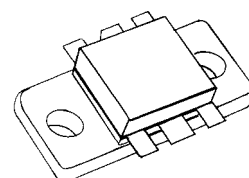


RF & MICROWAVE TRANSISTORS CELLULAR BASE STATION APPLICATIONS

- DESIGNED FOR CLASS AB LINEAR OPERATION
- COMMON EMITTER
- INTERNAL INPUT/OUTPUT MATCHING
- 26 VOLT, 960 MHz PERFORMANCE:
 - $P_{OUT} = 45 \text{ W MIN.}$
 - $GAIN = 8.5 \text{ dB MIN.}$
 - COLLECTOR EFFICIENCY 50% MIN.
- INHERENT RUGGEDNESS:
 - LOAD MISMATCH TOLERANCE OF 5:1 MIN. VSWR
 - 3 dB OVERDRIVE CAPABILITY



.400 x .425 6LFL (M169)

epoxy sealed

ORDER CODE

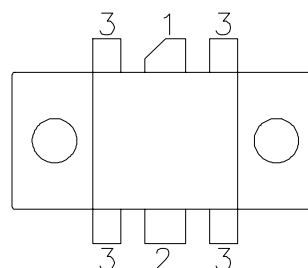
SD4701

BRANDING

SD4701

DESCRIPTION

PIN CONNECTION



1. Collector

2. Base

3. Emitter

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{CER}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	10	A
P_{DISS}	Power Dissipation	145	W
T_J	Junction Temperature	+200	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.2	$^{\circ}\text{C/W}$
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SD4701**ELECTRICAL SPECIFICATIONS** ($T_{case} = 25^{\circ}C$)**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 60\text{ mA}$	$I_E = 0\text{ mA}$	60	—	—	V
BV_{CEO}	$I_C = 60\text{ mA}$	$I_B = 0\text{ mA}$	30	—	—	V
BV_{CER}	$I_C = 60\text{ mA}$	$R_{BE} = 75\ \Omega$	40	—	—	V
BV_{EBO}	$I_E = 10\text{ mA}$	$I_C = 0\text{ mA}$	3.5	—	—	V
I_{CER}	$V_{CE} = 26\text{ V}$	$R_{BE} = 75\ \Omega$	—	—	15	mA
h_{FE}	$V_{CE} = 10\text{ V}$	$I_C = 1\text{ A}$	15	—	100	—

DYNAMIC

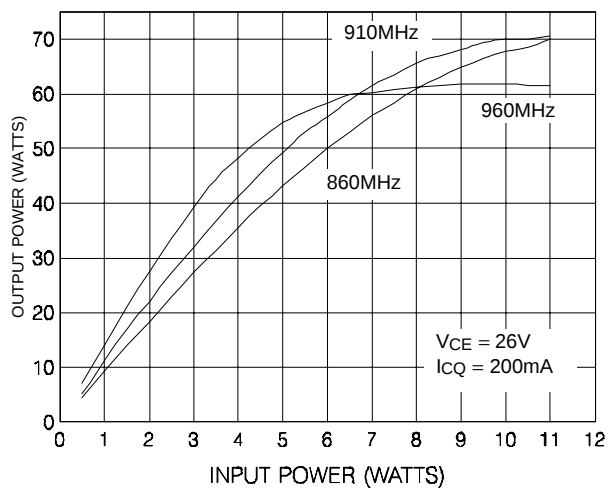
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
C_{OB}	$f = 1\text{ MHz}$ $V_{CB} = 26\text{ V}$ For Information Only - This Device is Collector Matched		—	55	—	pF
P_{IN}	$f = 960\text{ MHz}$ $V_{CE} = 26\text{ V}$ $I_{CQ} = 200\text{ mA}$ $P_{OUT} = 45\text{ W}$		—	5	6.3	W
P_{OUT}	$f = 960\text{ MHz}$ $V_{CE} = 26\text{ V}$ $I_{CQ} = 200\text{ mA}$ $P_{IN} = 6.3\text{ W}$		45	55	—	W
G_P	$f = 960\text{ MHz}$ $V_{CE} = 26\text{ V}$ $I_{CQ} = 200\text{ mA}$ $P_{OUT} = 45\text{ W}$		8.5	9.5	—	dB
η_C	$f = 960\text{ MHz}$ $V_{CE} = 26\text{ V}$ $I_{CQ} = 200\text{ mA}$ $P_{OUT} = 45\text{ W}$		50	55	—	%
Load Mismatch	$f = 960\text{ MHz}$ $V_{CE} = 26\text{ V}$ $I_{CQ} = 200\text{ mA}$ $P_{OUT} = 45\text{ W}$ VSWR = 5:1 MIN. @ All Phase Angles		No Degradation in Device Performance			
OVD	$f = 960\text{ MHz}$ $V_{CE} = 26\text{ V}$ $I_{CQ} = 200\text{ mA}$ Set $P_{OUT} = 45\text{ W}$; Increase P_{IN} 3dB		No Degradation in Device Performance			
*IMD ₃	$V_{CE} = 26\text{ V}$ $P_{OUT} = 46.5\text{ dBm (45.0W) PEP}$ $I_{CQ} = 200\text{ mA}$		—	-32	—	dB ^T **

*Note: $f_1 = 900.00\text{MHz @ } 40.5\text{dBm}$
 $f_2 = 900.01\text{MHz @ } 40.5\text{dBm}$

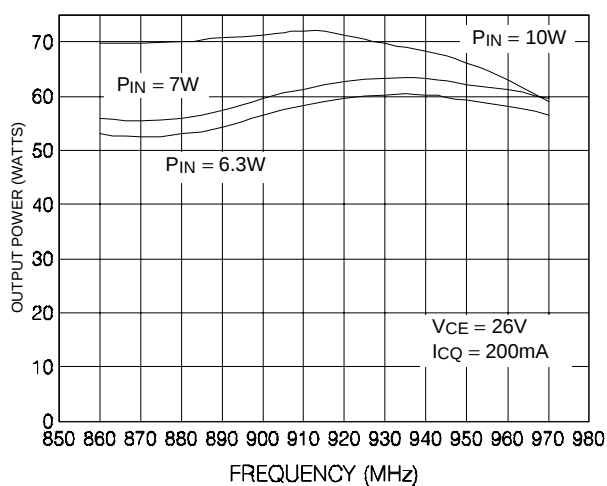
** dB^T, in dB, referenced to tone level

TYPICAL PERFORMANCE

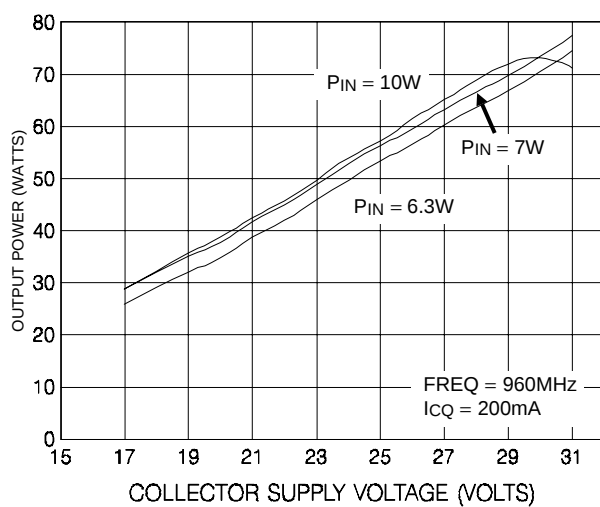
POWER OUTPUT vs POWER INPUT



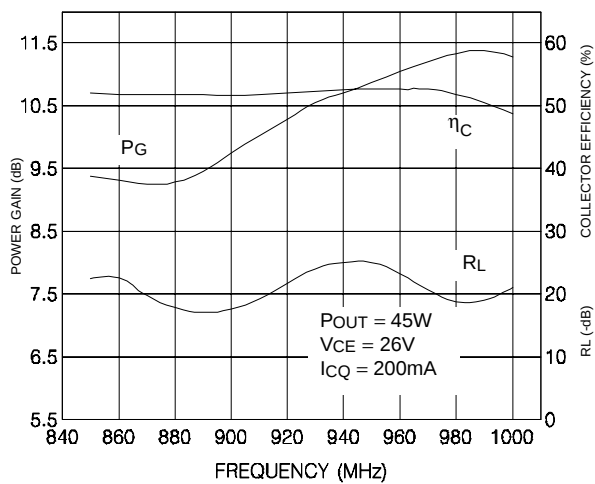
POWER OUTPUT vs FREQUENCY



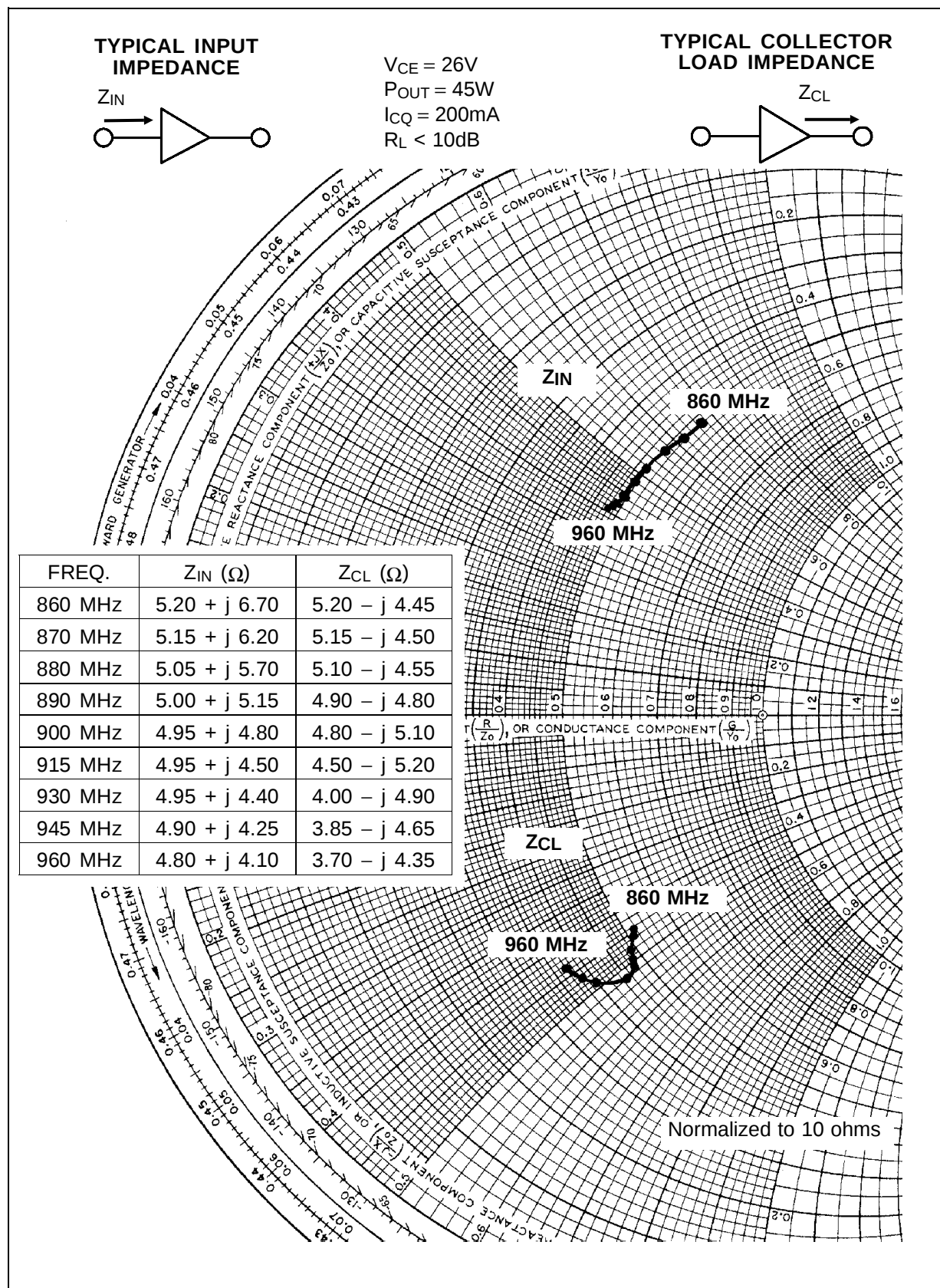
POWER OUTPUT vs SUPPLY VOLTAGE



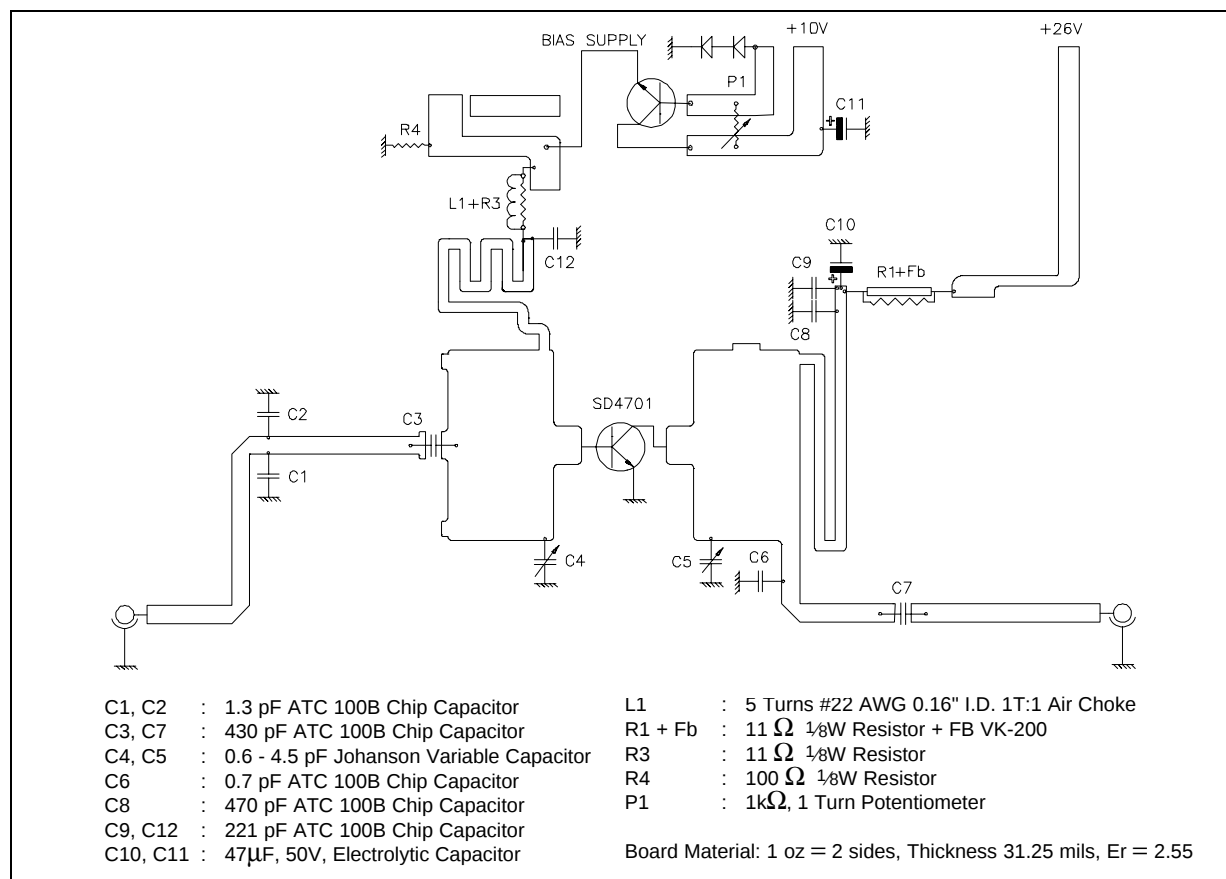
BROADBAND PERFORMANCE



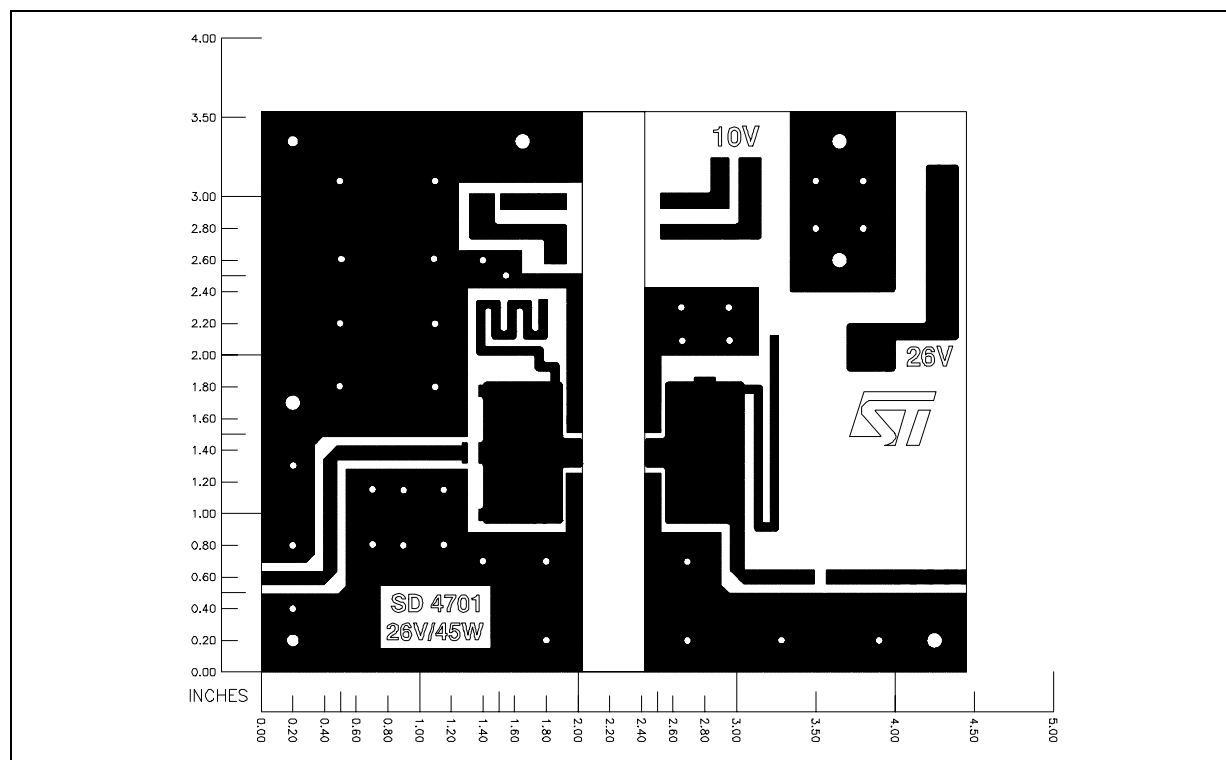
IMPEDANCE DATA



TEST CIRCUIT

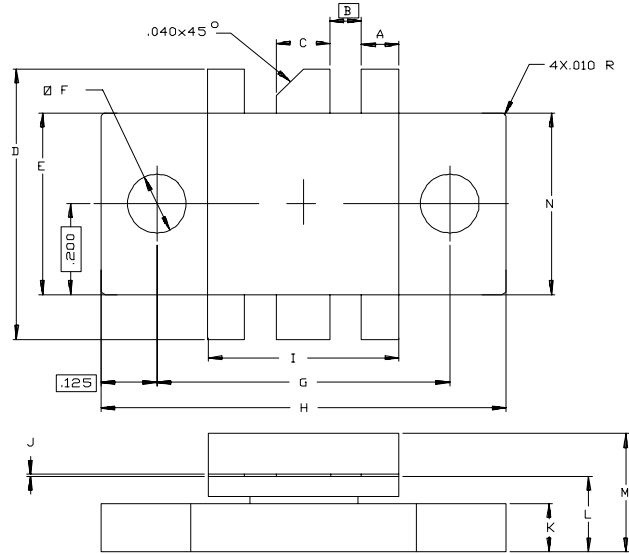


TEST CIRCUIT PHOTOMASTER



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0169



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.078/1,98	.088/2,24	K	.105/2,67	.115/2,92
B	.120/3,05		L	.159/4,04	.175/4,45
C	.115/2,92	.125/3,18	M		.280/7,11
D	.580/14,73	.620/15,75	N	.395/10,03	.408/10,36
E	.395/10,03	.405/10,29			
F	.125/3,18				
G	.720/18,29	.730/18,54			
H	.970/24,64	.980/24,89			
I	.420/10,67	.430/10,92			
J	.002/0,05	.007/0,18			

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