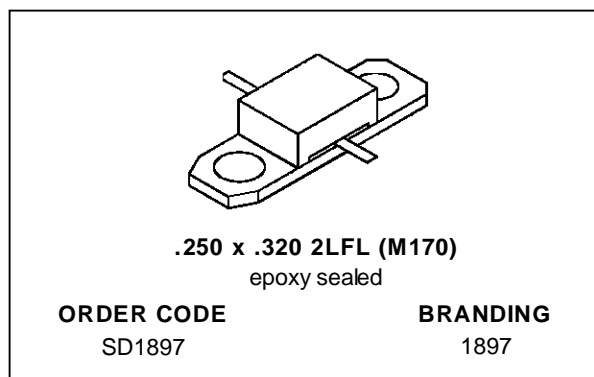


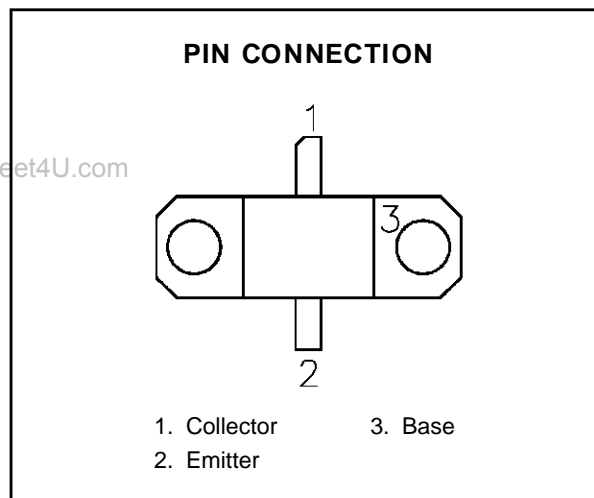
RF & MICROWAVE TRANSISTORS 1.65 GHz SATCOM APPLICATIONS

- 1.65 GHz
- 28 VOLTS
- CLASS C OPERATION
- COMMON BASE
- $P_{OUT} = 10$ 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 ($T_{case} = 25^{\circ}C$)

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	$^{\circ}C$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}C$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	6.0	$^{\circ}C/W$
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SD1897**ELECTRICAL SPECIFICATIONS** ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

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

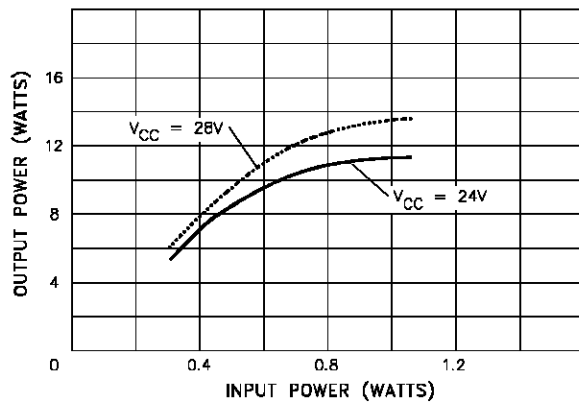
DYNAMIC

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

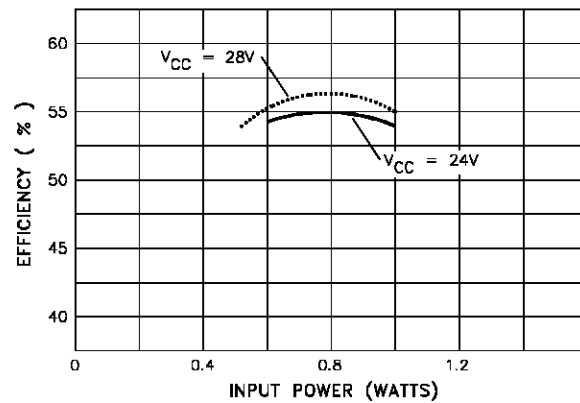
TYPICAL PERFORMANCE

DataSheet4U.com

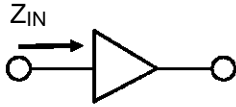
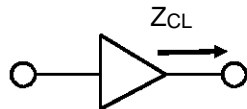
POWER OUTPUT vs POWER INPUT



EFFICIENCY vs POWER INPUT



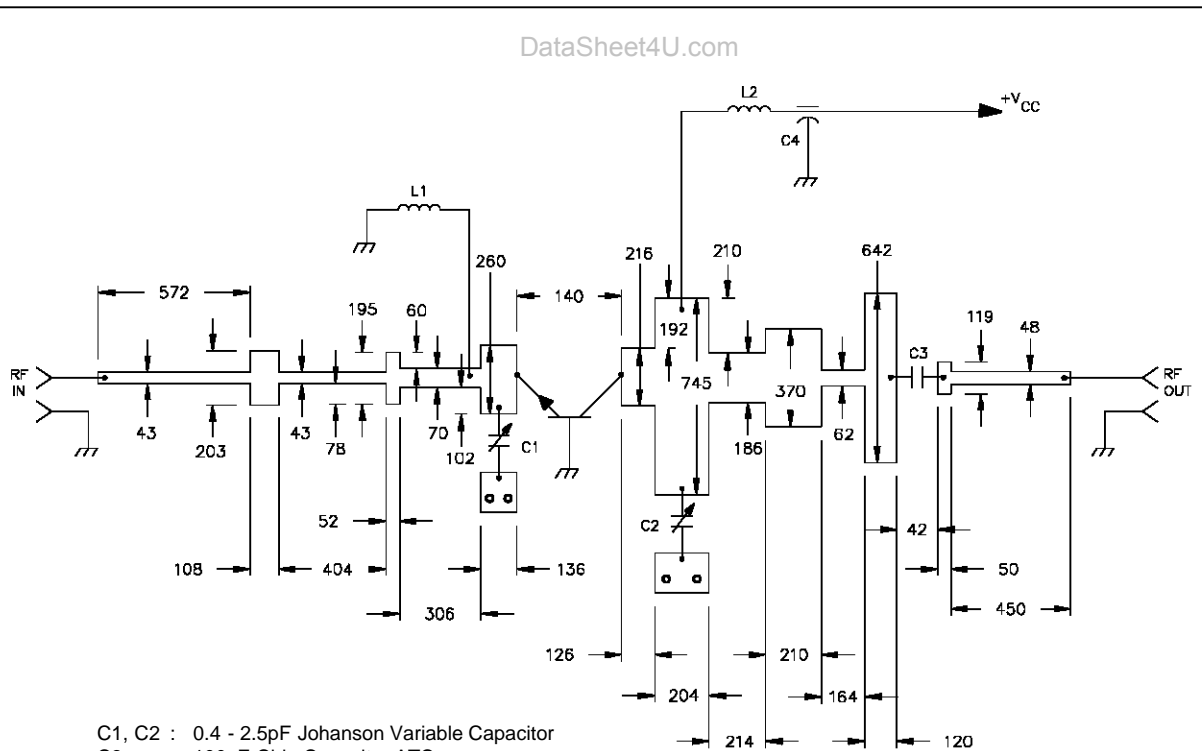
IMPEDANCE DATA

TYPICAL INPUT
IMPEDANCETYPICAL COLLECTOR
LOAD IMPEDANCE

FREQ.	Z _{IN} (Ω)	Z _{CL} (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_{OUT} = 10 WV_{CE} = 28 VP_{IN} = 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

