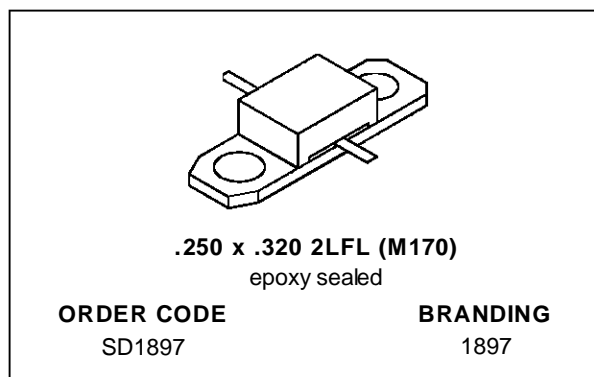
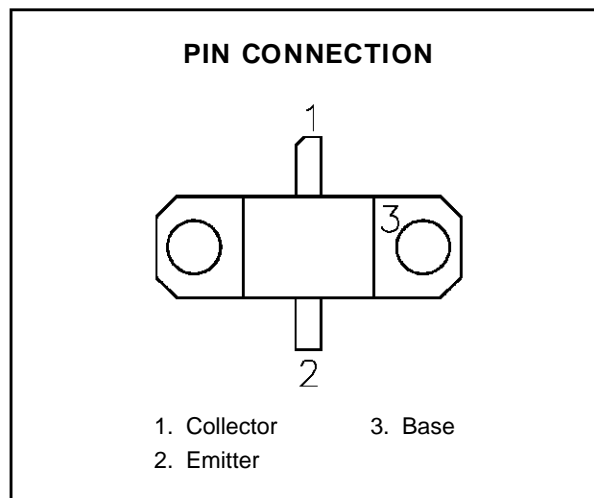


## RF & MICROWAVE TRANSISTORS 1.65 GHz SATCOM APPLICATIONS

- 1.65 GHz
- 28 VOLTS
- CLASS C OPERATION
- COMMON BASE
- P<sub>OUT</sub> = 10 W MIN. WITH 11.0 dB GAIN


**DESCRIPTION**

The SD1897 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. SD1897 is packaged in a cost-effective epoxy sealed housing.


**ABSOLUTE MAXIMUM RATINGS** (T<sub>case</sub> = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CB0</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
I <sub>c</sub>	Device Current	2.3	A
P <sub>DISS</sub>	Power Dissipation	29	W
T <sub>J</sub>	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	6.0	°C/W
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# SD1897

## ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)

### STATIC

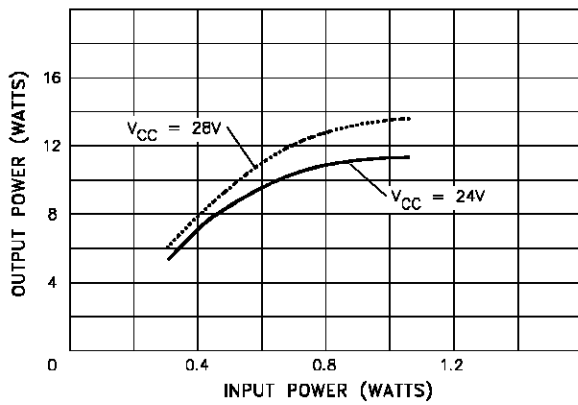
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV <sub>CBO</sub>	I <sub>C</sub> = 3mA	I <sub>E</sub> = 0mA	45	—	—	V
BV <sub>CEO</sub>	I <sub>C</sub> = 3mA	I <sub>B</sub> = 0mA	12	—	—	V
BV <sub>EBO</sub>	I <sub>E</sub> = 3mA	I <sub>C</sub> = 0mA	3.5	—	—	V
h <sub>FE</sub>	V <sub>CE</sub> = 5V	I <sub>C</sub> = 600mA	15	—	150	—

### DYNAMIC

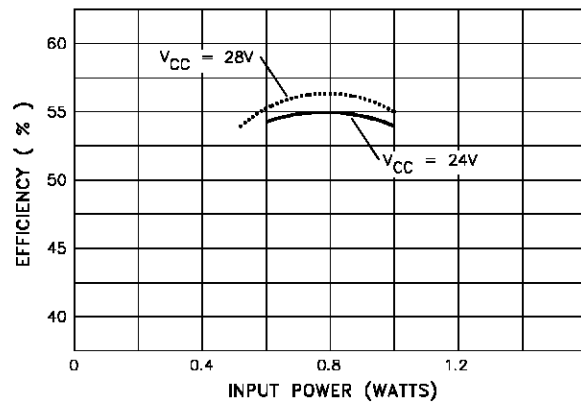
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P <sub>OUT</sub>	f = 1.65 GHz	P <sub>IN</sub> = 0.8 W	V <sub>CE</sub> = 28 V	10	—	—	W
G <sub>P</sub>	f = 1.65 GHz	P <sub>IN</sub> = 0.8 W	V <sub>CE</sub> = 28 V	11	—	—	dB
η <sub>c</sub>	f = 1.65 GHz	P <sub>IN</sub> = 0.8 W	V <sub>CE</sub> = 28 V	48	—	—	%

## TYPICAL PERFORMANCE

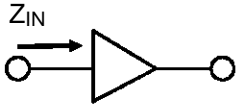
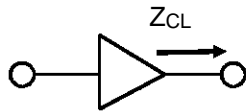
POWER OUTPUT vs POWER INPUT



EFFICIENCY vs POWER INPUT



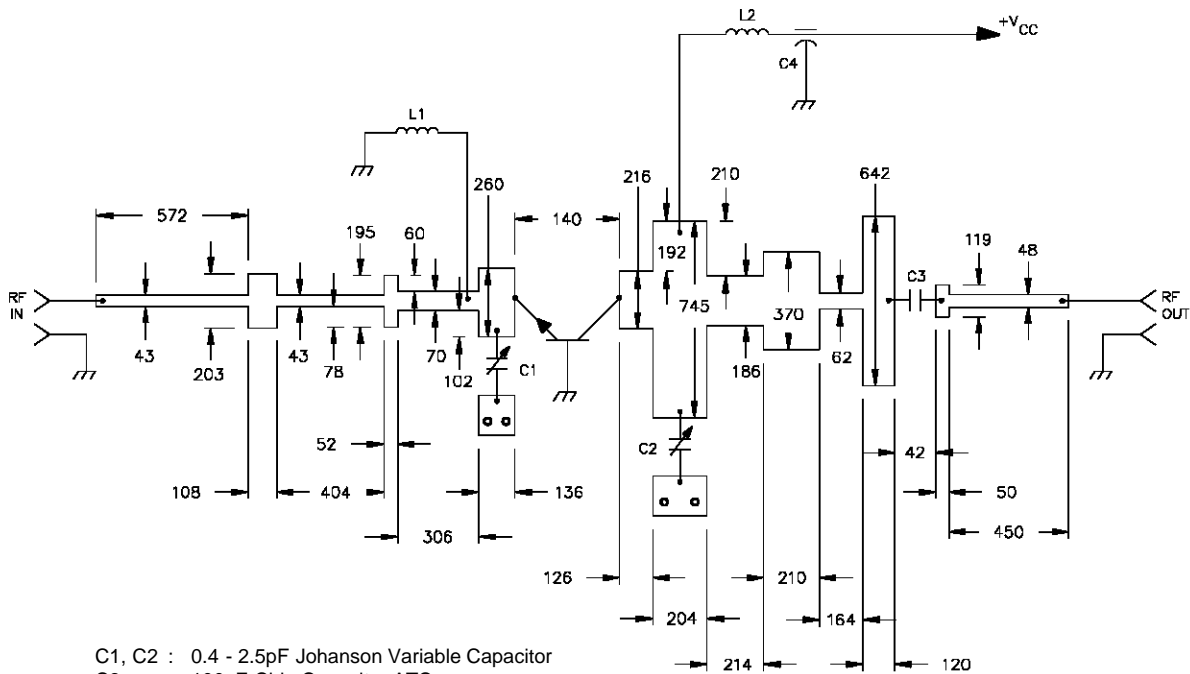
## IMPEDANCE DATA

TYPICAL INPUT  
IMPEDANCETYPICAL COLLECTOR  
LOAD IMPEDANCE

FREQ.	Z <sub>IN</sub> (Ω)	Z <sub>CL</sub> (Ω)
1600 MHz	22.0 + j 23.0	3.1 + j 4.0
1650 MHz	28.0 + j 18.0	3.0 + j 2.0

P<sub>OUT</sub> = 10 WV<sub>CE</sub> = 28 VP<sub>IN</sub> = 0.8 W

## TEST CIRCUIT

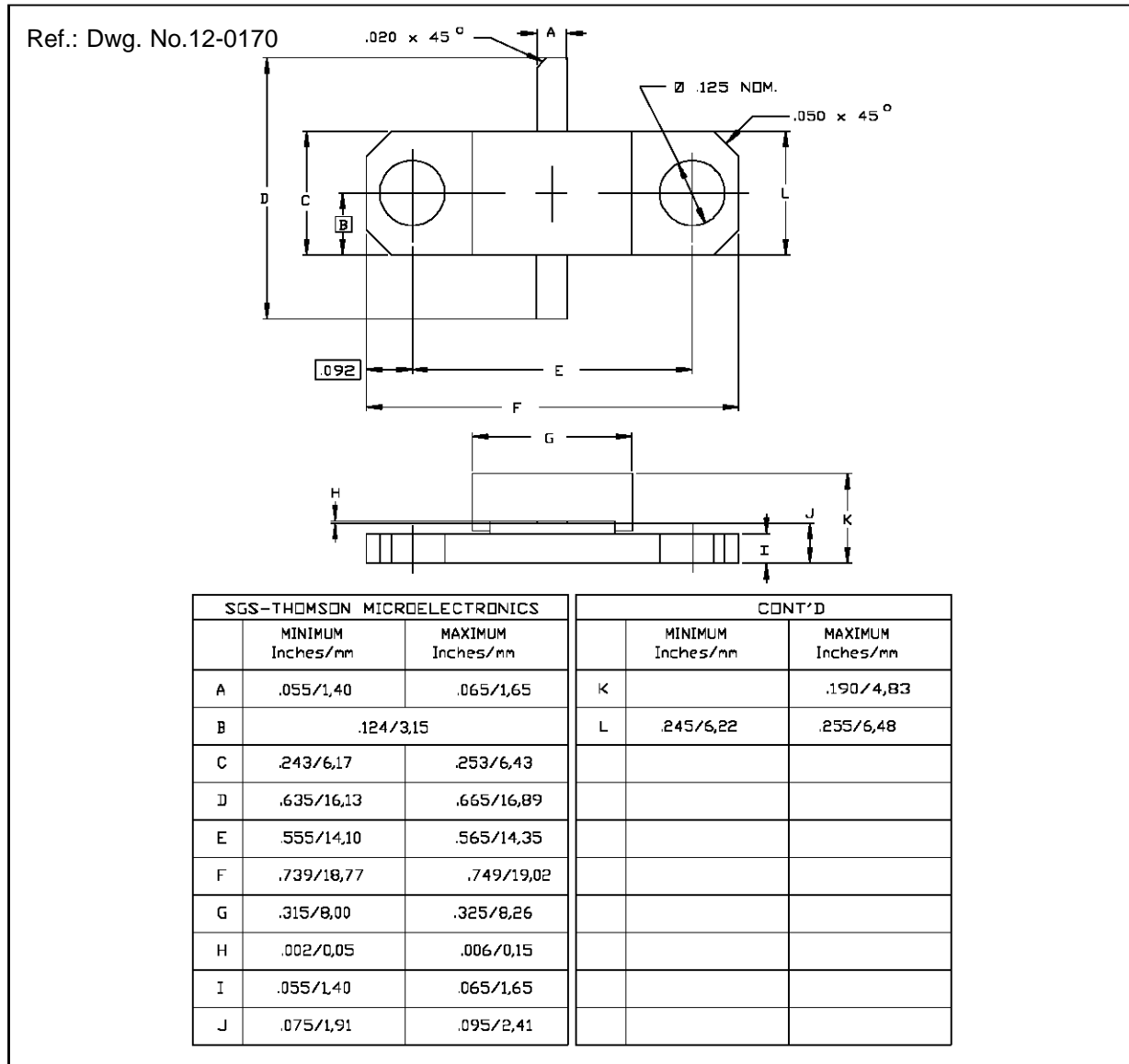


C1, C2 : 0.4 - 2.5pF Johanson Variable Capacitor  
 C3 : 100pF Chip Capacitor ATC  
 C4 : Suppression Filters CDI 9900381-6004

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

Substrate: Er = 10.2, Height .050", 1 Oz. Cu.  
 All Dimensions in mm unless otherwise specified

PACKAGE MECHANICAL DATA



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