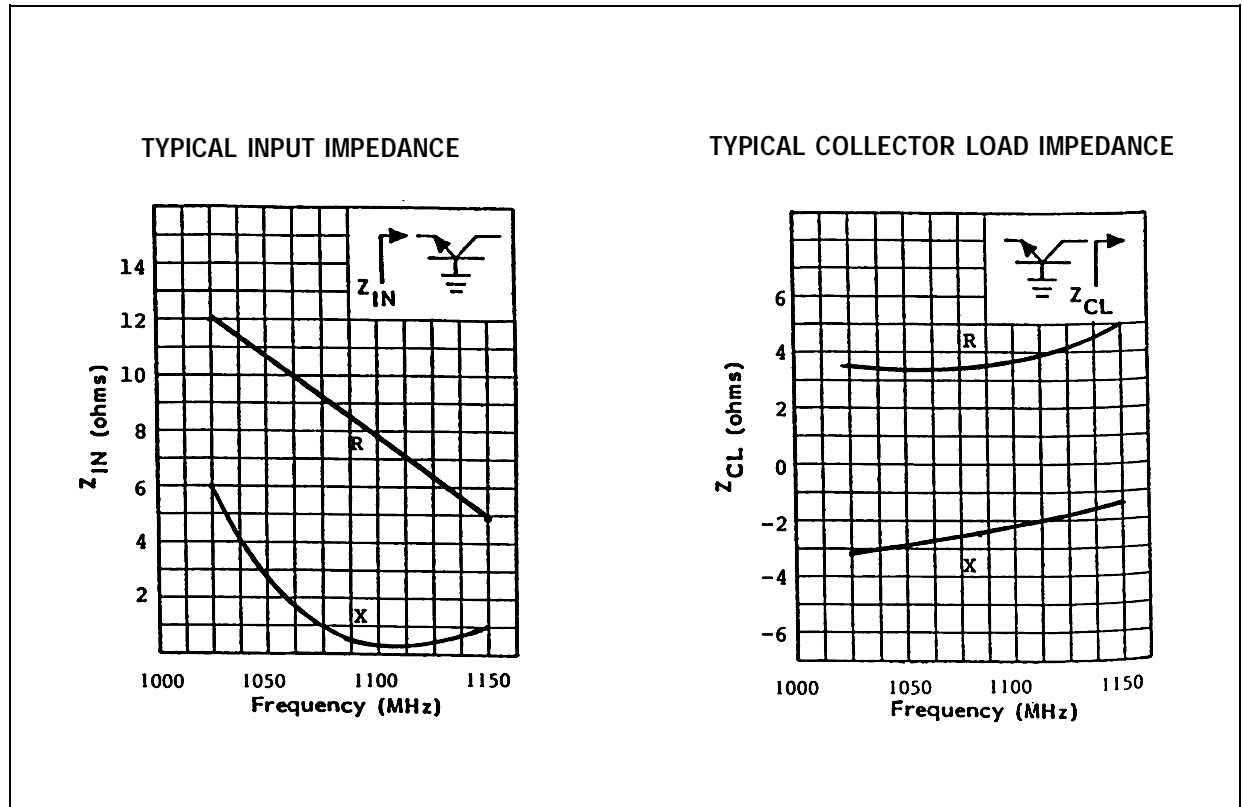
POWER OUTPUT vs FREQUENCY



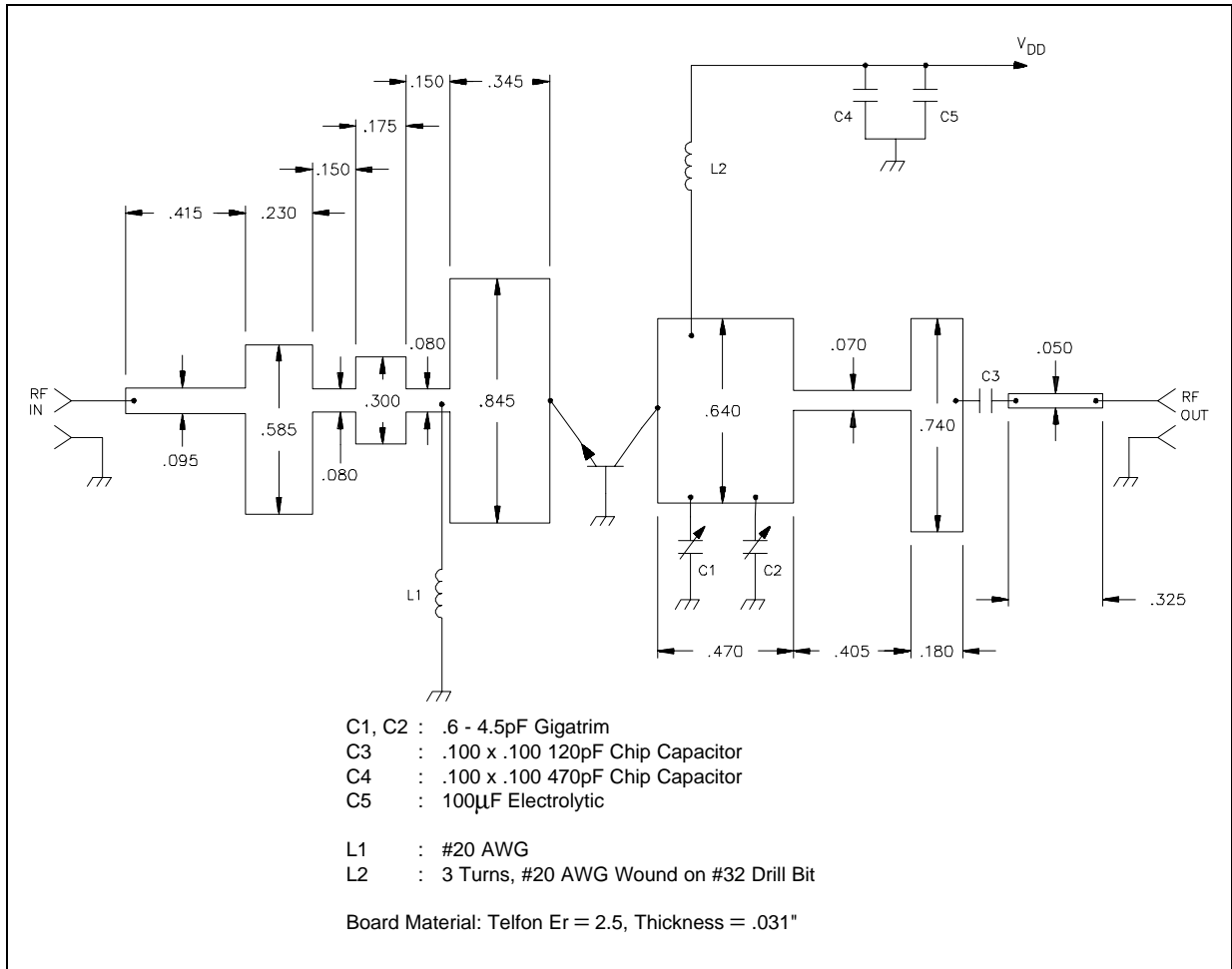
TYPICAL PERFORMANCE (cont'd)



IMPEDANCE DATA

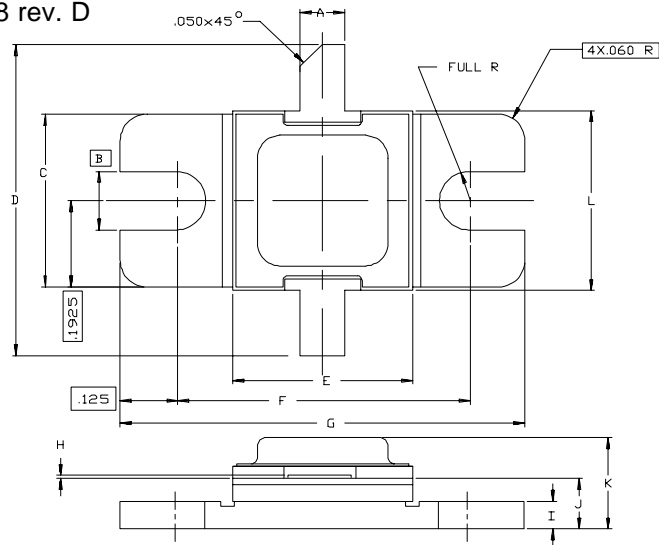


TEST CIRCUIT



## 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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