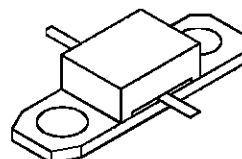


RF & MICROWAVE TRANSISTORS 1.65 GHz SATCOM APPLICATIONS

- 1.65 GHz
- 28 VOLTS
- CLASS C OPERATION
- COMMON BASE
- $P_{OUT} = 10\text{ W MIN. WITH } 11.0\text{ dB GAIN}$



.250 x .320 2LFL (M170)
epoxy sealed

ORDER CODE

SD1897

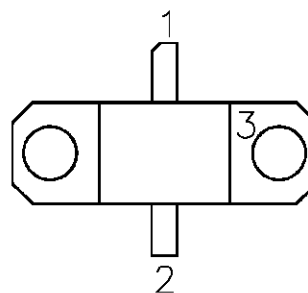
BRANDING

1897

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.

PIN CONNECTION



1. Collector

2. Emitter

3. 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	2.3	A
P_{DISS}	Power Dissipation	29	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	6.0	$^{\circ}\text{C/W}$
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ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

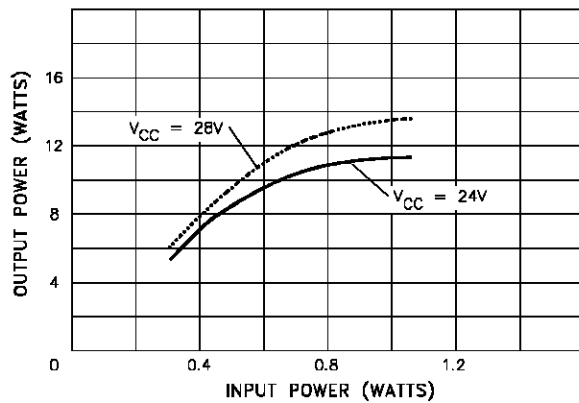
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 3\text{mA}$	$I_E = 0\text{mA}$	45	—	—	V
BV_{CEO}	$I_C = 3\text{mA}$	$I_B = 0\text{mA}$	12	—	—	V
BV_{EBO}	$I_E = 3\text{mA}$	$I_C = 0\text{mA}$	3.5	—	—	V
h_{FE}	$V_{CE} = 5\text{V}$	$I_C = 600\text{mA}$	15	—	150	—

DYNAMIC

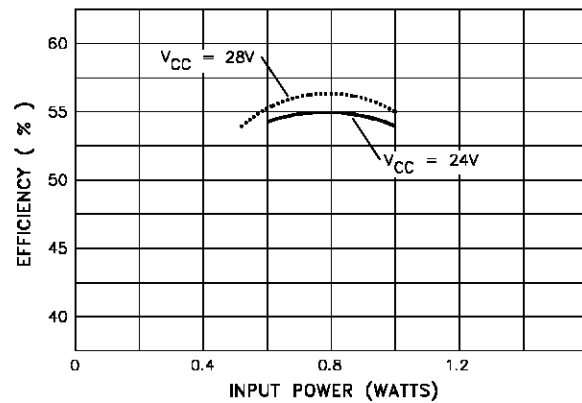
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	$f = 1.65\text{ GHz}$	$P_{IN} = 0.8\text{ W}$	$V_{CE} = 28\text{ V}$	10	—	—	W
G_P	$f = 1.65\text{ GHz}$	$P_{IN} = 0.8\text{ W}$	$V_{CE} = 28\text{ V}$	11	—	—	dB
η_C	$f = 1.65\text{ GHz}$	$P_{IN} = 0.8\text{ W}$	$V_{CE} = 28\text{ V}$	48	—	—	%

TYPICAL PERFORMANCE

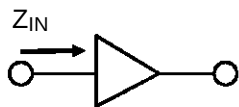
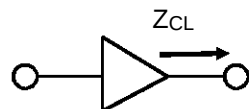
POWER OUTPUT vs POWER INPUT



EFFICIENCY vs POWER INPUT



IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

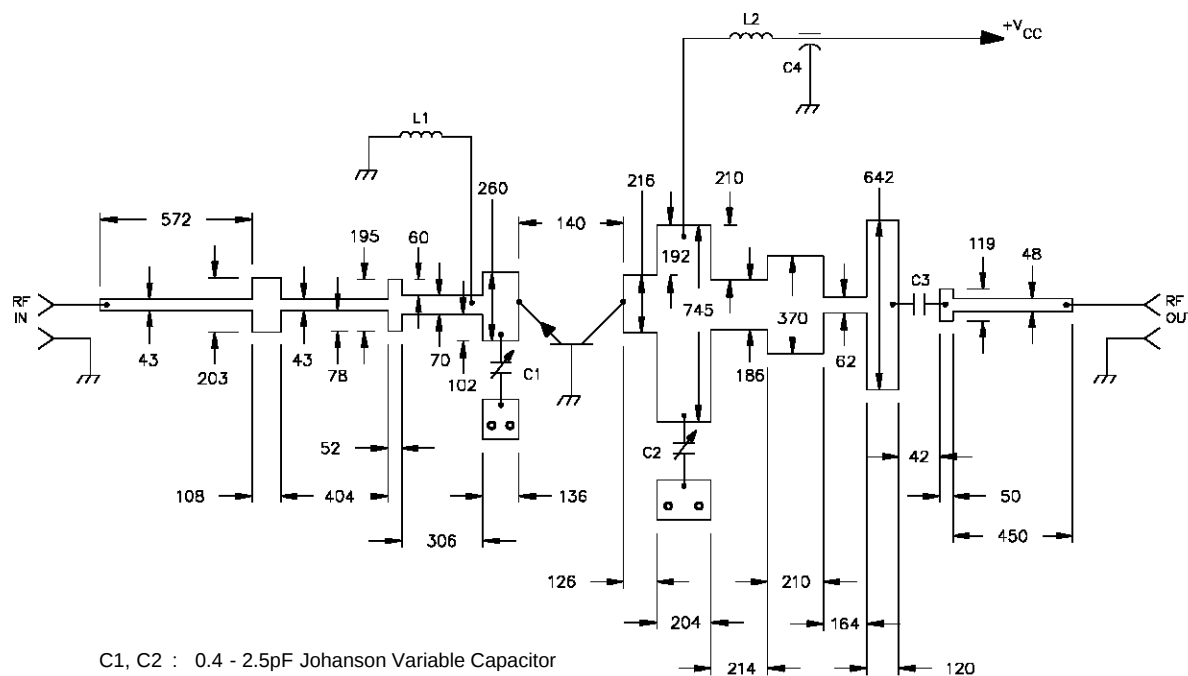
FREQ.	$Z_{IN} (\Omega)$	$Z_{CL} (\Omega)$
1600 MHz	$22.0 + j 23.0$	$3.1 + j 4.0$
1650 MHz	$28.0 + j 18.0$	$3.0 + j 2.0$

$$P_{OUT} = 10 \text{ W}$$

$$V_{CE} = 28 \text{ V}$$

$$P_{IN} = 0.8 \text{ W}$$

TEST CIRCUIT



C1, C2 : 0.4 - 2.5pF Johanson Variable Capacitor

C3 : 100pF Chip Capacitor ATC

C4 : Suppression Filters CDI 9900381-6004

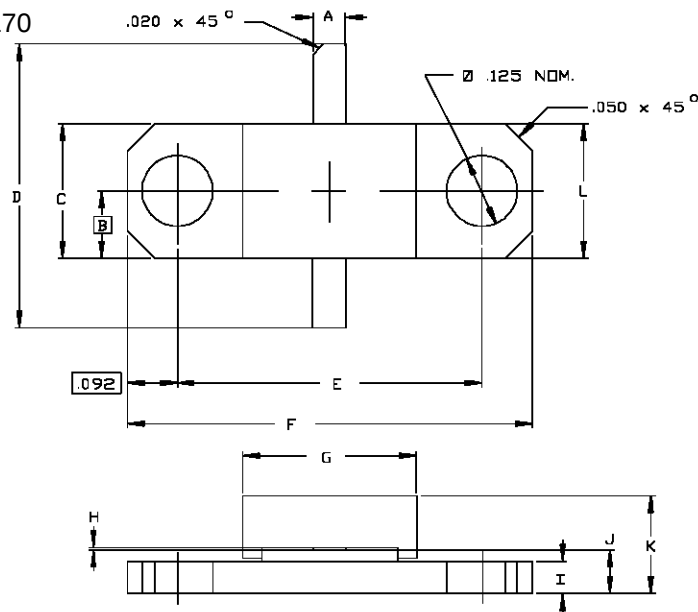
L1, L2 : 4 Turns, Choke #28 AWG .080" I.D.

Substrate: $\epsilon_r = 10.2$, Height .050", 1 Oz. Cu.

All Dimensions in mm unless otherwise specified

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0170



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.055/1,40	.065/1,65	K		.190/4,83
B	.124/3,15		L	.245/6,22	.255/6,48
C	.243/6,17	.253/6,43			
D	.635/16,13	.665/16,89			
E	.555/14,10	.565/14,35			
F	.739/18,77	.749/19,02			
G	.315/8,00	.325/8,26			
H	.002/0,05	.006/0,15			
I	.055/1,40	.065/1,65			
J	.075/1,91	.095/2,41			

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