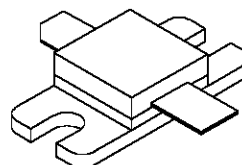


RF & MICROWAVE TRANSISTORS 1.6 GHz SATCOM APPLICATIONS

- 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

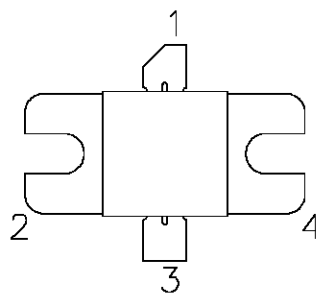
BRANDING

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

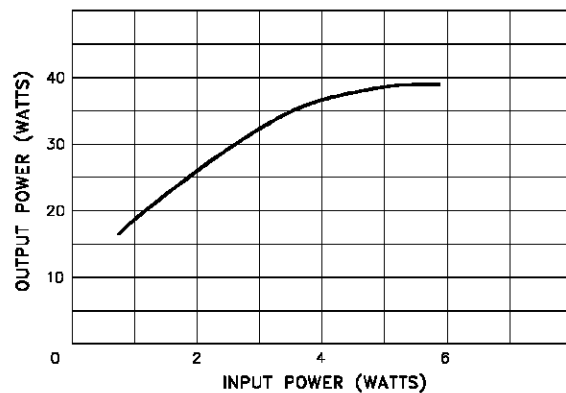
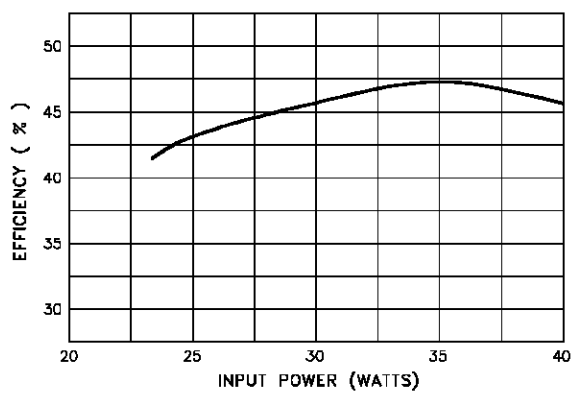
$R_{TH(j-c)}$	Junction-Case Thermal Resistance	2.0	$^{\circ}\text{C/W}$
---------------	----------------------------------	-----	----------------------

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

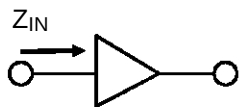
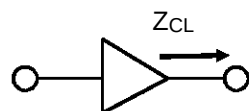
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 10\text{mA}$	$I_{\text{E}} = 0\text{mA}$	45	—	—	V
BV_{CEO}	$I_{\text{C}} = 10\text{mA}$	$I_{\text{B}} = 0\text{mA}$	12	—	—	V
BV_{EBO}	$I_{\text{E}} = 10\text{mA}$	$I_{\text{C}} = 0\text{mA}$	3.5	—	—	V
h_{FE}	$V_{\text{CE}}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

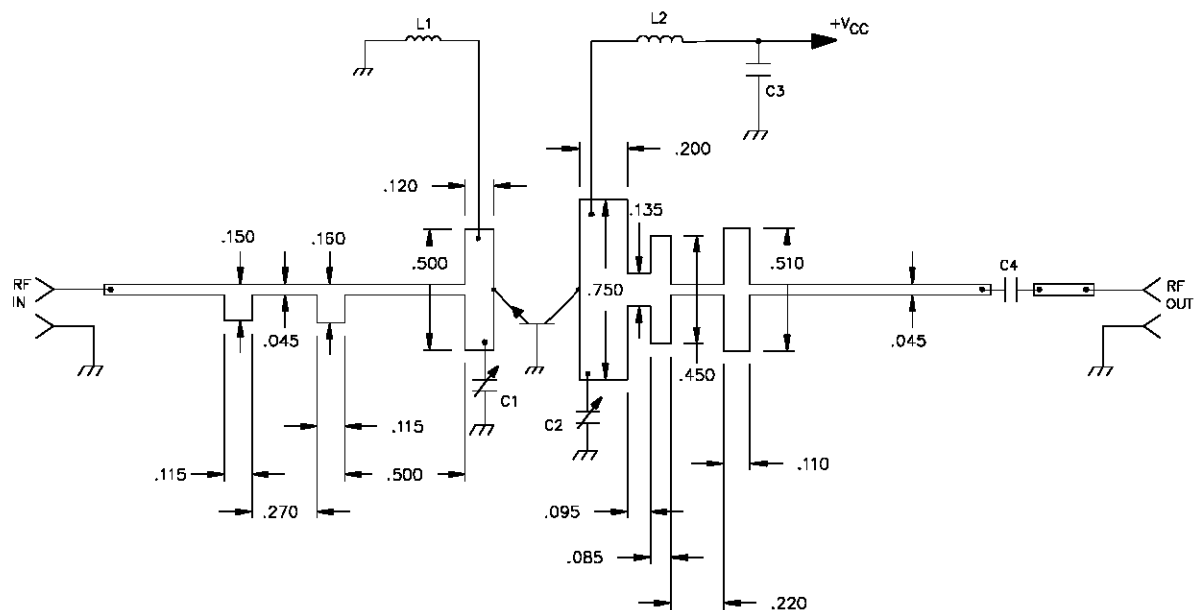
TYPICAL PERFORMANCE**POWER OUTPUT vs POWER INPUT****EFFICIENCY vs POWER INPUT**

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



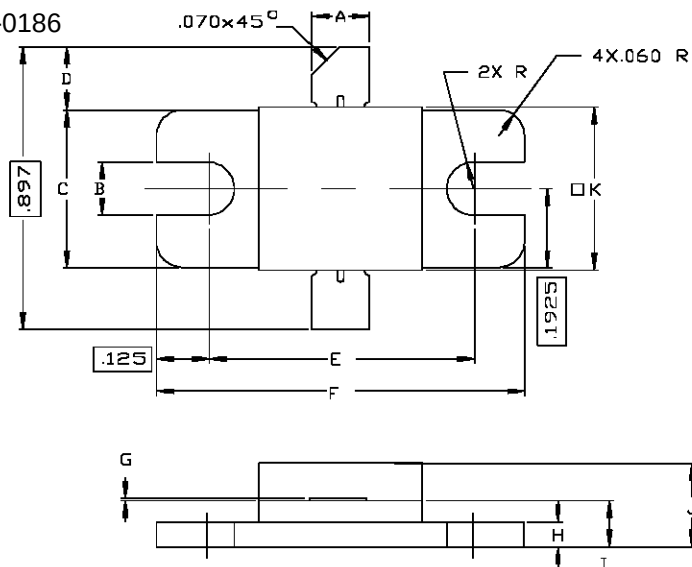
C1, C2 : .4 - 2.5pF Johanson Capacitor
 C3 : 15,000pF EMI Filter
 C4 : 1000pF Chip Capacitor

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			

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