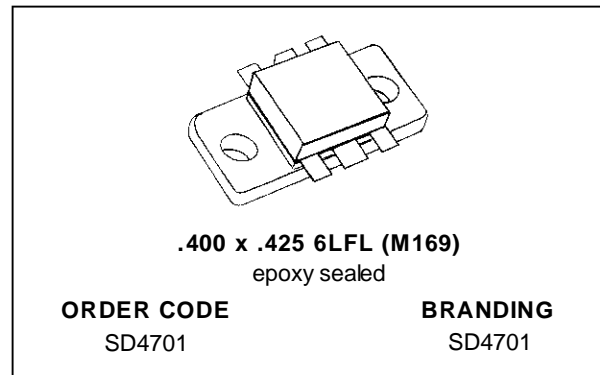
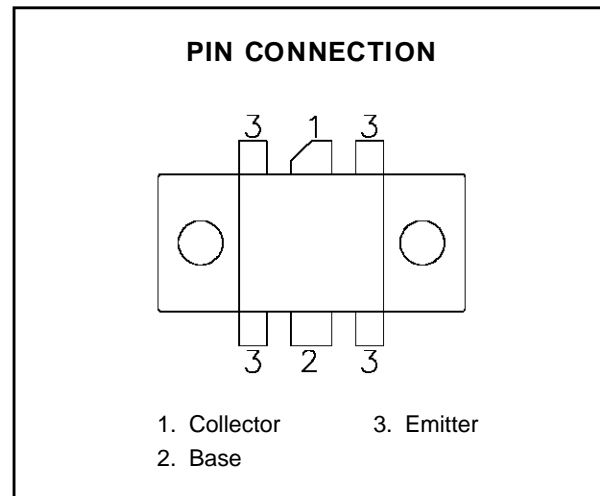


RF & MICROWAVE TRANSISTORS CELLULAR BASE STATION APPLICATIONS

- 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


DESCRIPTION

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

STATIC

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

DYNAMIC

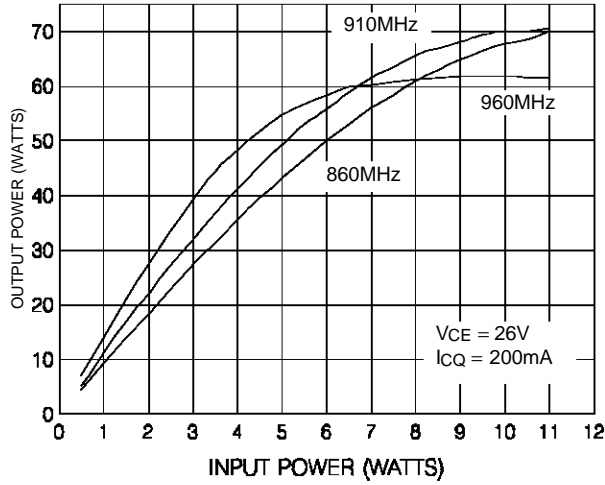
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
C_{OB}	$f = 1 \text{ MHz}$ $V_{\text{CB}} = 26 \text{ V}$ For Information Only - This Device is Collector Matched	—	55	—	pF
P_{IN}	$f = 960 \text{ MHz}$ $V_{\text{CE}} = 26 \text{ V}$ $I_{\text{CQ}} = 200 \text{ mA}$ $P_{\text{OUT}} = 45 \text{ W}$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

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

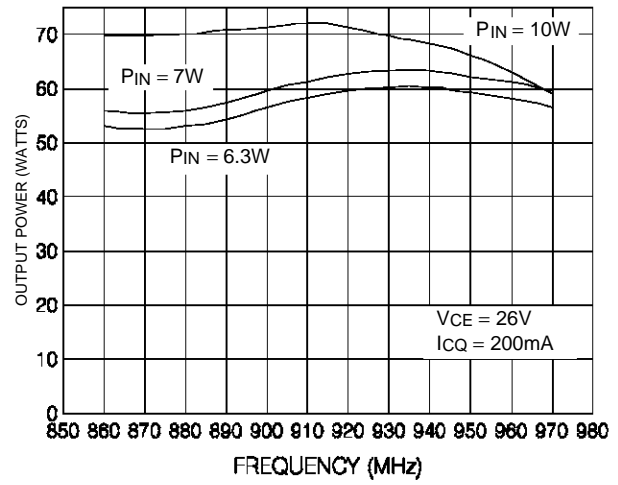
** dBT, in dB, referenced to tone level

TYPICAL PERFORMANCE

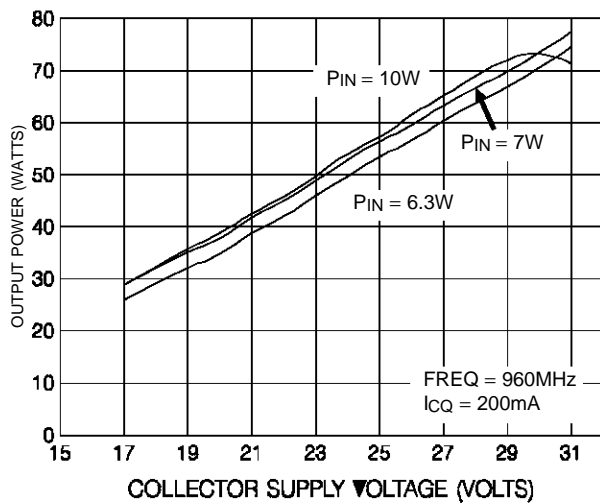
POWER OUTPUT vs POWER INPUT



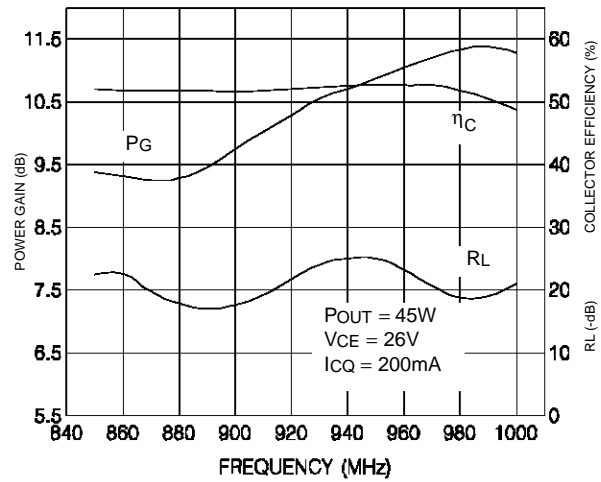
POWER OUTPUT vs FREQUENCY



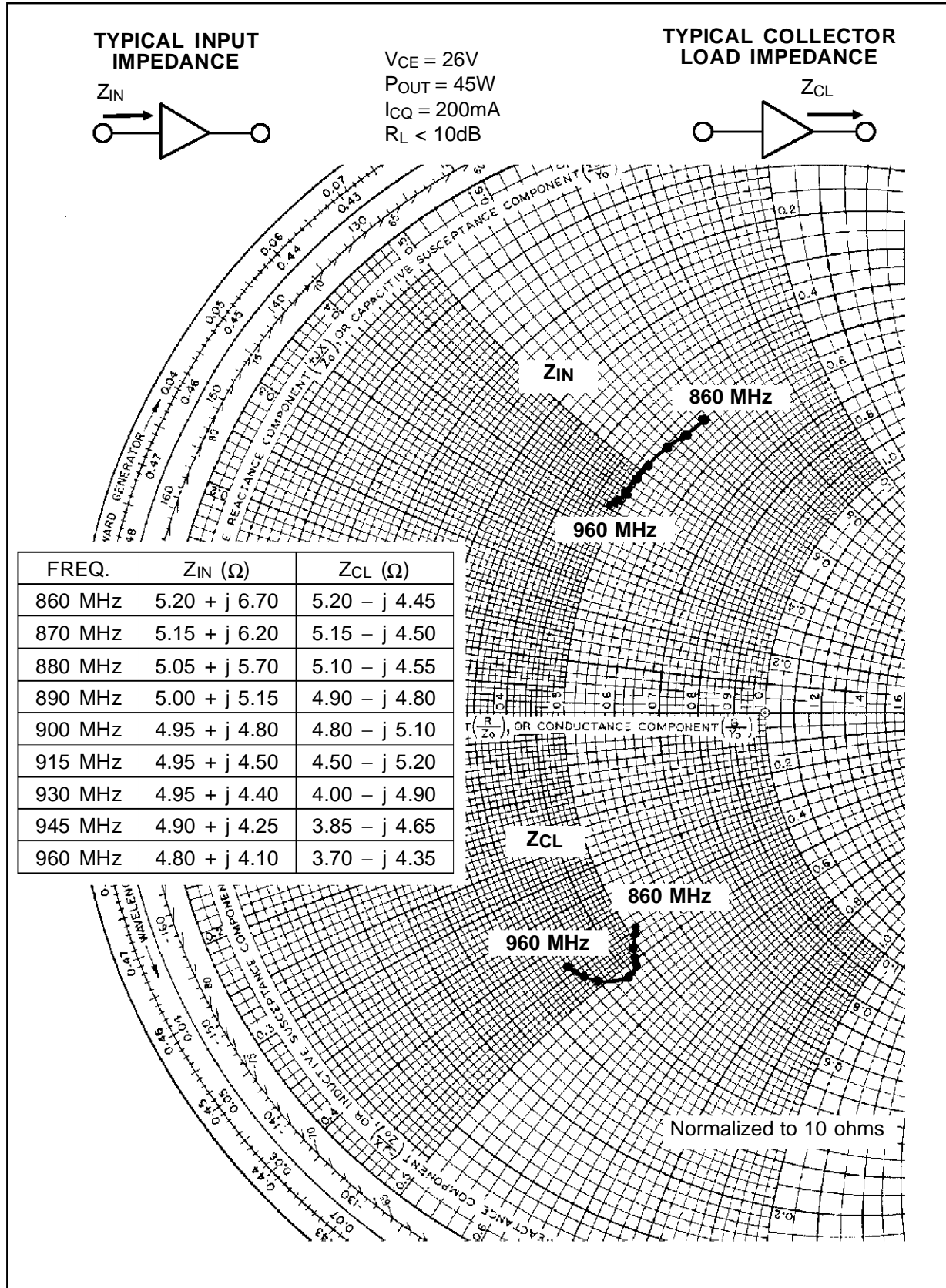
POWER OUTPUT vs SUPPLY VOLTAGE



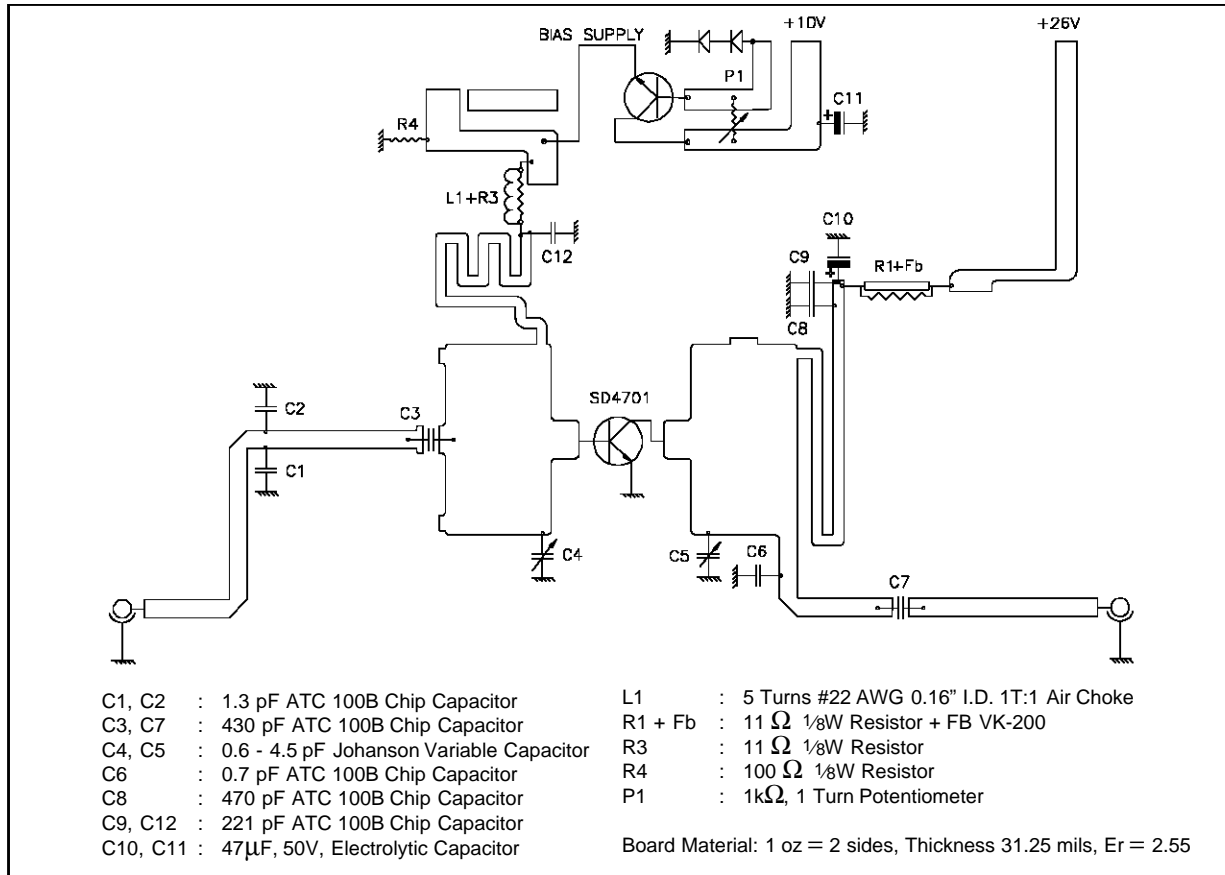
BROADBAND PERFORMANCE



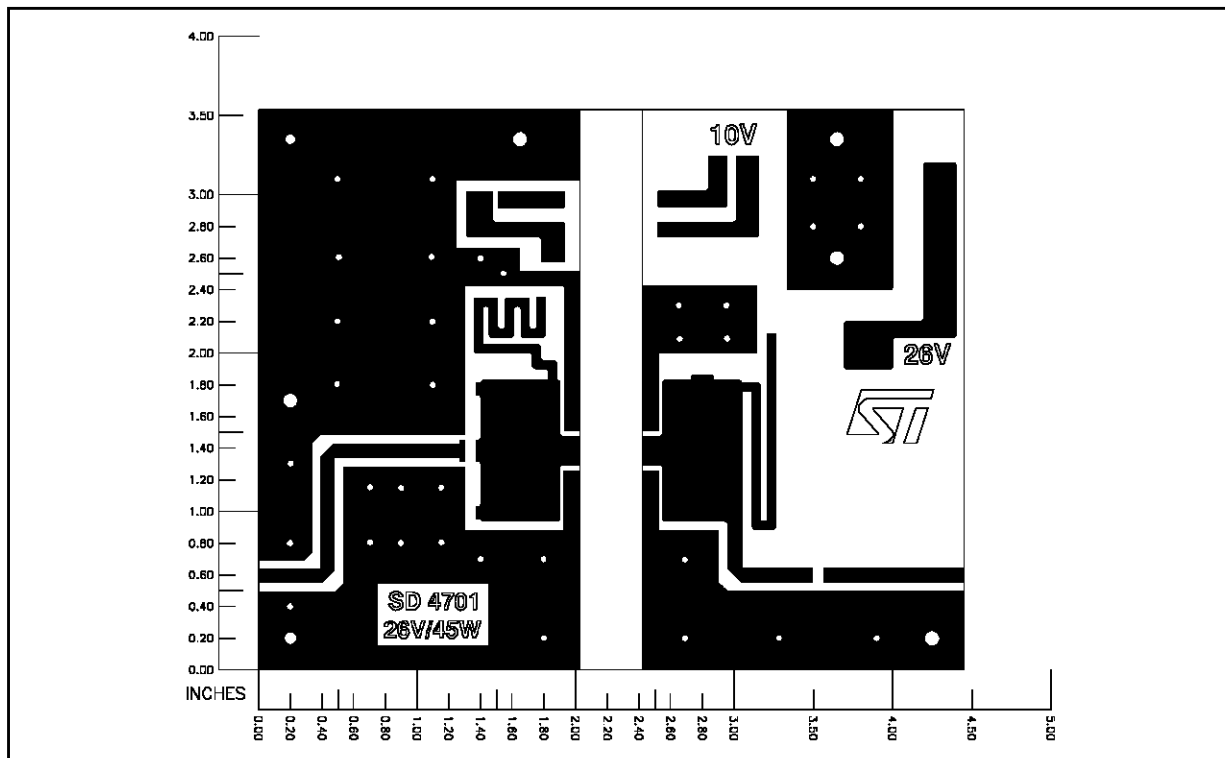
IMPEDANCE DATA



TEST CIRCUIT

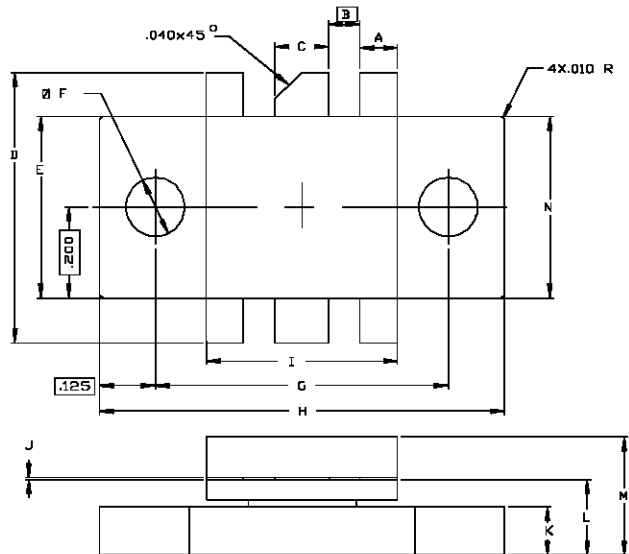


TEST CIRCUIT PHOTOMASTER



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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