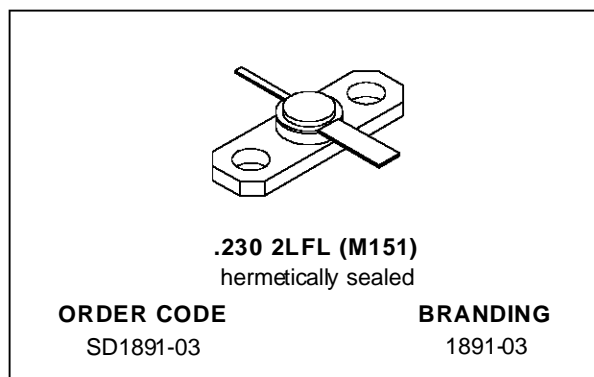
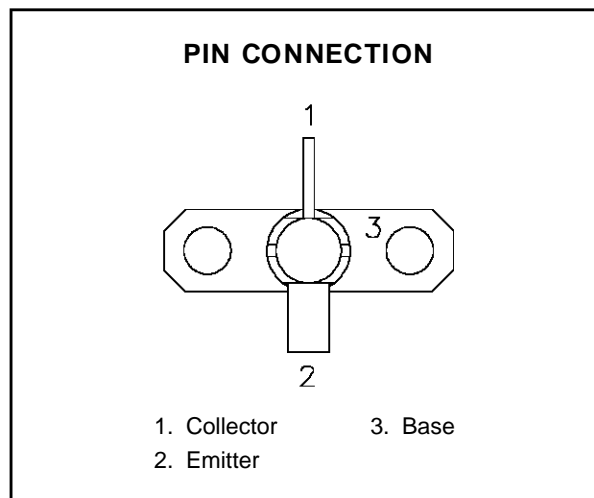


**RF & MICROWAVE TRANSISTORS  
1.6 GHz SATCOM APPLICATIONS**

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


**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	$^{\circ}\text{C/W}$
---------------	----------------------------------	------	----------------------

## SD1891-03

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

#### STATIC

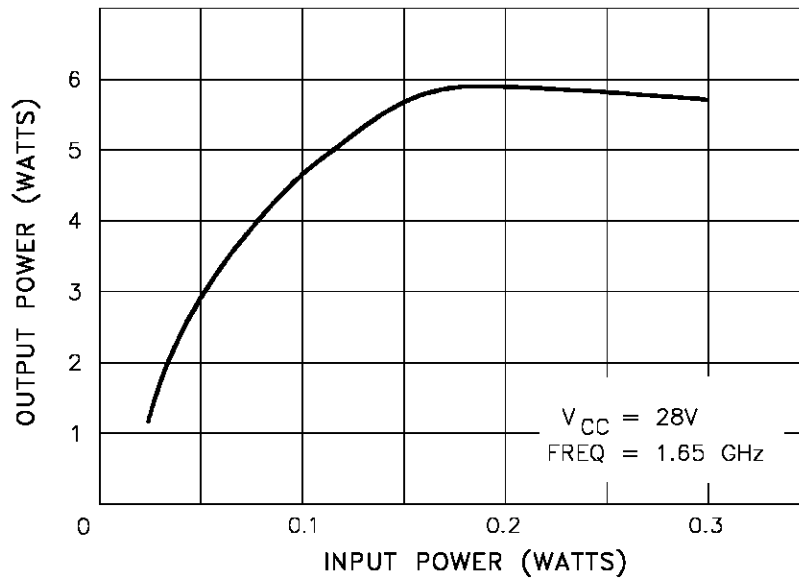
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 1\text{mA}$	$I_{\text{E}} = 0\text{mA}$	45	—	—	V
$BV_{\text{EBO}}$	$I_{\text{E}} = 1\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
$I_{\text{CBO}}$	$V_{\text{CB}} = 24\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—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

#### DYNAMIC

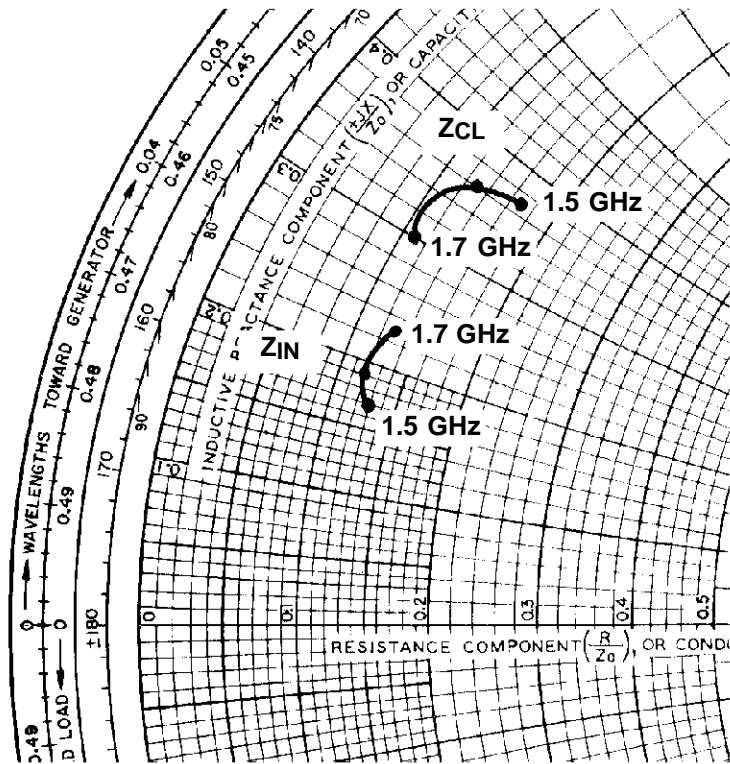
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{\text{OUT}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 200\text{ mW}$	$V_{\text{CE}} = 28\text{ V}$	5.0	—	—	W
$G_{\text{P}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 200\text{ mW}$	$V_{\text{CE}} = 28\text{ V}$	14	—	—	dB
$\eta_{\text{c}}$	$f =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

#### TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

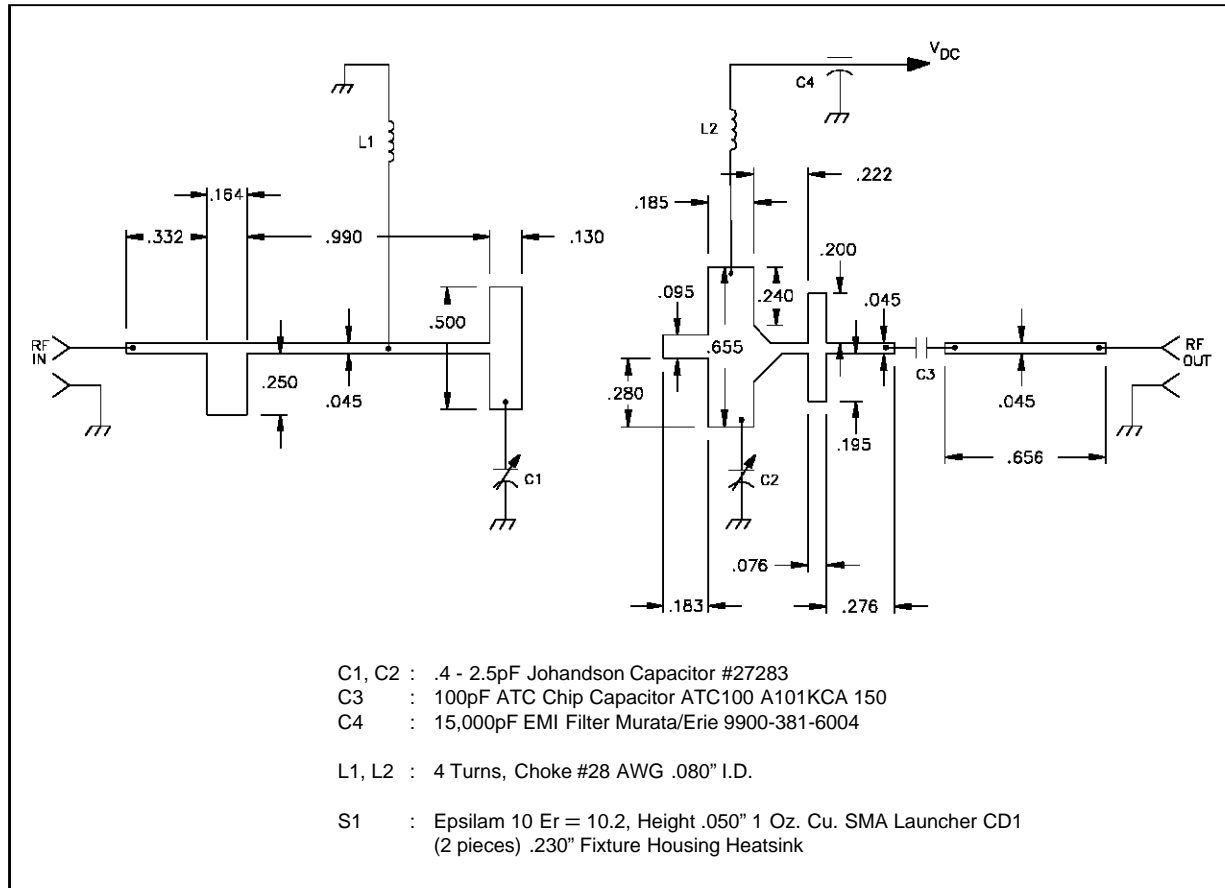


## IMPEDANCE DATA



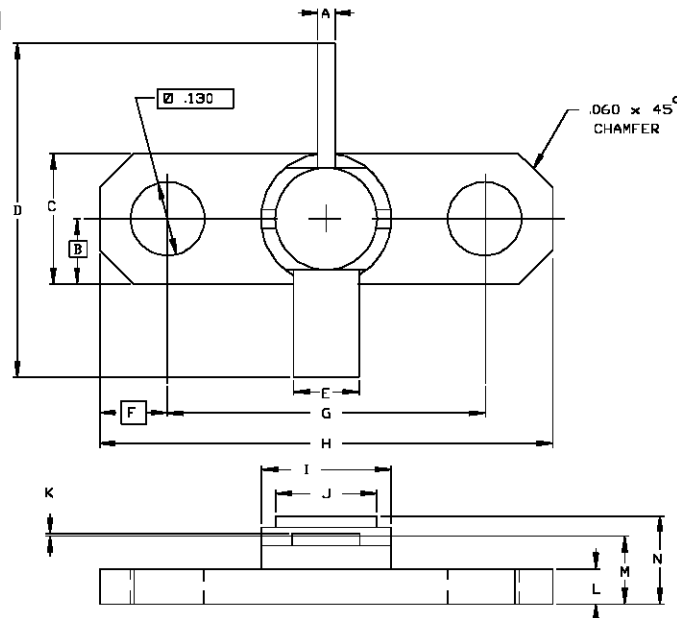
FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
1.5 GHz	6.5 + j 8.5	8.5 + j 18.5
1.6 GHz	6.0 + j 9.5	6.5 + j 18.0
1.7 GHz	6.5 + j 11.5	5.5 + j 15.0

TEST CIRCUIT



## 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			

Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1994 SGS-THOMSON Microelectronics - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES  
 Australia - Brazil - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
 Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A