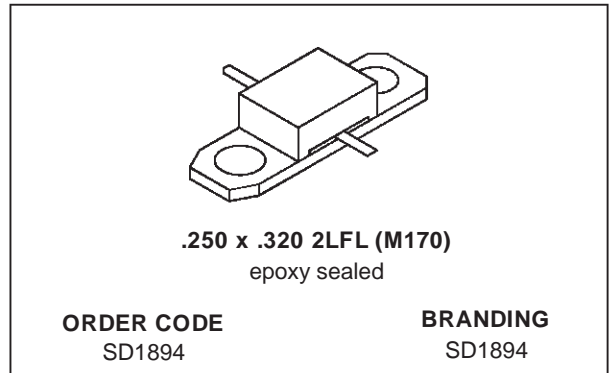


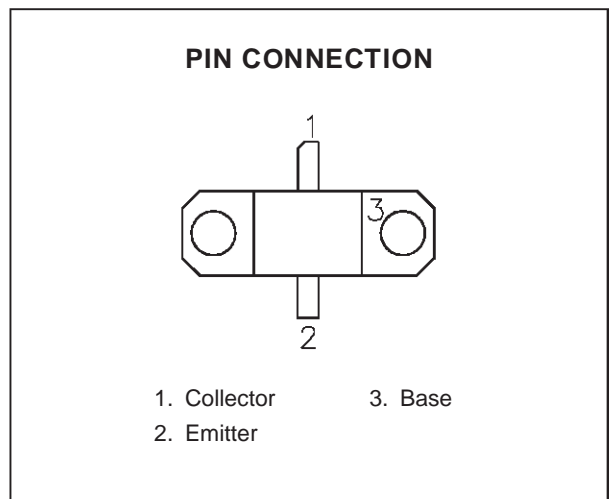
## RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

- CLASS C
- 1.6 GHz
- COMMON BASE
- REFRACTORY/GOLD METALLIZATION
- EFFICIENCY = 50% MIN.
- $P_{OUT} = 4.5 \text{ W MIN. WITH } 10 \text{ dB GAIN}$


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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	45	V
$V_{CES}$	Collector-Emitter Voltage	45	V
$V_{EBO}$	Emitter-Base Voltage	3.0	V
$I_C$	Device Current	375	mA
$P_{DISS}$	Power Dissipation	12.5	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	14.0	$^{\circ}\text{C/W}$
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**ELECTRICAL SPECIFICATIONS** ( $T_{case} = 25^{\circ}C$ )

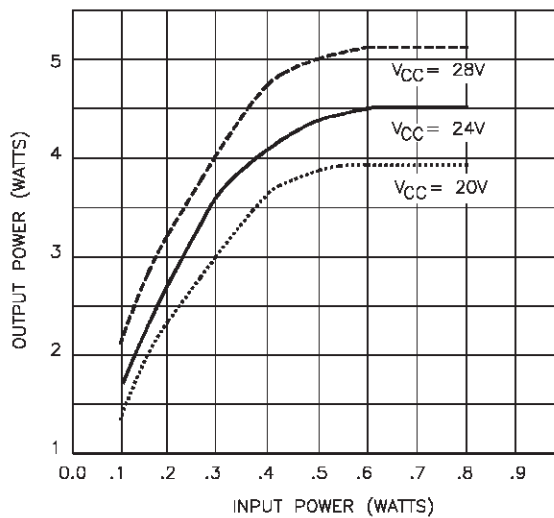
STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 1\text{ mA}$	$I_E = 0\text{ mA}$	45	—	—	V
$BV_{CES}$	$I_C = 1\text{ mA}$	$V_{BE} = 0\text{ V}$	45	—	—	V
$BV_{EBO}$	$I_E = 1\text{ mA}$	$I_C = 0\text{ mA}$	3.0	—	—	V
$I_{CBO}$	$V_{CB} = 28\text{ V}$	$I_E = 0\text{ mA}$	—	—	.25	mA
$h_{FE}$	$V_{CE} = 5\text{ V}$	$I_C = .2\text{ A}$	15	—	150	—

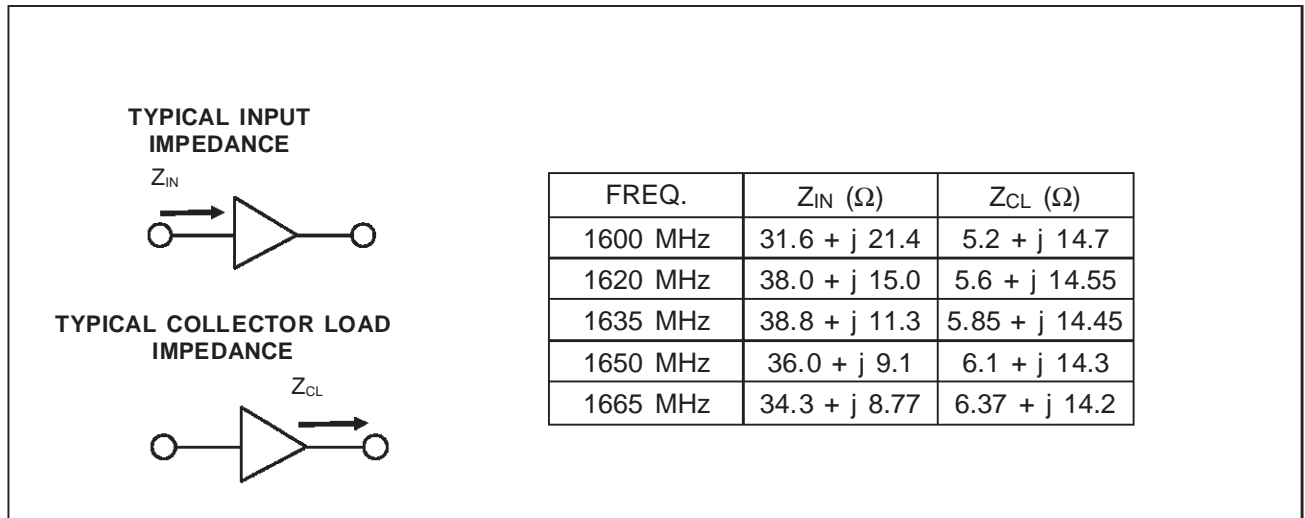
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{IN}$	$f = 1650\text{ MHz}$	$V_{CC} = 28\text{ V}$	$P_{OUT} = 4.5\text{ W}$	—	.35	.45	W
$\eta_C$	$f = 1650\text{ MHz}$	$V_{CC} = 28\text{ V}$	$P_{OUT} = 4.5\text{ W}$	50	55	—	%
$P_G$	$f = 1650\text{ MHz}$	$V_{CC} = 28\text{ V}$	$P_{OUT} = 4.5\text{ W}$	10.0	11.1	—	dB
Load Mismatch	$V_{CC} = 28\text{ V}$	$P_{OUT} = 4.5\text{ W}$	$V_{SWR} = 20:1$	No Degradation in Output Power			

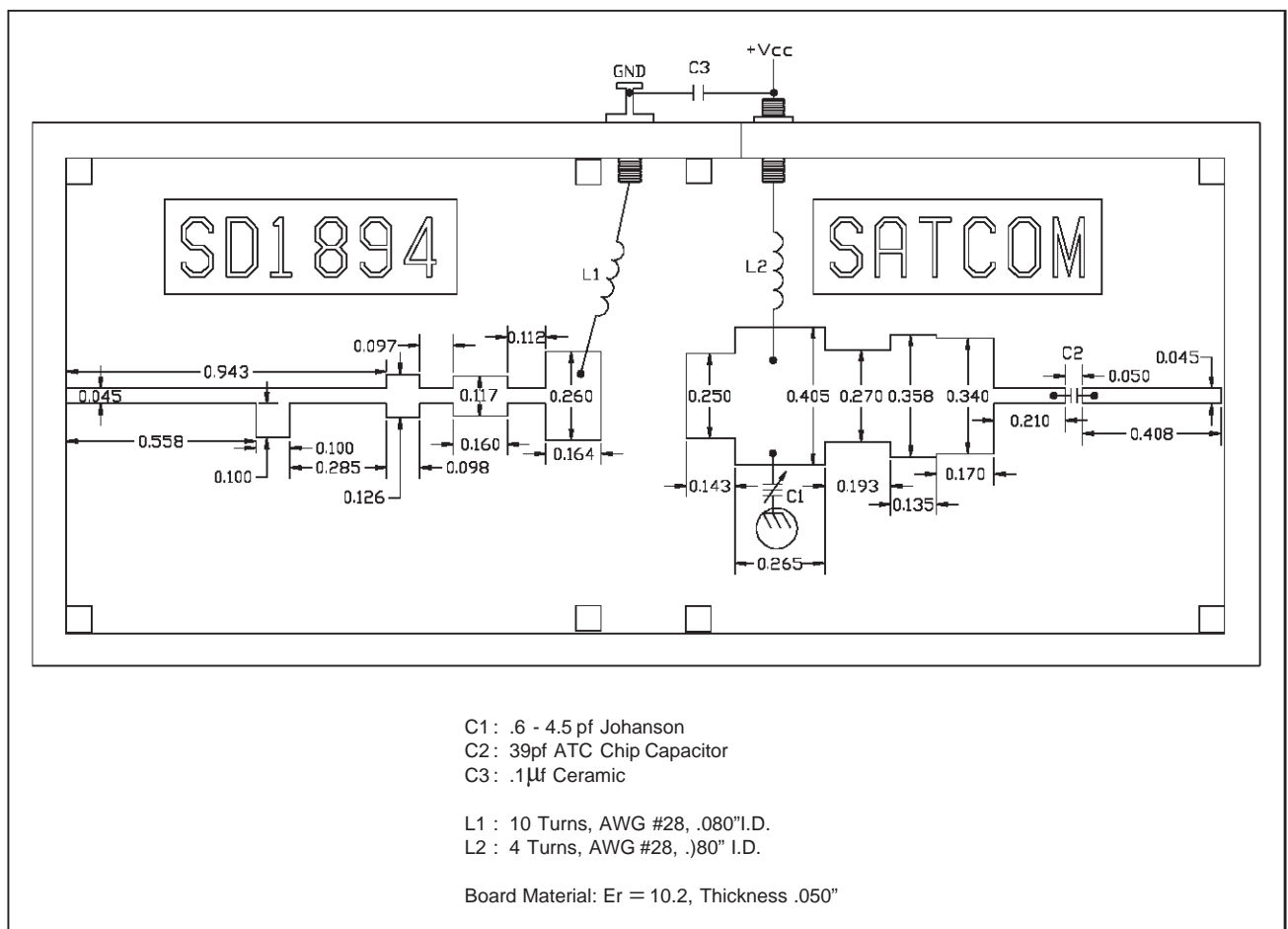
**INPUT POWER vs OUTPUT POWER**



## IMPEDANCE DATA

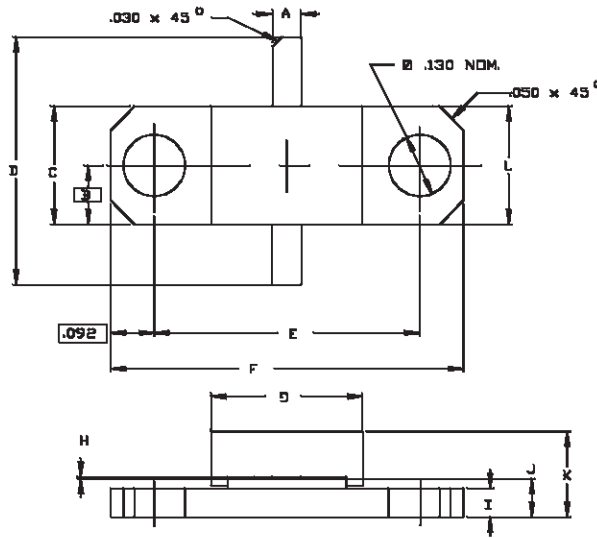


## TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0170  
UDCS No. 1010996 rev B



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		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	.255/6,48
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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