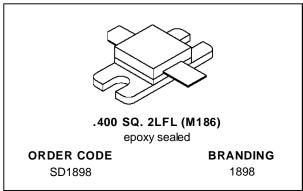


# **SD1898**

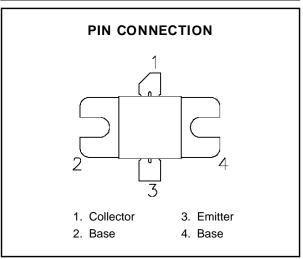
# RF & MICROWAVE TRANSISTORS 1.6 GHz SATCOM APPLICATIONS

- 1.65 GHz
- 28 VOLTS
- EFFICIENCY 40% MIN.
- CLASS C OPERATION
- COMMON BASE
- Pout = 32 W MIN. WITH 9 dB GAIN



#### **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.



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

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	45	V
V <sub>CEO</sub>	Collector-Emitter Voltage	15	V
V <sub>EBO</sub>	Emitter-Base Voltage	3.5	V
Ic	Device Current	7.8	А
P <sub>DISS</sub>	Power Dissipation	87.5	W
TJ	Junction Temperature	+200	°C
T <sub>STG</sub>	Storage Temperature	- 65 to +150	°C

#### THERMAL DATA

R <sub>TH(j-c)</sub> Junction-Case Thermal Resistance	2.0	°C/W
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November 1992 1/4

# SD1898

# **ELECTRICAL SPECIFICATIONS** (Tcase = 25°C)

# STATIC

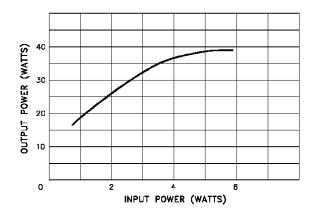
Symbol	Test Conditions	Value			Unit		
Symbol	rest conditions		Min.	Тур.	Max.		
ВУсво	I <sub>C</sub> = 10mA	$I_E = 0mA$		45		_	٧
BVceo	I <sub>C</sub> = 10mA	$I_B = 0mA$		12			٧
BV <sub>EBO</sub>	I <sub>E</sub> = 10mA	$I_C = 0mA$		3.5	_	_	V
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 2A		15	_	150	_

# **DYNAMIC**

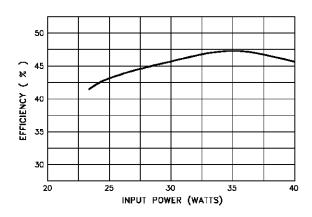
Symbol	mbol Test Conditions		Value			Unit	
Symbol		rest Conditions			Тур.	Max.	Oiiit
Pout	f = 1.65 GHz	$P_{IN} = 4.0 W$	$V_{CE} = 28 \text{ V}$	32	_	_	W
G <sub>P</sub>	f = 1.65 GHz	$P_{IN} = 4.0 W$	V <sub>CE</sub> = 28 V	9.0	_	_	dB
ης	f = 1.65 GHz	P <sub>IN</sub> = 4.0 W	V <sub>CE</sub> = 28 V	40	_	_	%

# TYPICAL PERFORMANCE

# POWER OUTPUT vs POWER INPUT

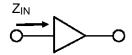


# **EFFICIENCY vs POWER INPUT**

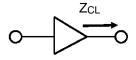


#### **IMPEDANCE DATA**



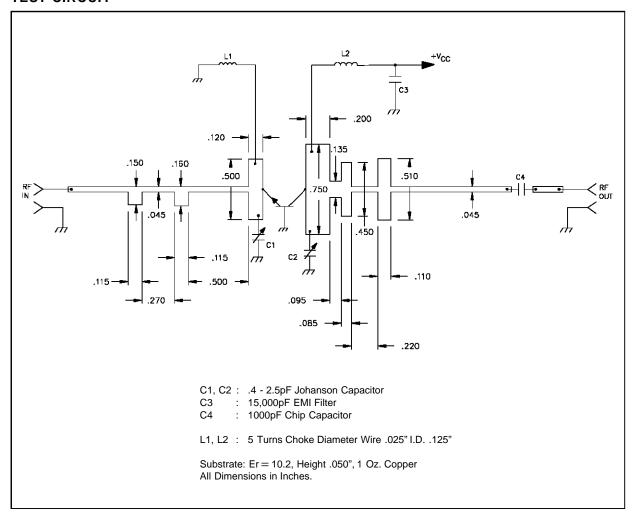


TYPICAL COLLECTOR LOAD IMPEDANCE

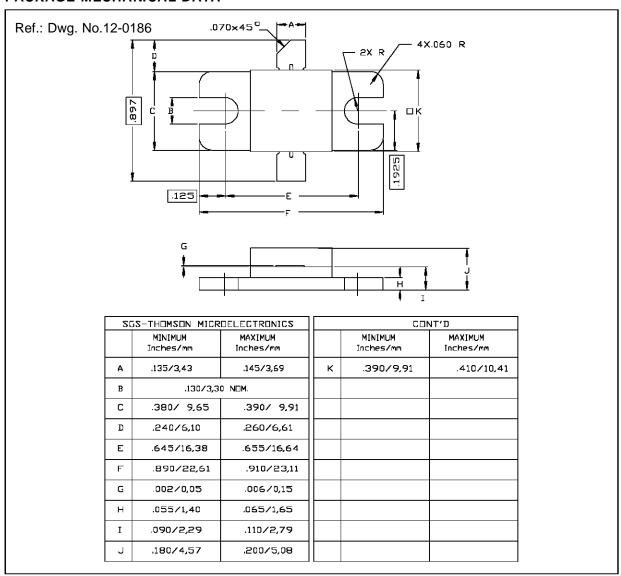


FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
1550 MHz	6.6 + j 15.0	5.6 – j 2.5
1600 MHz	8.3 + j 14.5	4.7 – j 1.9
1650 MHz	12.0 + j 12.0	4.1 – j 1.4

# **TEST CIRCUIT**



#### PACKAGE MECHANICAL DATA



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