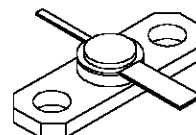


## RF & MICROWAVE TRANSISTORS 1.6 GHz SATCOM APPLICATIONS

- 1.65 GHz
- 28 VOLTS
- GOLD METALLIZED SYSTEM
- POLYSILICON SITE BALLASTING
- OVERLAY DIE GEOMETRY
- HIGH RELIABILITY AND RUGGEDNESS
- $P_{OUT} = 5.0 \text{ W MIN. WITH } 14.0 \text{ dB GAIN}$



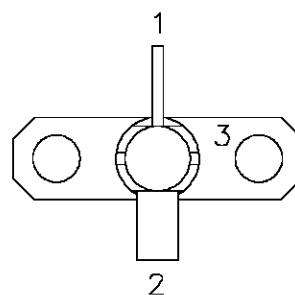
**.230 2LFL (M151)**  
hermetically sealed

**ORDER CODE**

SD1891-03

**BRANDING**

1891-03

**PIN CONNECTION**

1. Collector

2. Emitter

3. Base

**DESCRIPTION**

The SD1891-03 is a 28 V silicon NPN transistor designed for INMARSAT and other 1.6 GHz SATCOM applications. This device utilizes polysilicon site ballasting with a gold metallized die to achieve high reliability and ruggedness.

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	45	V
$V_{CEO}$	Collector-Emitter Voltage	15	V
$V_{EBO}$	Emitter-Base Voltage	3.5	V
$I_C$	Device Current	1.1	A
$P_{DISS}$	Power Dissipation	8.8	W
$T_J$	Junction Temperature	+200	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	- 65 to +200	$^{\circ}\text{C}$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	20.0	$^{\circ}\text{C/W}$
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**SD1891-03****ELECTRICAL SPECIFICATIONS** ( $T_{\text{case}} = 25^{\circ}\text{C}$ )

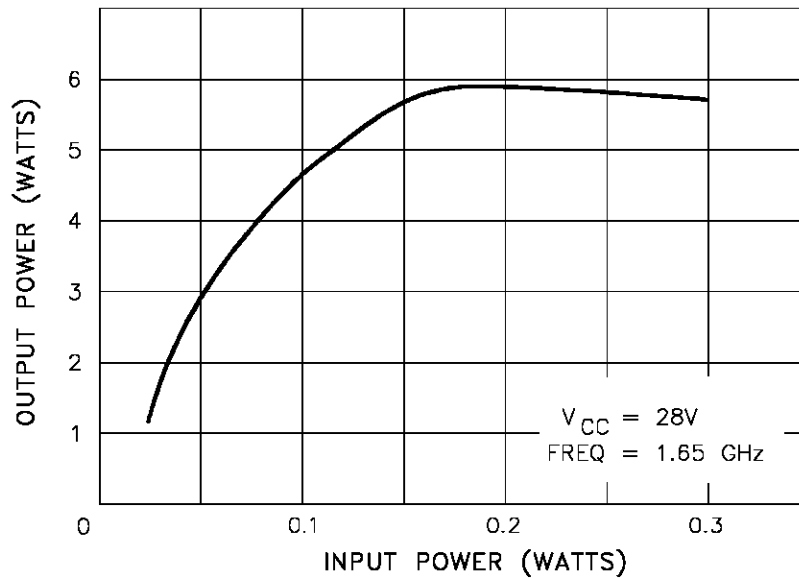
## STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 1\text{mA}$	$I_{\text{E}} = 0\text{mA}$	45	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = 1\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
$I_{\text{CBO}}$	$V_{\text{CB}} = 24\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	0.5	mA
$h_{\text{FE}}$	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 100\text{mA}$	15	—	150	—

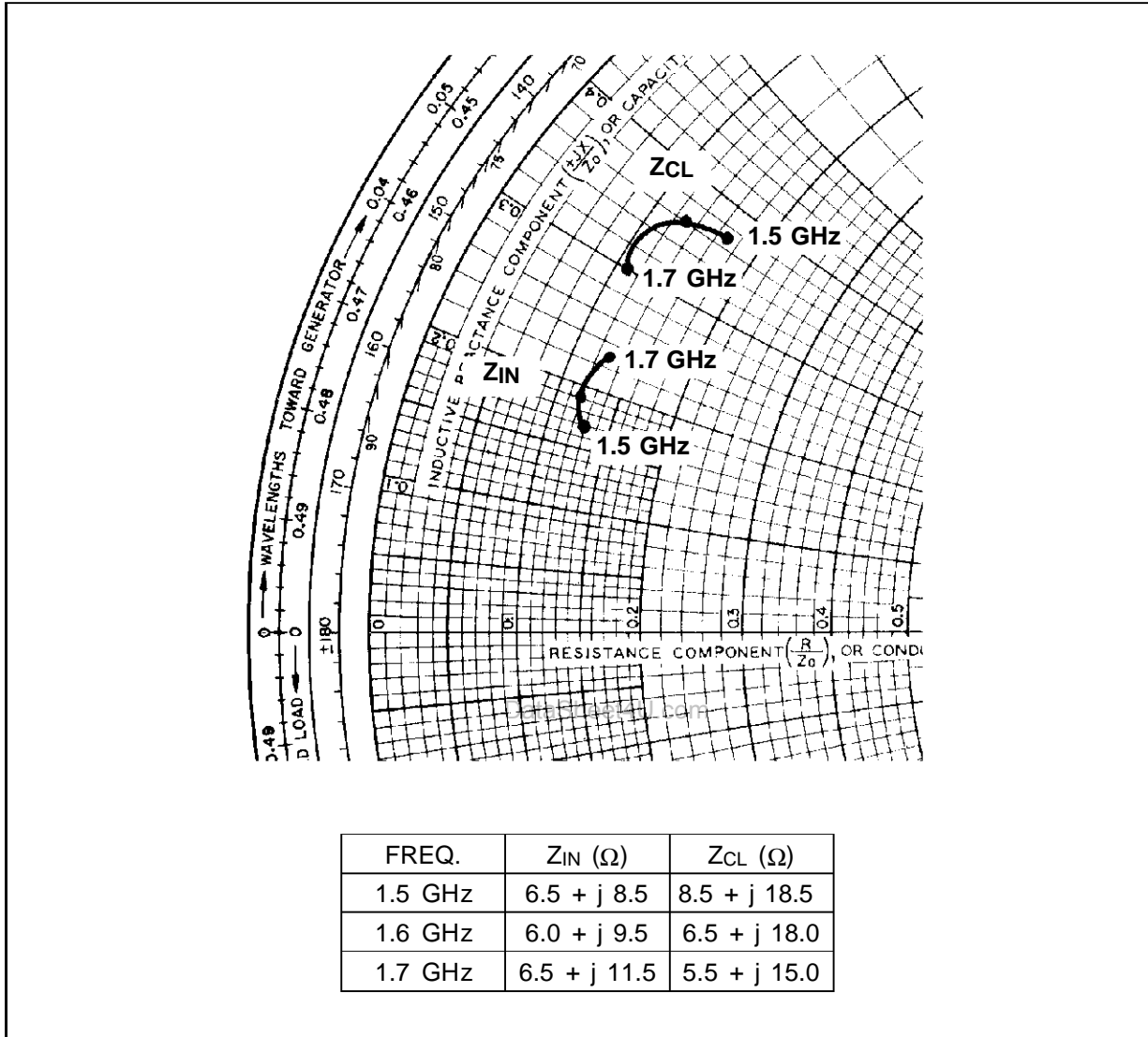
## DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{\text{OUT}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 200\text{ mW}$	$V_{\text{CE}} = 28\text{ V}$	5.0	—	—	W
$G_{\text{P}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 200\text{ mW}$	$V_{\text{CE}} = 28\text{ V}$	14	—	—	dB
$\eta_{\text{c}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 200\text{ mW}$	$V_{\text{CE}} = 28\text{ V}$	45	—	—	%
$C_{\text{OB}}$	$f = 1\text{ MHz}$	$V_{\text{CB}} = 28\text{ V}$		—	2.5	—	pF

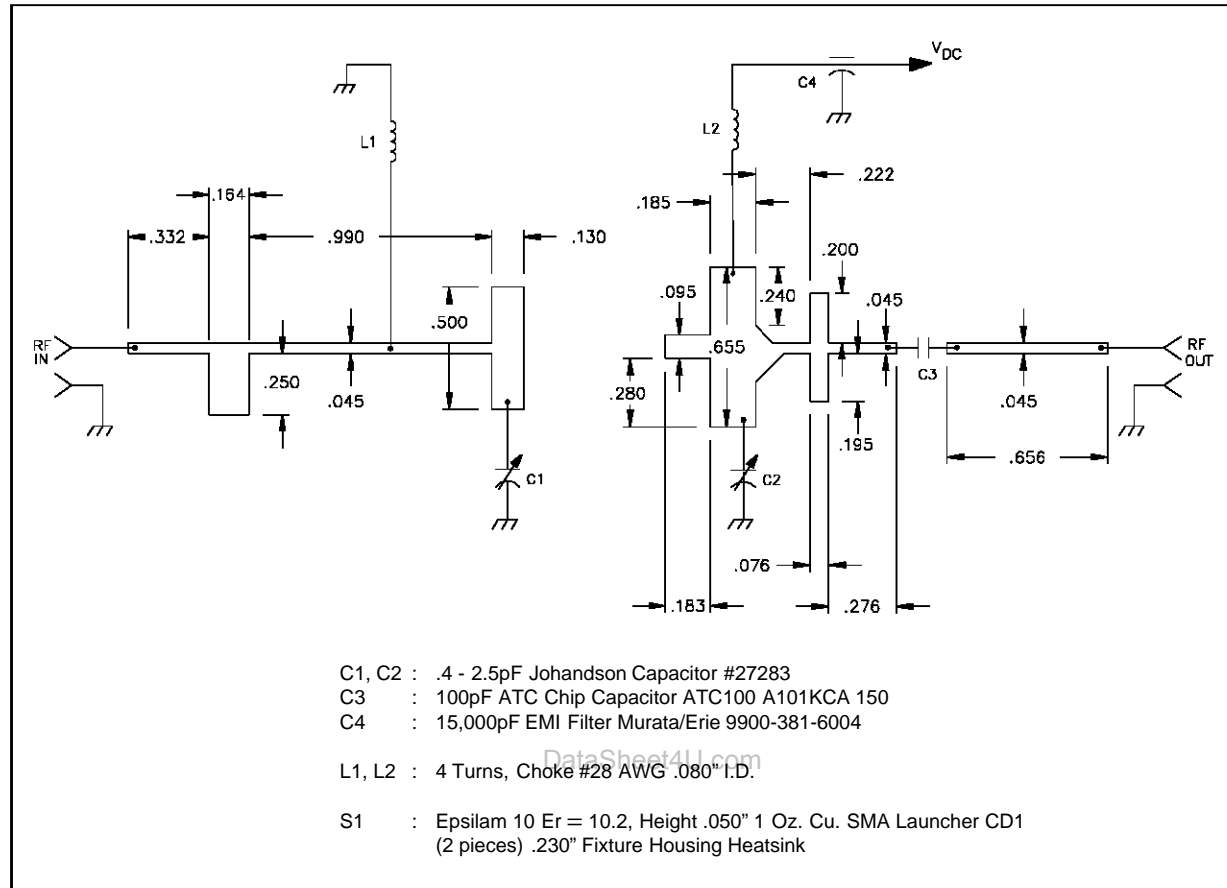
DataSheet4U.com

**TYPICAL PERFORMANCE****POWER OUTPUT vs POWER INPUT**

IMPEDANCE DATA



FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
1.5 GHz	6.5 + j 8.5	8.5 + j 18.5
1.6 GHz	6.0 + j 9.5	6.5 + j 18.0
1.7 GHz	6.5 + j 11.5	5.5 + j 15.0

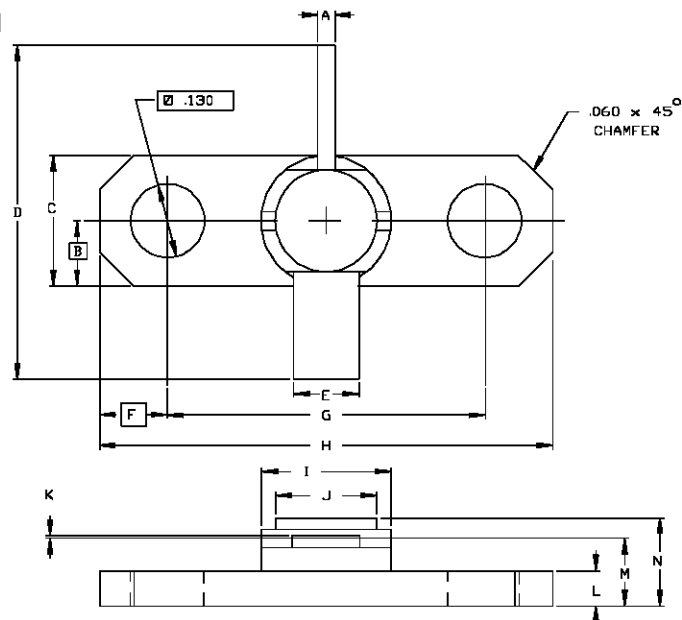
**SD1891-03****TEST CIRCUIT**

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DataShee

## PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0151



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.025/0,64	.035/0,89	K	.003/0,08	.007/0,18
B	.115/2,92	NOM.	L	.055/1,40	.067/1,70
C	.225/5,72	.235/5,97	M	.120/3,18	.140/3,56
D	.710/18,03	.750/19,05	N		.170/4,32
E	.110/2,79	.120/3,05			
F	.120/3,05	NOM.			
G	.555/14,10	.565/14,35			
H	.795/20,19	.805/20,45			
I	.222/5,64	.236/5,99			
J	.165/4,19	.185/4,70			

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