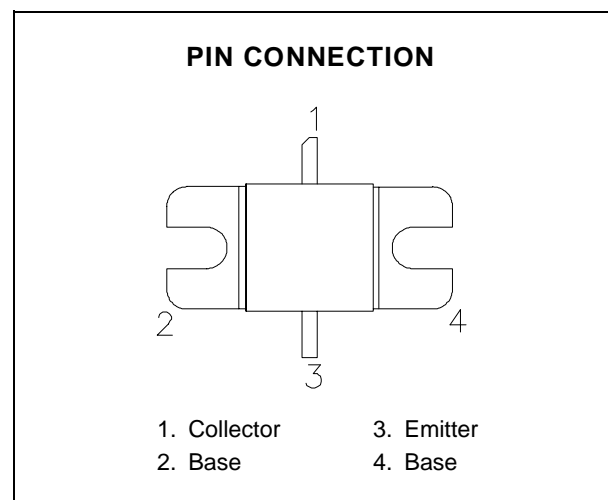
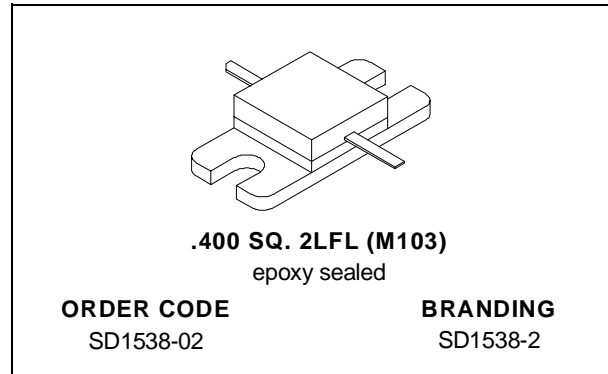


**RF & MICROWAVE TRANSISTORS
AVIONICS APPLICATIONS**

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

DESCRIPTION

The SD1538-02 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 SD1538-02 is packaged in a metal/ceramic package with internal input/output matching resulting in improved broadband performance and a 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	11.0	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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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	—	—	—

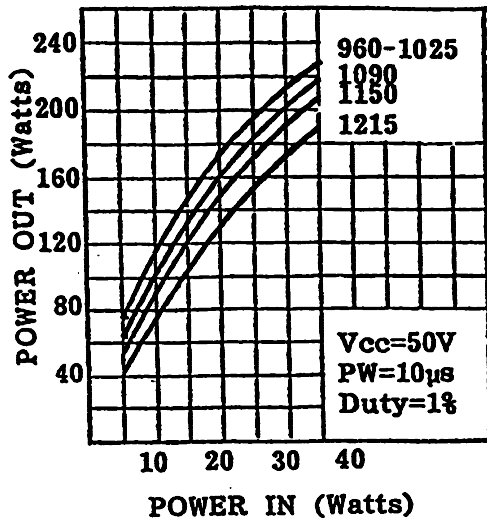
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1025 - 1150MHz$	$P_{IN} = 25.0 W$	$V_{CE} = 50 V$	150	—	—	W
GP	$f = 1025 - 1150MHz$	$P_{IN} = 25.0 W$	$V_{CE} = 50 V$	7.8	—	—	dB

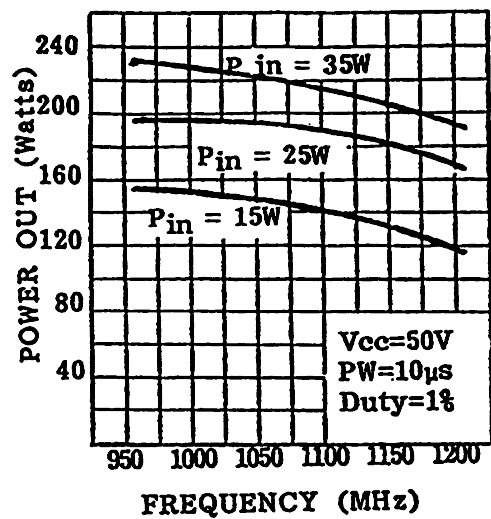
Note: Pulse Width = $10\mu Sec$, Duty Cycle = 1%
 This device is suitable for use under other pulse width/duty cycle conditions.
 Please contact the factory for specific applications assistance.

TYPICAL PERFORMANCE

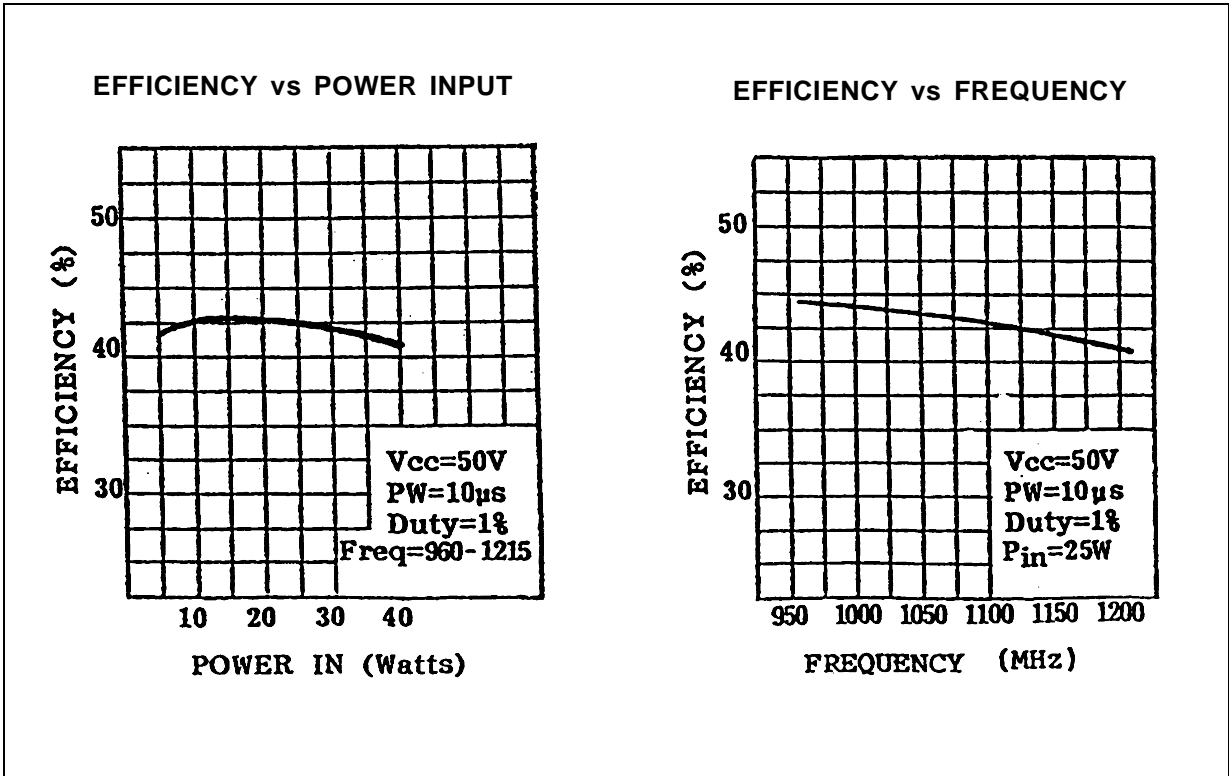
POWER OUTPUT vs POWER INPUT



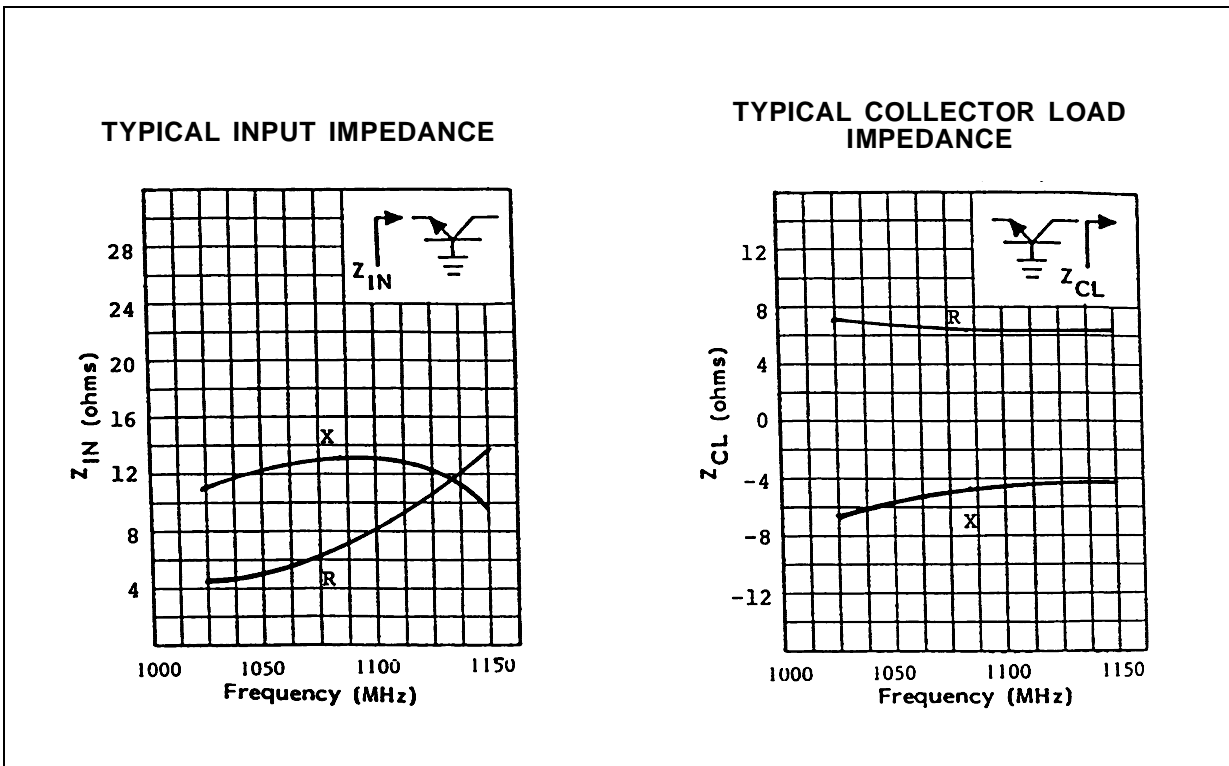
POWER OUTPUT vs FREQUENCY



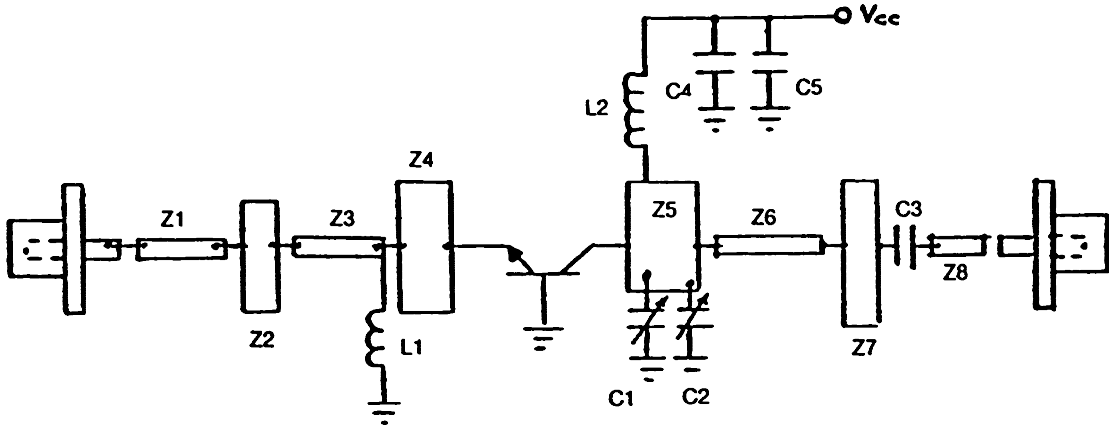
TYPICAL PERFORMANCE (cont'd)



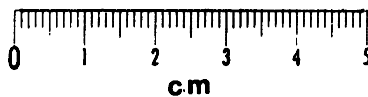
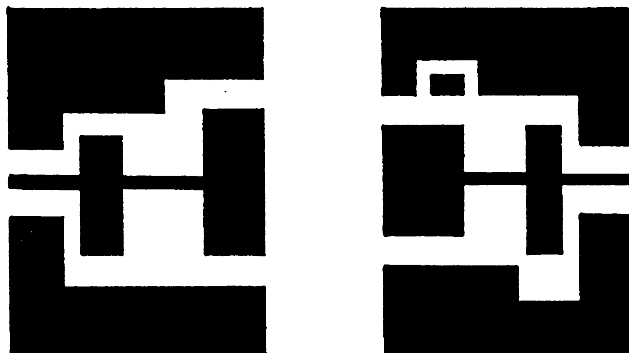
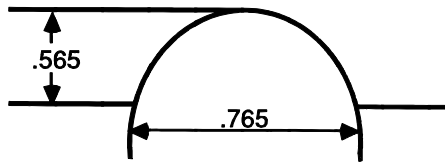
IMPEDANCE DATA



TEST CIRCUIT AND PC BOARD LAYOUT

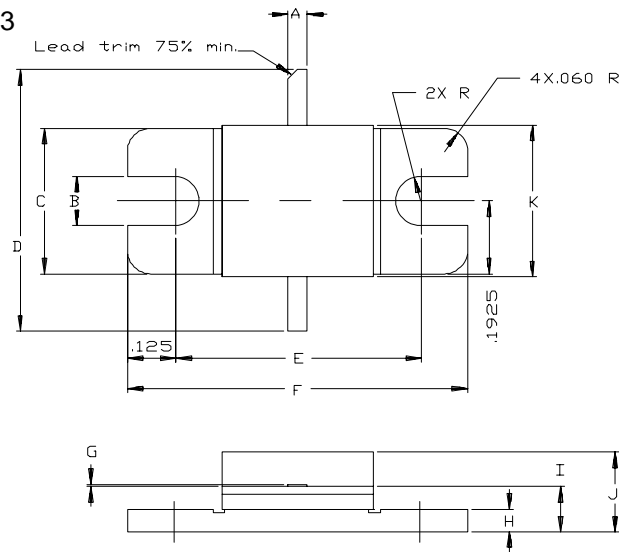


C1, C2 : .6 - 4.5pF Gigatrim	Z1 : .195 x .415
C3 : .100 x .100 120pF Chip Capacitor	Z2 : .685 x .230
C4 : .100 x .100 470pF Chip Capacitor	Z3 : .080 x .105
C5 : 100mF Electrolytic	Z4 : .845 x .345
L1 : #20 AWG	Z5 : .640 x .470
L2 : 3 Turns, #20 AWG Wound on #32 Drill Bit	Z6 : .070 x .405
	Z7 : .740 x .180
	Z8 : .50 x .325



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0103



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.045/1,14	.055/1,40	K	.390/9,91	.410/10,41
B	.130/3,30				
C	.380/ 9,65	.390/ 9,91			
D	.880/22,35	.920/23,37			
E	.645/16,38	.655/16,64			
F	.890/22,61	.910/23,11			
G	.002/0,05	.006/0,15			
H	.055/1,40	.065/1,65			
I	.110/2,79	.130/3,30			
J	.190/4,83	.215/5,46			

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