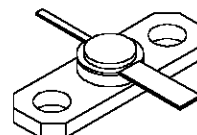


RF & MICROWAVE TRANSISTORS 1.6 GHz SATCOM APPLICATIONS

- 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

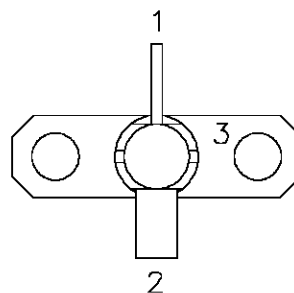
BRANDING

1891-03

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.

PIN CONNECTION



- | | |
|--------------|---------|
| 1. Collector | 3. Base |
| 2. Emitter | |

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

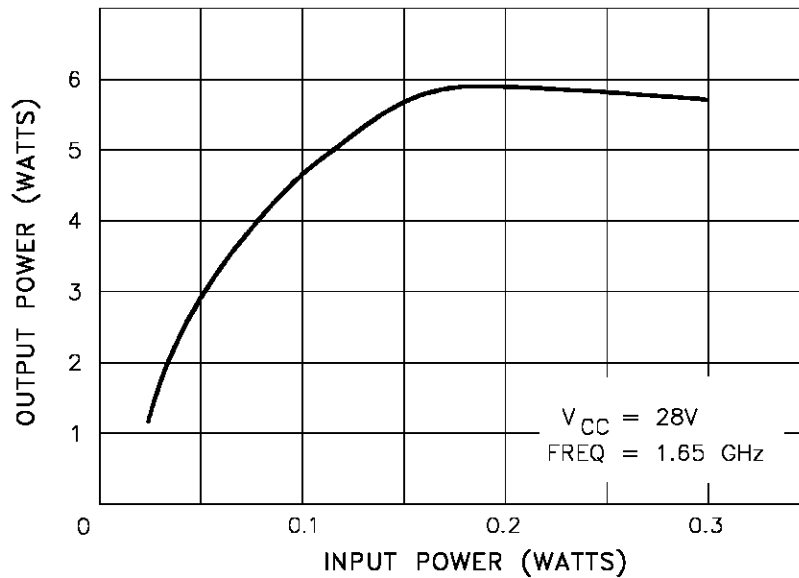
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 1\text{mA}$	$I_{\text{E}} = 0\text{mA}$	45	—	—	V
BV_{EBO}	$I_{\text{E}} = 1\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
I_{CBO}	$V_{\text{CB}} = 24\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	0.5	mA
h_{FE}	$V_{\text{CE}}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

DYNAMIC

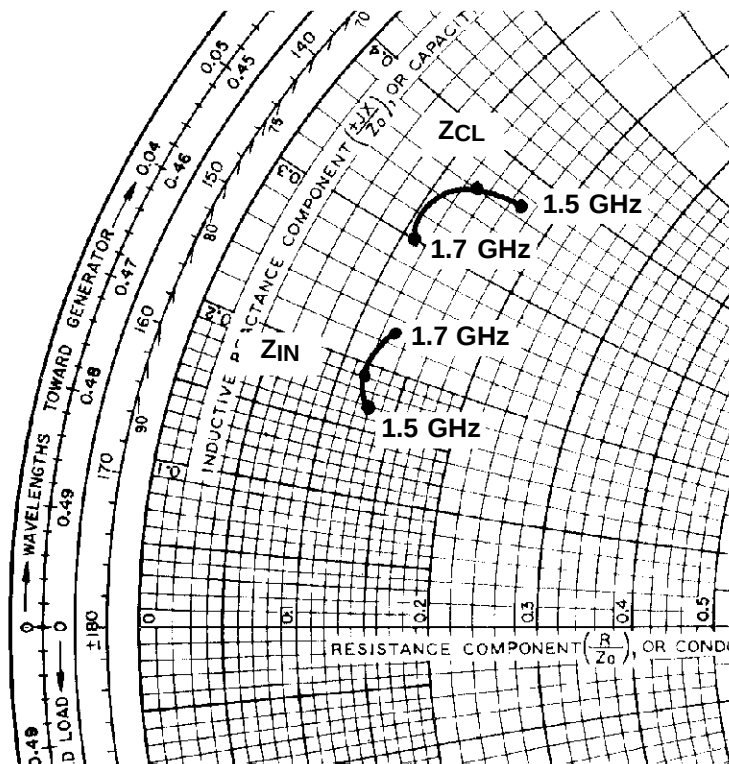
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 200\text{ mW}$	$V_{\text{CE}} = 28\text{ V}$	5.0	—	—	W
G_{P}	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 200\text{ mW}$	$V_{\text{CE}} = 28\text{ V}$	14	—	—	dB
η_{c}	$f = 1.65\text{ GHz}$	$P_{\text{IN}}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

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

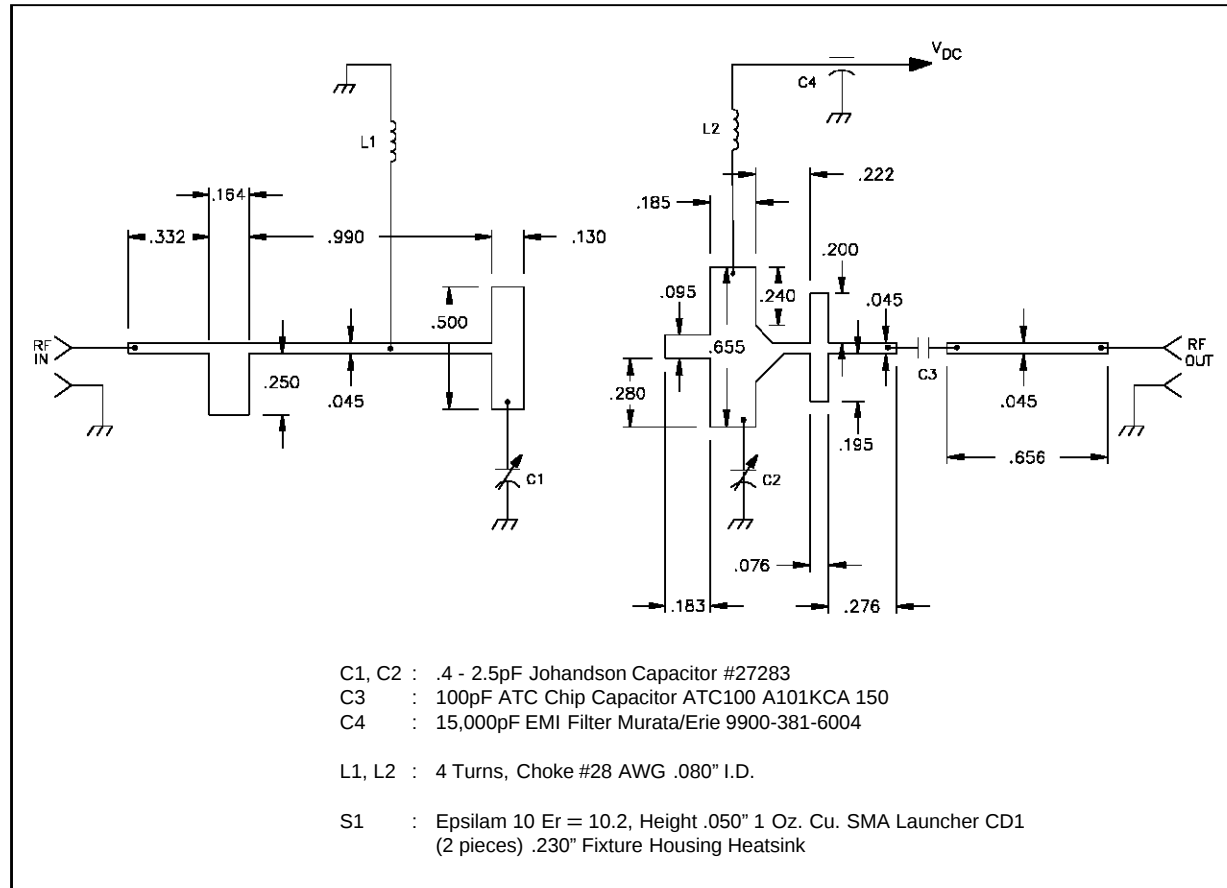


IMPEDANCE DATA



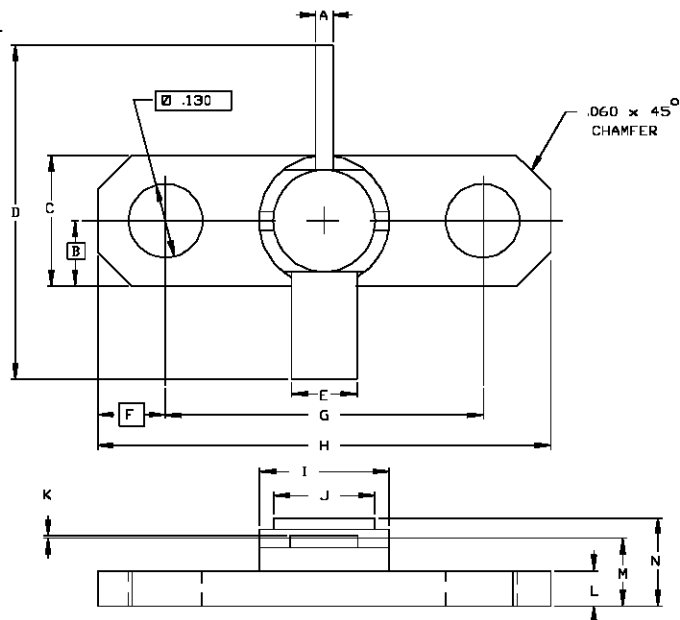
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
1.5 GHz	$6.5 + j 8.5$	$8.5 + j 18.5$
1.6 GHz	$6.0 + j 9.5$	$6.5 + j 18.0$
1.7 GHz	$6.5 + j 11.5$	$5.5 + j 15.0$

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			

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