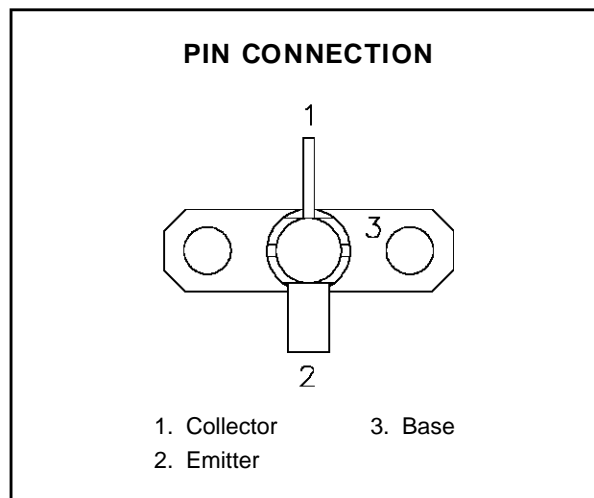
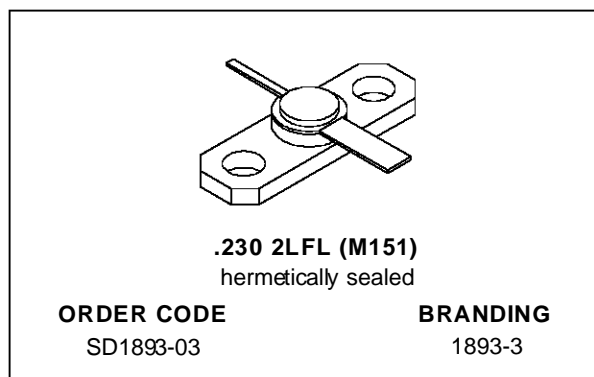


**RF & MICROWAVE TRANSISTORS  
1.6 GHZ SATCOM APPLICATIONS**

- 1.65 GHz
- 28 VOLTS
- OVERLAY DIE GEOMETRY
- GOLD METALLIZATION
- HIGH RELIABILITY AND RUGGEDNESS
- $P_{OUT} = 10$  W MIN. WITH 11.0 dB GAIN
- COMMON BASE


**DESCRIPTION**

The SD1893-03 is a 28 V silicon NPN planar transistor designed for INMARSAT and other 1.6 GHz SATCOM applications. The device utilizes polysilicon site ballasting with a gold metallized die to achieve high reliability and ruggedness.

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

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	4.4	A
$P_{DISS}$	Power Dissipation	43	W
$T_J$	Junction Temperature	+200	$^{\circ}C$
$T_{STG}$	Storage Temperature	- 65 to +200	$^{\circ}C$

**THERMAL DATA**

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	5.5	$^{\circ}C/W$
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**SD1893-03****ELECTRICAL SPECIFICATIONS** ( $T_{\text{case}} = 25^{\circ}\text{C}$ )

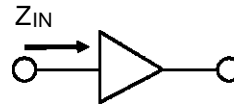
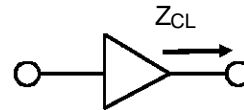
## STATIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$BV_{\text{CBO}}$	$I_{\text{C}} = 3\text{mA}$	$I_{\text{E}} = 0\text{mA}$	45	—	—	V	
$BV_{\text{EBO}}$	$I_{\text{E}} = 3\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V	
$I_{\text{CBO}}$	$V_{\text{CB}} = 28\text{V}$	$I_{\text{E}} = 0\text{mA}$	—	—	5	mA	
$h_{\text{FE}}$	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 300\text{mA}$	15	—	150	—	

## DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$P_{\text{OUT}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 0.6\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	10	—	—	W
$G_{\text{P}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 0.6\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	11	—	—	dB
$\eta_{\text{c}}$	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 0.6\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	45	—	—	%
$C_{\text{OB}}$	$f = 1\text{ MHz}$	$V_{\text{CB}} = 28\text{ V}$		—	19	—	pF

## IMPEDANCE DATA

TYPICAL INPUT  
IMPEDANCETYPICAL COLLECTOR  
LOAD IMPEDANCE

FREQ.	$Z_{IN}$ ( $\Omega$ )	$Z_{CL}$ ( $\Omega$ )
1.5 GHz	$2.5 + j 4.5$	$3.5 - j 2.6$
1.6 GHz	$2.0 + j 6.0$	$3.0 - j 3.3$
1.7 GHz	$2.0 + j 7.0$	$3.5 - j 4.0$

TEST CIRCUIT

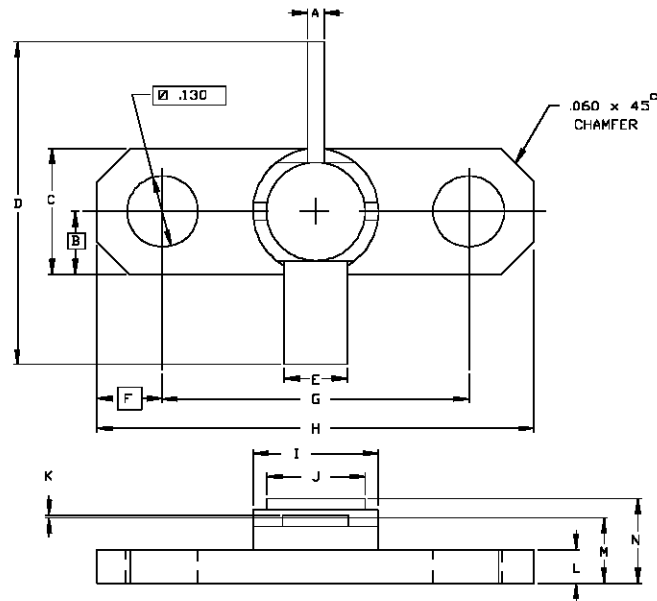
C1, C2 : .4 - 2.5pF Johanson Capacitor #27283  
C3 : 100pF Chip Capacitor ATC 100 A101KCA 150  
C4 : 15,000pF EMI Filter Murata/Erie 9900-381-6004

L1, L2 : 4 Turn, Choke #28 AWG .080" I.D.

Board  
Material: Epsilam 10, Er = 10.2, H = .050"  
1 Oz. Cu. SMA Launcher CDI (2 peeces)  
.230" Fixture Housing Heatsink, Advanced Corp. 5308-2CC

## 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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