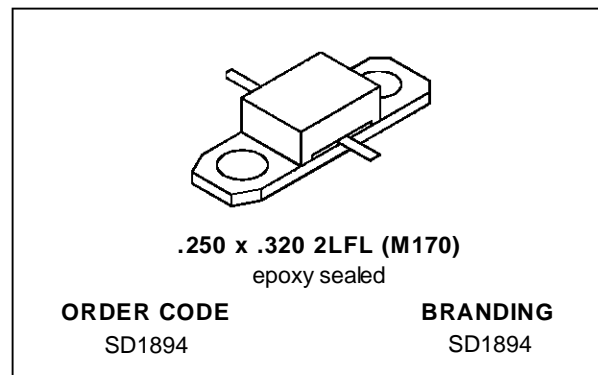


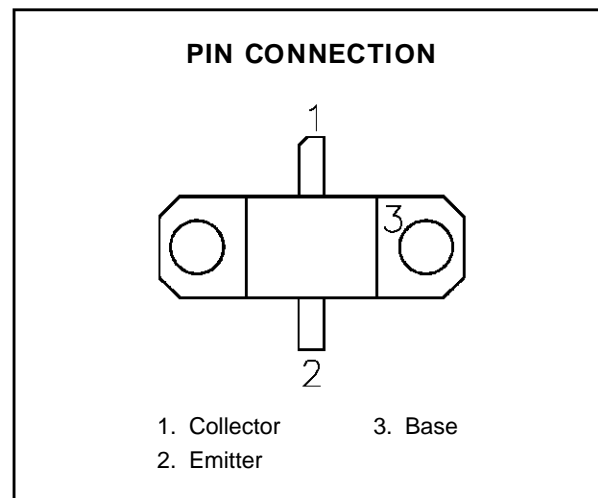
## RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

- CLASS C
- 1.6 GHz
- COMMON BASE
- REFRACTORY/GOLD METALLIZATION
- EFFICIENCY = 50% MIN.
- P<sub>OUT</sub> = 4.5 W MIN. WITH 10 dB GAIN


**DESCRIPTION**

The SD1894 is a common base silicon NPN bipolar device optimized for 1.6 GHz SATCOM applications.

The SD1894 offers superior gain and collector efficiency, making it an ideal choice for Class C power amplifiers used in portable as well as fixed SATCOM terminals.


**ABSOLUTE MAXIMUM RATINGS** (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	45	V
V <sub>CES</sub>	Collector-Emitter Voltage	45	V
V <sub>EBO</sub>	Emitter-Base Voltage	3.0	V
I <sub>c</sub>	Device Current	0.37	A
P <sub>DISS</sub>	Power Dissipation	9.2	W
T <sub>J</sub>	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +150	°C

**THERMAL DATA**

R <sub>TH(j-c)</sub>	Junction-Case Thermal Resistance	19.0	°C/W
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# SD1894

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

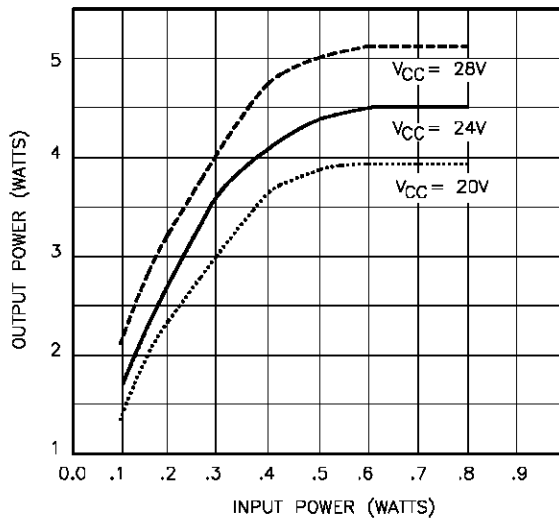
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 1 mA	I <sub>E</sub> = 0 mA	45	—	—	V
BV <sub>CES</sub>	I <sub>C</sub> = 1 mA	V <sub>BE</sub> = 0 V	45	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 1 mA	I <sub>C</sub> = 0 mA	3.0	—	—	V
I <sub>CBO</sub>	V <sub>CB</sub> = 28 V	I <sub>E</sub> = 0 mA	—	—	.25	mA
h <sub>FE</sub>	V <sub>CE</sub> = 5 V	I <sub>C</sub> = .2 A	15	—	150	—

### DYNAMIC

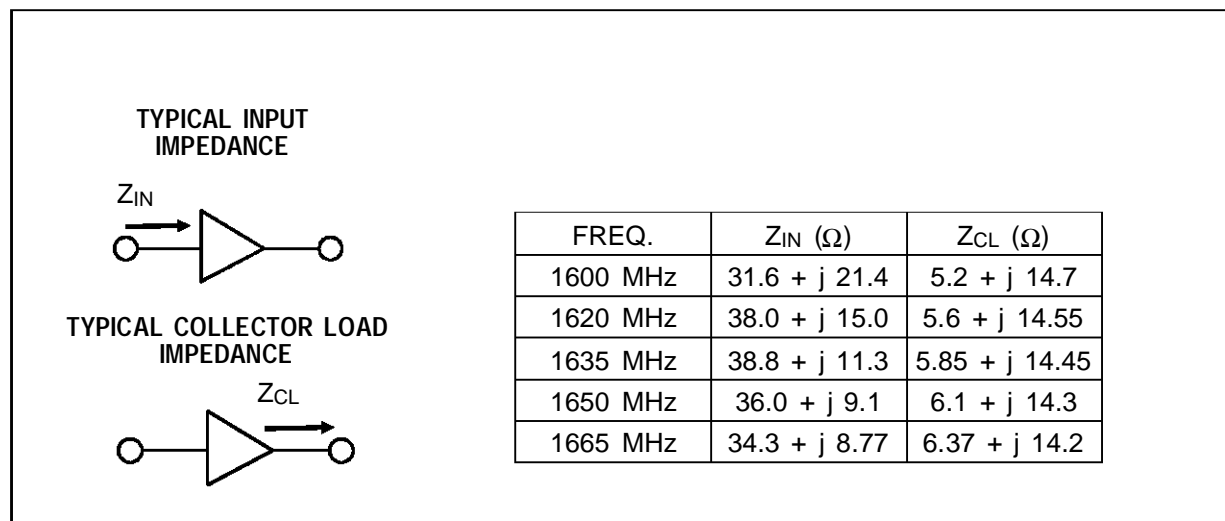
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>IN</sub>	f = 1650 MHz	V <sub>CC</sub> = 28 V	P <sub>OUT</sub> = 4.5 W	—	.35	.45	W
η <sub>C</sub>	f = 1650 MHz	V <sub>CC</sub> = 28 V	P <sub>OUT</sub> = 4.5 W	50	55	—	%
P <sub>G</sub>	f = 1650 MHz	V <sub>CC</sub> = 28 V	P <sub>OUT</sub> = 4.5 W	10.0	11.0	—	dB
Load Mismatch	V <sub>CC</sub> = 28 V	P <sub>OUT</sub> = 4.5 W	VSWR = 20:1	No Degradation in Output Power			

### TYPICAL PERFORMANCE

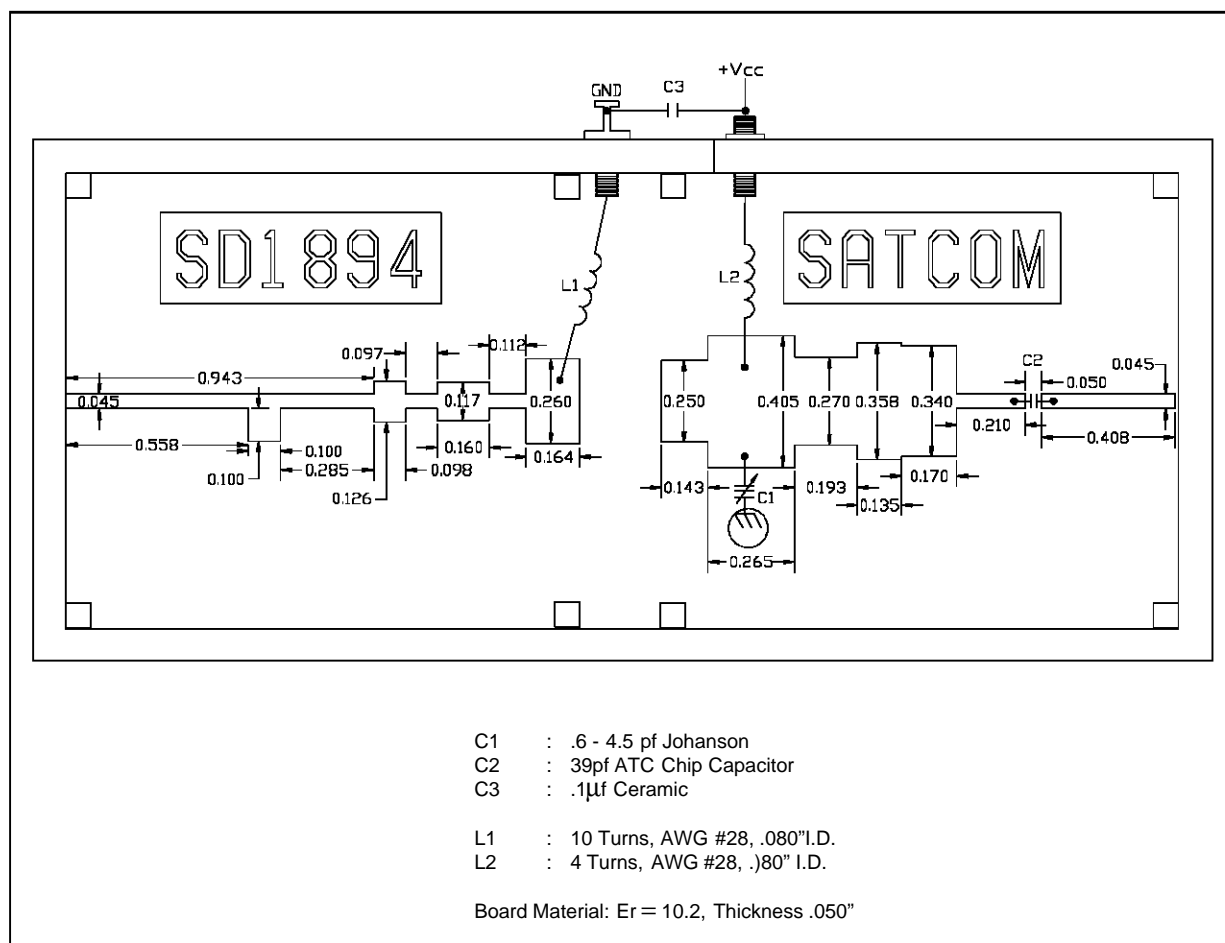
INPUT POWER vs OUTPUT POWER



## IMPEDANCE DATA

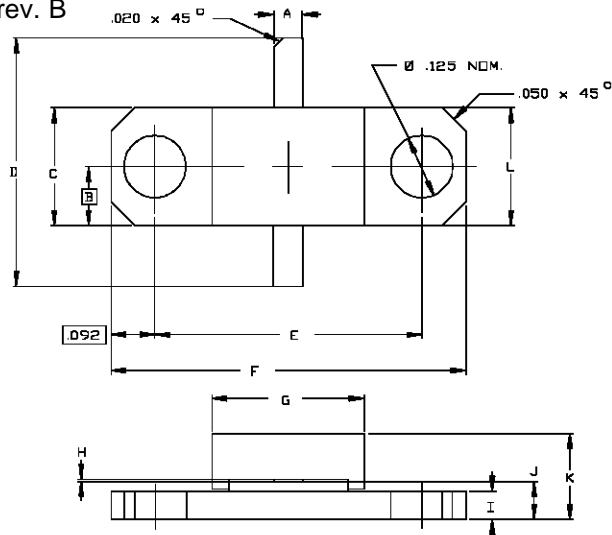


## TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0170 rev. B



SGS-THOMSON MICROELECTRONICS		CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		
A	.055/1,40	.065/1,65	K	.190/4,83
B	.124/3,15		L	.245/6,22
C	.243/6,17	.253/6,43		
D	.635/16,13	.665/16,89		
E	.555/14,10	.565/14,35		
F	.739/18,77	.749/19,02		
G	.315/8,00	.325/8,26		
H	.002/0,05	.006/0,15		
I	.055/1,40	.065/1,65		
J	.075/1,91	.095/2,41		

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