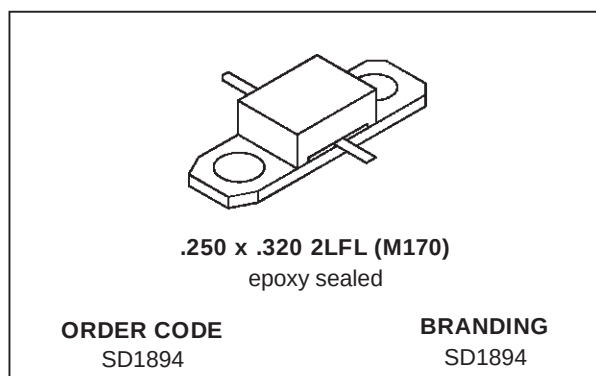


RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

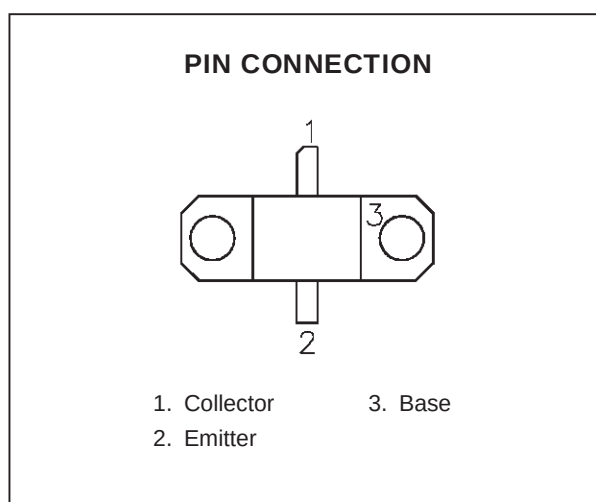
- CLASS C
- 1.6 GHz
- COMMON BASE
- REFRACTORY/GOLD METALLIZATION
- EFFICIENCY = 50% MIN.
- $P_{OUT} = 4.5 \text{ W MIN. WITH } 10 \text{ dB GAIN}$



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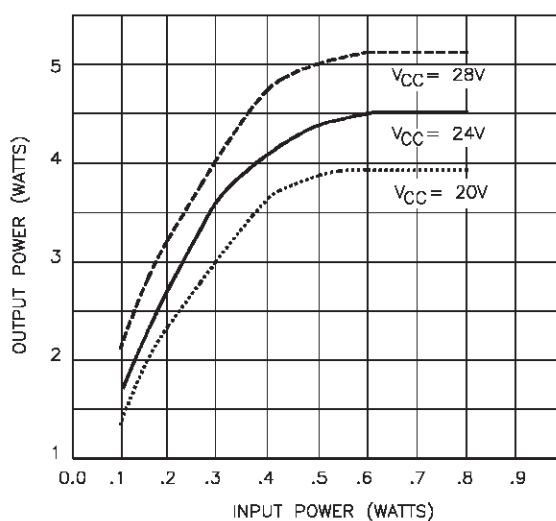
ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

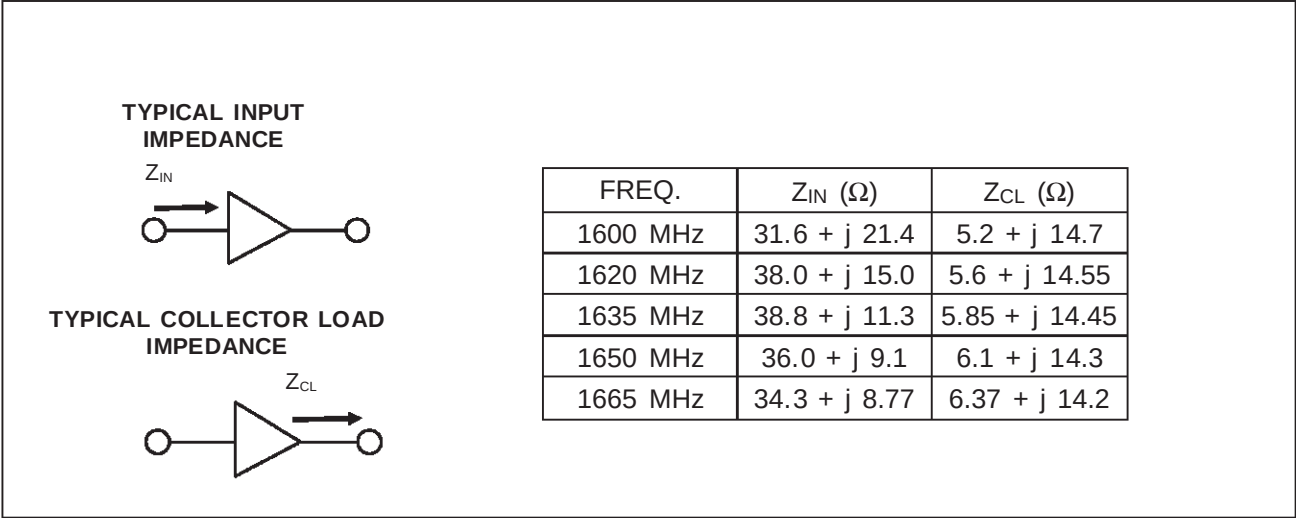
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 1 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	45	—	—	V
BV_{CES}	$I_{\text{C}} = 1 \text{ mA}$	$V_{\text{BE}} = 0 \text{ V}$	45	—	—	V
BV_{EBO}	$I_{\text{E}} = 1 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.0	—	—	V
I_{CBO}	$V_{\text{CB}}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

DYNAMIC

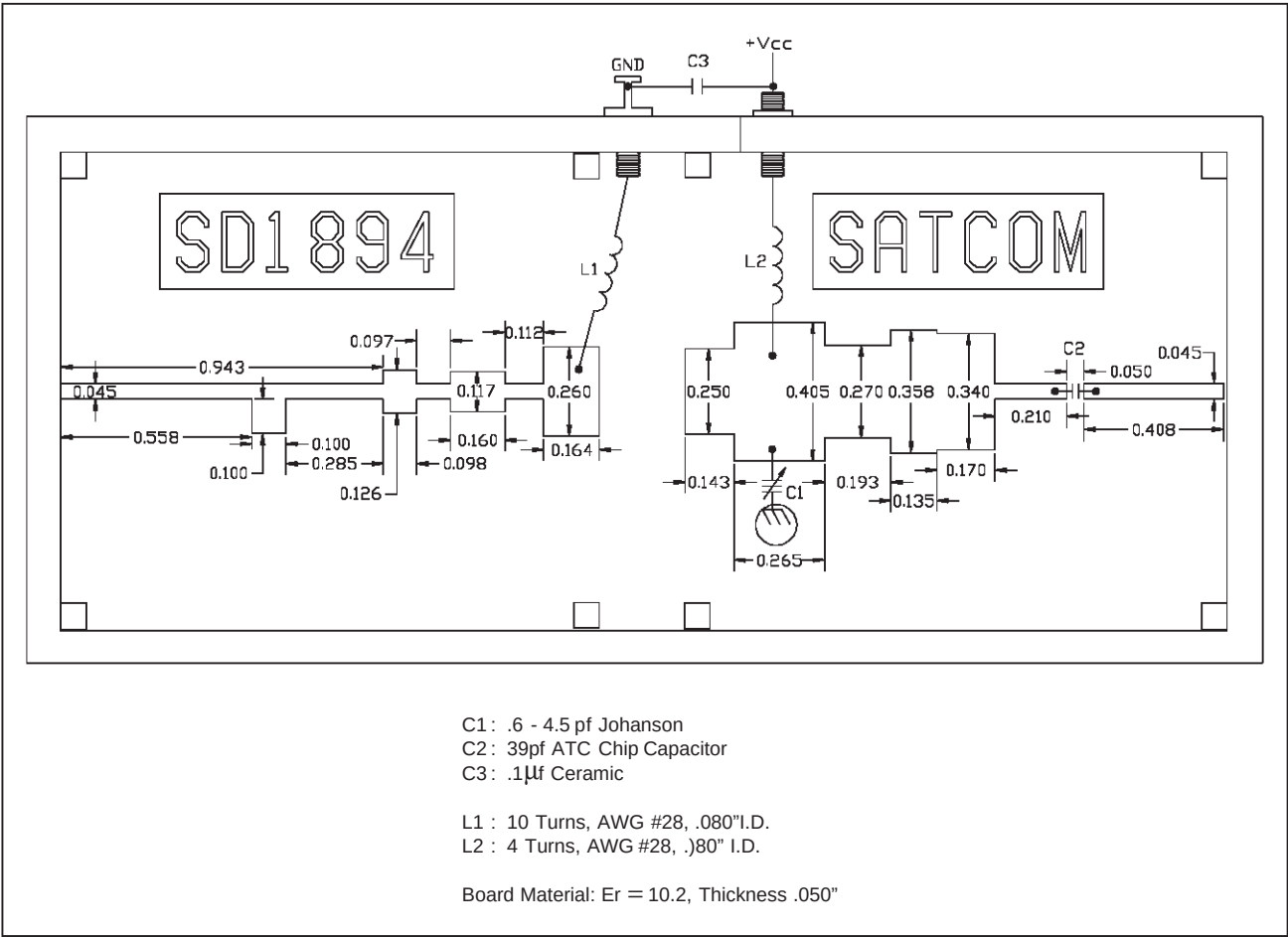
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{IN}	$f = 1650 \text{ MHz}$	$V_{\text{CC}} = 28 \text{ V}$	$P_{\text{OUT}} = 4.5 \text{ W}$	—	.35	.45	W
η_{C}	$f = 1650 \text{ MHz}$	$V_{\text{CC}} = 28 \text{ V}$	$P_{\text{OUT}} = 4.5 \text{ W}$	50	55	—	%
P_{G}	$f = 1650 \text{ MHz}$	$V_{\text{CC}}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

INPUT POWER vs OUTPUT POWER

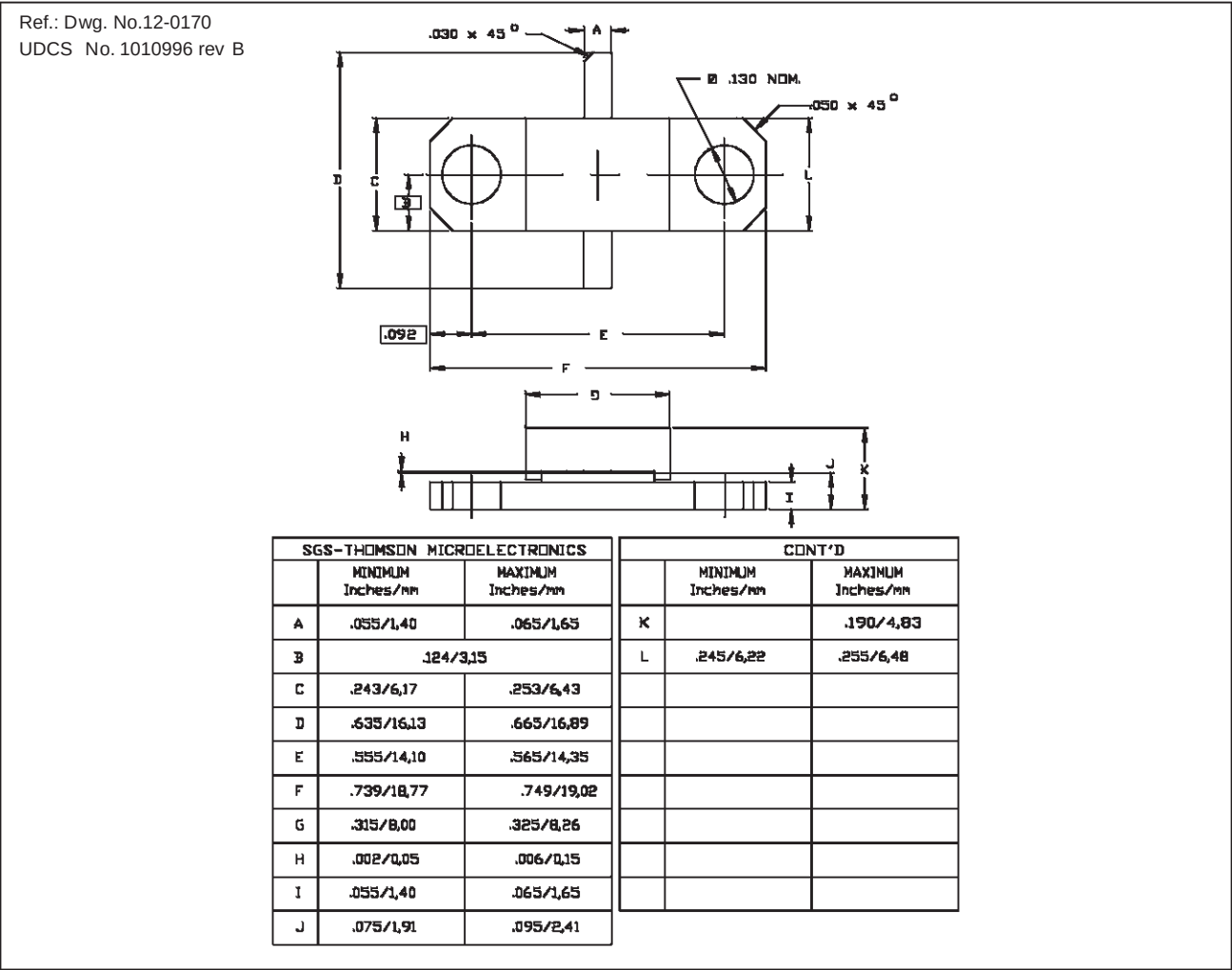
IMPEDANCE DATA



TEST CIRCUIT



PACKAGE MECHANICAL DATA



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