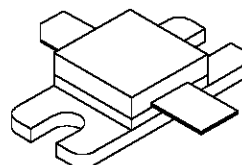


RF & MICROWAVE TRANSISTORS 1.6 GHz SATCOM APPLICATIONS

- 1.65 GHz
- 28 VOLTS
- EFFICIENCY 40% MIN.
- CLASS C OPERATION
- COMMON BASE
- $P_{OUT} = 32\text{ W MIN. WITH } 9\text{ dB GAIN}$



.400 SQ. 2LFL (M186)
epoxy sealed

ORDER CODE

SD1898

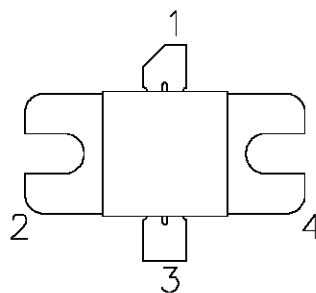
BRANDING

1898

DESCRIPTION

The SD1898 is a 28 V Class C silicon NPN transistor designed for INMARSAT and other 1.65 GHz SATCOM applications. A gold metallized emitter-ballasted die geometry is employed providing high gain and efficiency while ensuring long term reliability and ruggedness under severe operating conditions. SD1898 is packaged in a cost-effective epoxy sealed housing.

PIN CONNECTION



- | | |
|--------------|------------|
| 1. Collector | 3. Emitter |
| 2. Base | 4. Base |

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	7.8	A
P_{DISS}	Power Dissipation	87.5	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	2.0	$^{\circ}\text{C/W}$
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ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

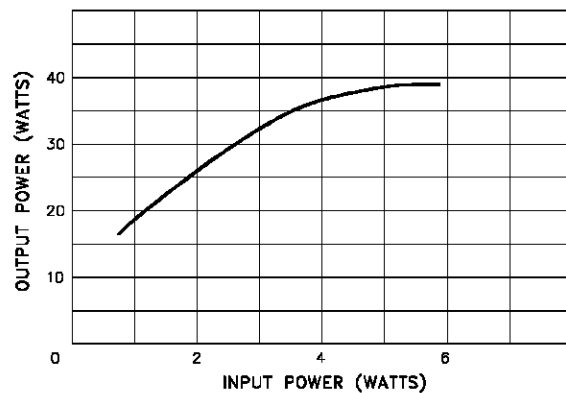
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 10\text{mA}$	$I_{\text{E}} = 0\text{mA}$	45	—	—	V
BV_{CEO}	$I_{\text{C}} = 10\text{mA}$	$I_{\text{B}} = 0\text{mA}$	12	—	—	V
BV_{EBO}	$I_{\text{E}} = 10\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
h_{FE}	$V_{\text{CE}} = 5\text{V}$	$I_{\text{C}} = 2\text{A}$	15	—	150	—

DYNAMIC

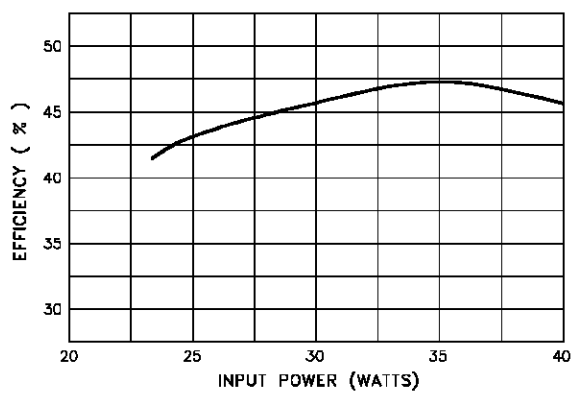
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 4.0\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	32	—	—	W
G_{P}	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 4.0\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	9.0	—	—	dB
η_{C}	$f = 1.65\text{ GHz}$	$P_{\text{IN}} = 4.0\text{ W}$	$V_{\text{CE}} = 28\text{ V}$	40	—	—	%

TYPICAL PERFORMANCE

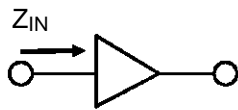
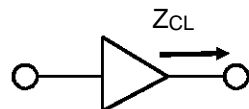
POWER OUTPUT vs POWER INPUT



EFFICIENCY vs POWER INPUT

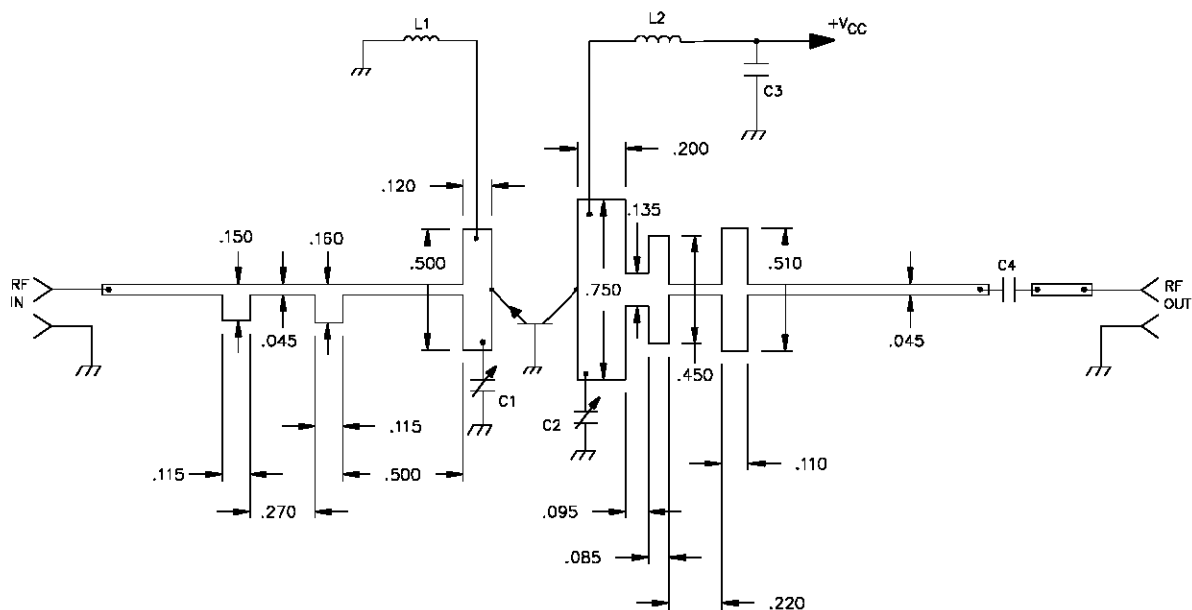


IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
1550 MHz	$6.6 + j 15.0$	$5.6 - j 2.5$
1600 MHz	$8.3 + j 14.5$	$4.7 - j 1.9$
1650 MHz	$12.0 + j 12.0$	$4.1 - j 1.4$

TEST CIRCUIT



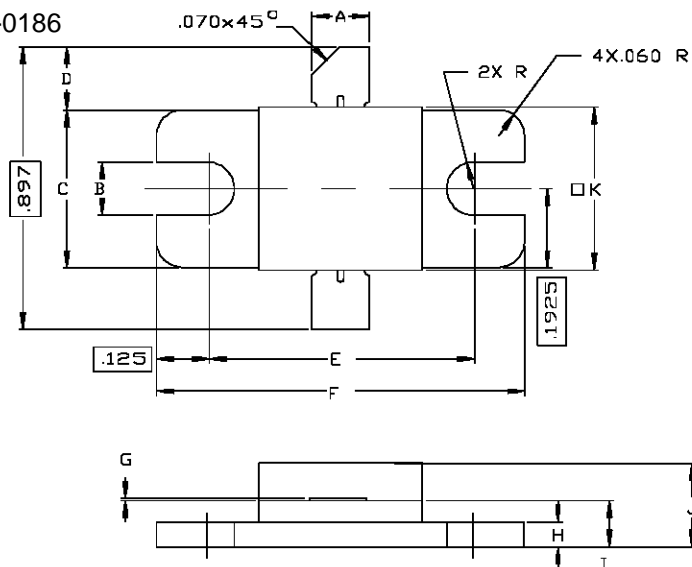
C1, C2 : .4 - 2.5pF Johanson Capacitor
 C3 : 15,000pF EMI Filter
 C4 : 1000pF Chip Capacitor

L1, L2 : 5 Turns Choke Diameter Wire .025" I.D. .125"

Substrate: Er = 10.2, Height .050", 1 Oz. Copper
 All Dimensions in Inches.

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0186



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.135/3,43	.145/3,69	K	.390/9,91	.410/10,41
B	.130/3,30 NOM.				
C	.380/ 9,65	.390/ 9,91			
D	.240/6,10	.260/6,61			
E	.645/16,38	.655/16,64			
F	.890/22,61	.910/23,11			
G	.002/0,05	.006/0,15			
H	.055/1,40	.065/1,65			
I	.090/2,29	.110/2,79			
J	.180/4,57	.200/5,08			

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