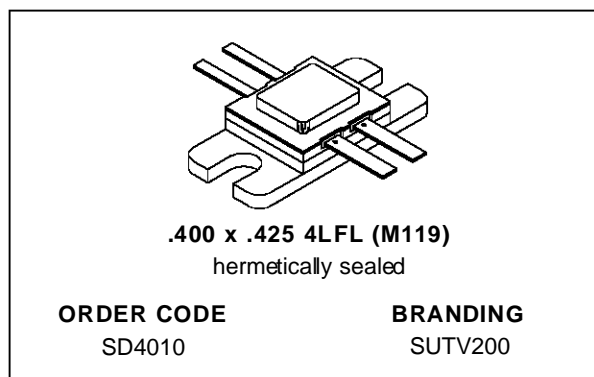
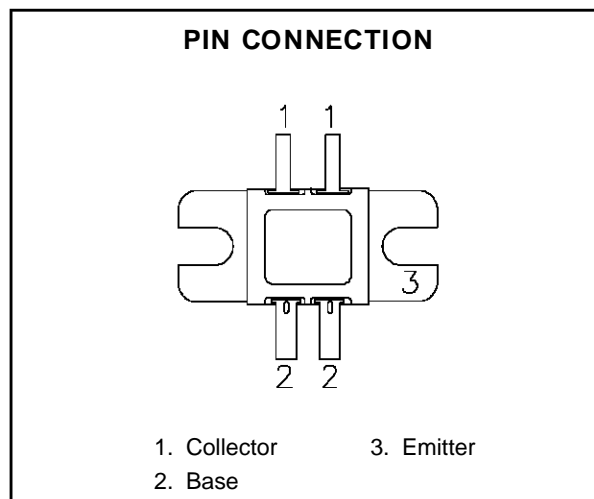


**RF & MICROWAVE TRANSISTORS
UHF TV LINEAR APPLICATIONS**

- 470-860 MHz
- 26.5 VOLTS
- GOLD METALLIZATION
- $P_{OUT} = 20.0W$ MIN. WITH 9.5 dB GAIN
- INTERNAL INPUT MATCHING
- DIFFUSED EMITTER BALLAST RESISTORS


DESCRIPTION

The SD4010 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors. The SD4010 is intended for use in linear applications up to 1GHz, including UHF television transmitters, transposers and cellular base stations.


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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60.0	V
V_{CES}	Collector-Emitter Voltage	60.0	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current (Maximum)	11.0	A
P_{DISS}	Power Dissipation	88.8	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	1.9	$^{\circ}C/W$
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SD4010

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

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{EBO}	I _E = 10mA	I _C = 0mA	3.0	4.0	—	V
BV _{CES}	I _C = 50mA	V _{BE} = 0V	60.0	85.0	—	V
BV _{CEO}	I _C = 50mA	I _B = 0mA	28.0	30.0	—	V
I _{CEO}	V _{CE} = 26.5V	I _E = 0mA	—	—	5	mA
h _{FE}	V _{CE} = 5V	I _C = 3A	25	50	80	—

Tested Per Side

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT}	f = 860MHz	V _{CE} = 26.5V	P _{IN} = 2.2W	20.0	28.0	—	W
G _P	f = 860MHz	V _{CE} = 26.5V	P _{OUT} = 20W	9.5	10.5	—	dB
IMD ₃	P _{SYNC} = 20W	V _{CE} = 26.5V	(note 1)	—	-48	-46	dBc
IP ₃	V _{CB} = 26.5V	P _{OUT} = 20W	PEP (note 2)	—	55	—	dBm
C _{OB}	f = 860MHz	V _{CB} = 26.5V	(note 3)	—	25	36	pF
Load* Mismatch	f = 860MHz	V _{CE} = 26.5V	P _{OUT} = 20W	3:1	10:1	—	VSWR

I_{CQ} = I_C = 2.7A (1.35A per Side)

*VSWR tested for a minimum of 3:1 SWR at all phase angles.

Note 1: Three Tone IMD Testing (CCIR)

f₁ = 860.0MHz/ -8dB ref. to P_{SYNC} - Visual

f₂ = 863.5MHz/ -16dB ref. to P_{SYNC} - Color Subcarrier

f₃ = 864.5MHz/ -7dB ref. to P_{SYNC} - Aural

Note 2: IP₃ Calculated Based on Two-Tone
IMD Testing:

f₁ = 900.0 MHz/ -6dB ref. to P_{OUT}

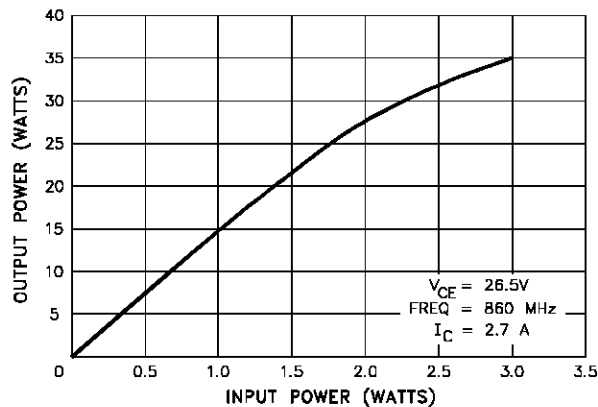
f₂ = 900.1 MHz/ -6dB ref. to P_{OUT}

IMD₃ (Typ) < -36dBc

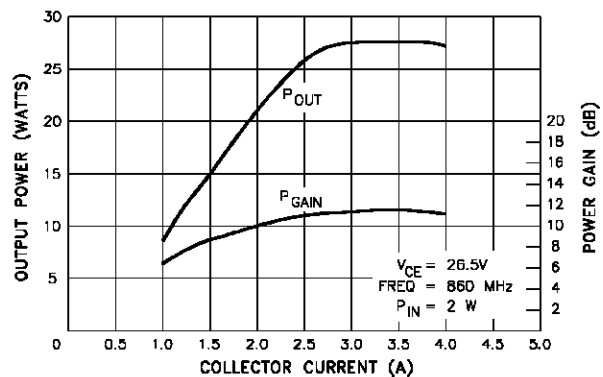
Note 3: Tested Per Side

TYPICAL PERFORMANCE

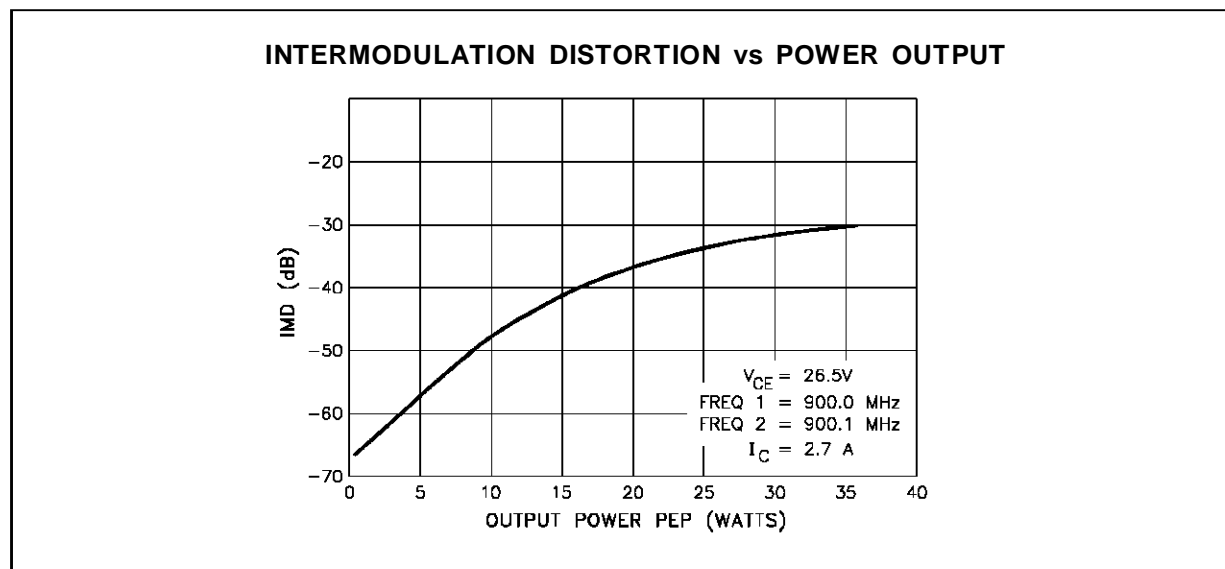
POWER OUTPUT vs POWER INPUT



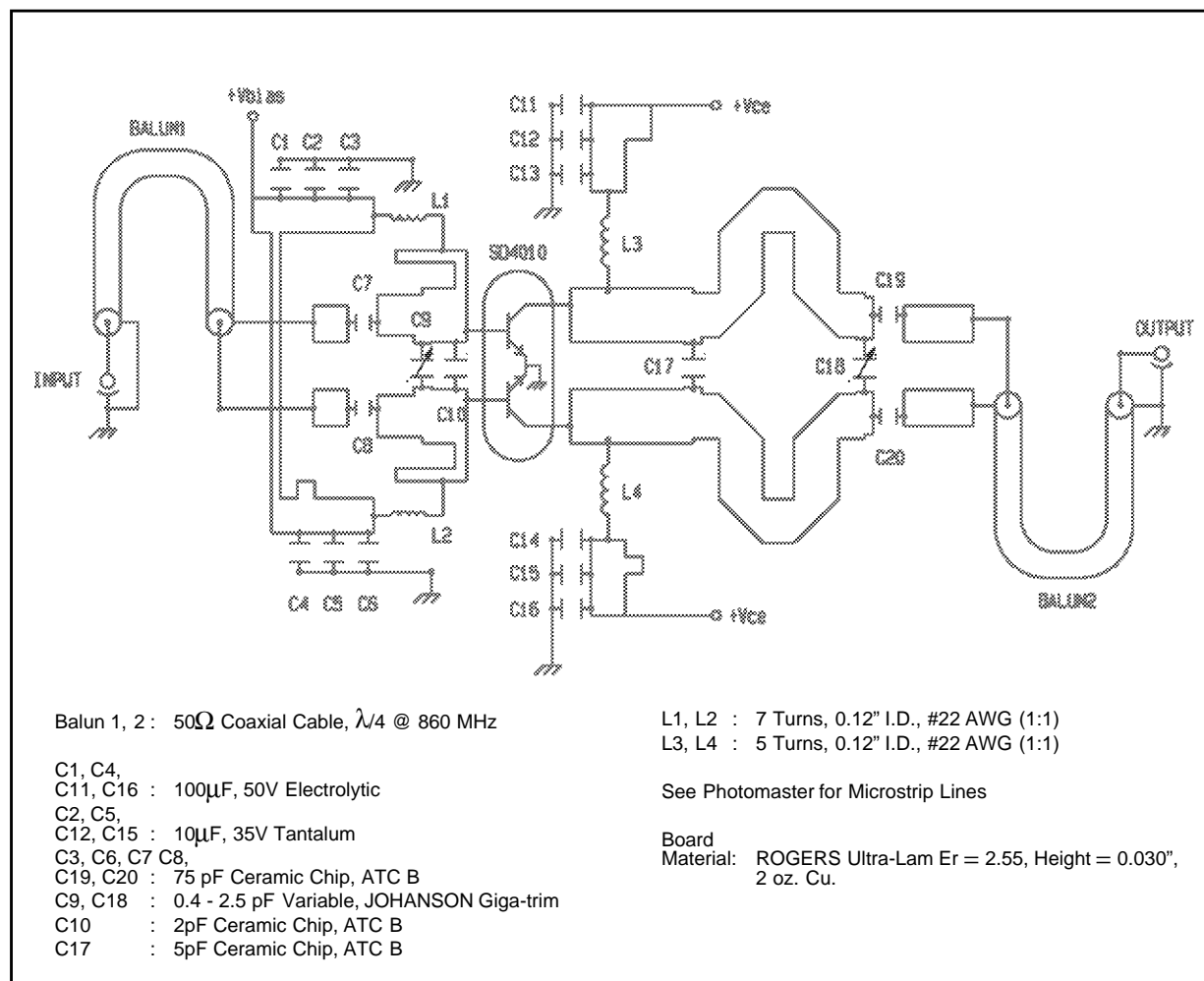
POWER OUTPUT & POWER GAIN vs
TOTAL COLLECTOR CURRENT



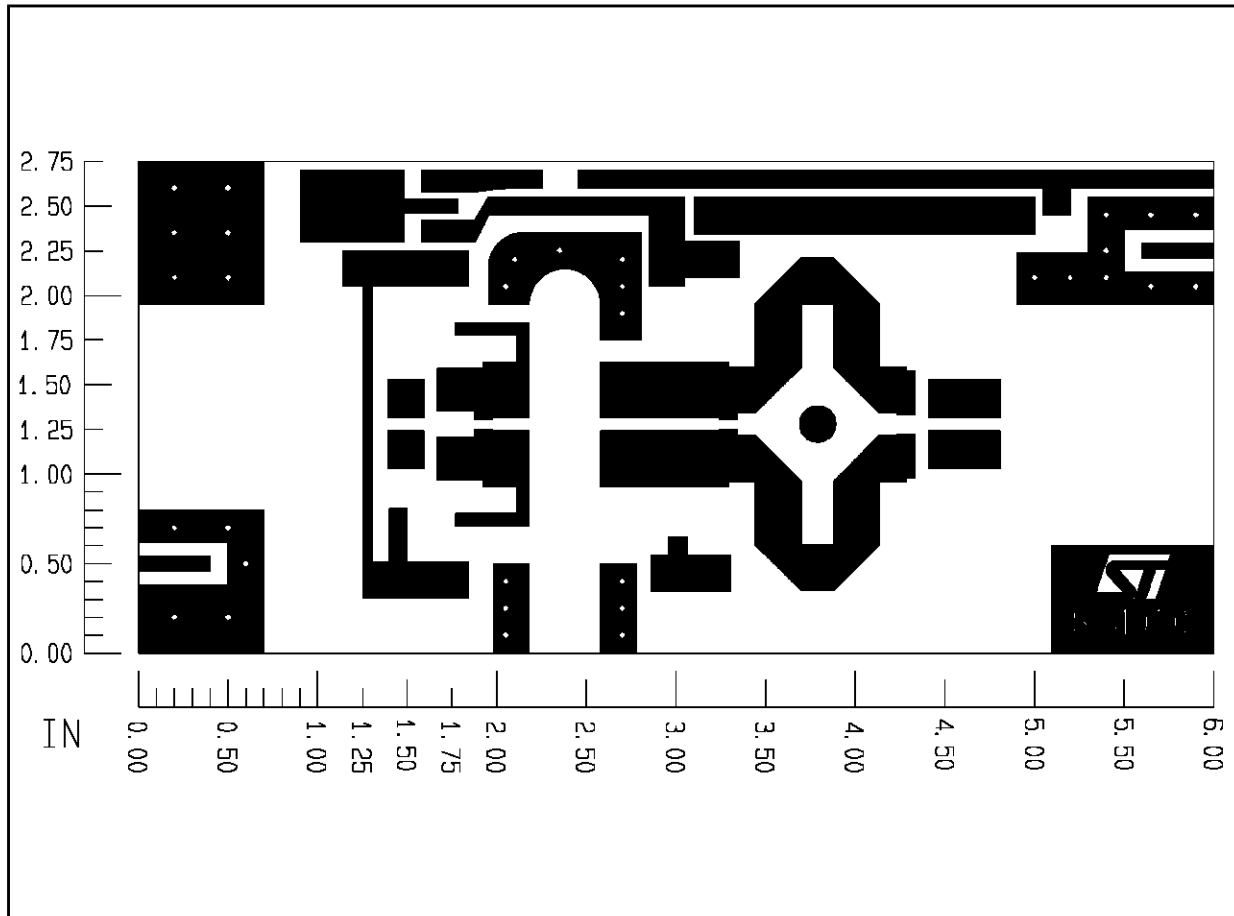
TYPICAL PERFORMANCE (cont'd)



TEST CIRCUIT SCHEMATIC

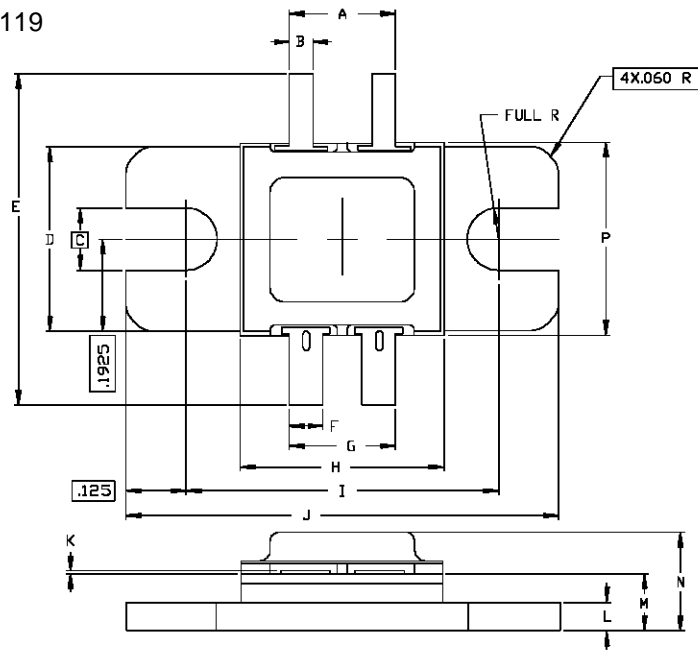


PHOTOMASTER OF TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref. Dwg. No.: 12-0119



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.210/5,33	.230/5,84	K	.002/0,05	.006/0,15
B	.045/1,14	.055/1,40	L	.058/1,47	.065/1,65
C	.130/3,30		M	.115/2,92	.130/3,30
D	.380/9,65	.390/9,91	N	----	.230/5,84
E	.770/19,56	.830/21,08	P	.395/10,03	.408/10,36
F	.070/1,78	.080/2,03			
G	.215/5,46	.235/5,97			
H	.420/10,67	.433/11,00			
I	.645/16,38	.655/16,64			
J	.895/22,73	.905/22,99			

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