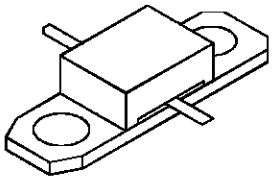
SGS-THOMSON MICROELECTRONICS

SD1899

RF & MICROWAVE TRANSISTORS SATELLITE COMMUNICATIONS APPLICATIONS

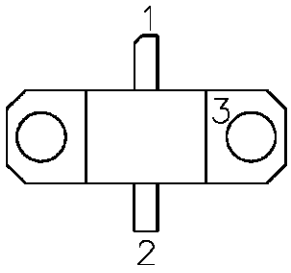
- REFRACTORY/GOLD METALLIZATION
- EFFICIENCY - 50% TYPICAL
- P_{OUT} = 30 W MIN. WITH 9.3 dB GAIN



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

ORDER CODE	BRANDING
SD1899	SD1899

PIN CONNECTION



1. Collector
2. Emitter
3. Base

DESCRIPTION

The SD1899 is a common base silicon NPN bipolar device optimized for 1.6 GHz SATCOM applications.

SD1899 offers superior gain and collector efficiency, making it an ideal choice for Class C power amplifiers used in portable as well as fixed SATCOM terminals.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	45	V
V_{CES}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Device Current	2.9	A
P_{DISS}	Power Dissipation (+25°C)	73	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	2.4	°C/W

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

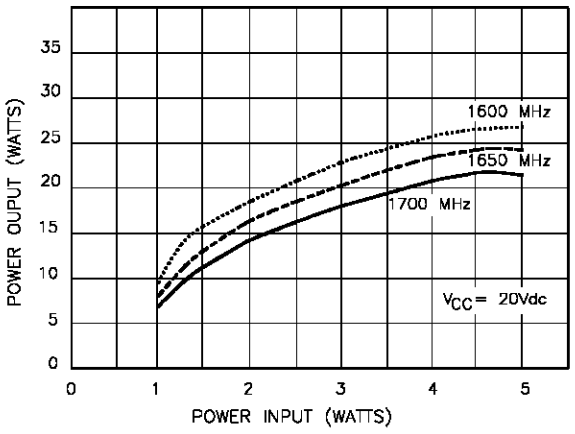
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 8 mA	I_E = 0 mA	45	—	—	V
BV_{CES}	I_C = 8 mA	V_{BE} = 0 V	45	—	—	V
BV_{EBO}	I_E = 8 mA	I_C = 0 mA	3.0	—	—	V
I_{CBO}	V_{CB} = 28 V	I_E = 0 mA	—	—	2	mA
h_{FE}	V_{CE} = 5 V	I_C = 1.6 A	15	—	150	—

DYNAMIC

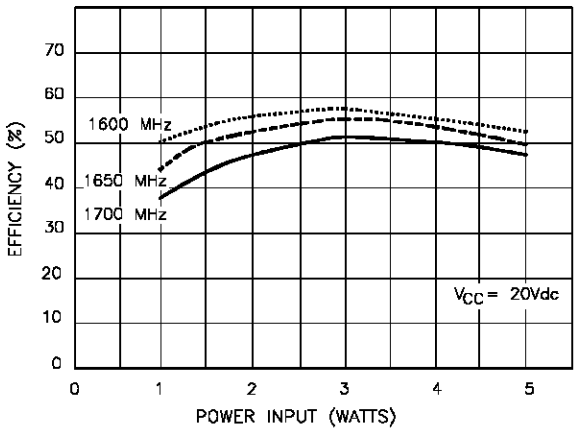
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1650 MHz	V_{CC} = 28 V	P_{IN} = 3.5 W	30	32	—	W
η_c	f = 1650 MHz	V_{CC} = 28 V	P_{IN} = 3.5 W	45	50	—	%
G_P	f = 1650 MHz	V_{CC} = 28 V		9.3	—	—	dB

TYPICAL PERFORMANCE

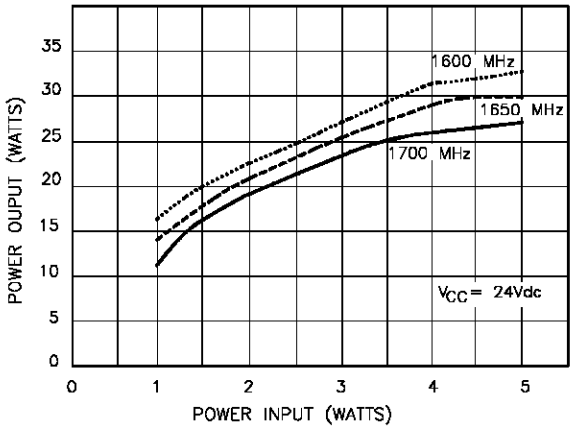
POWER INPUT vs POWER OUTPUT



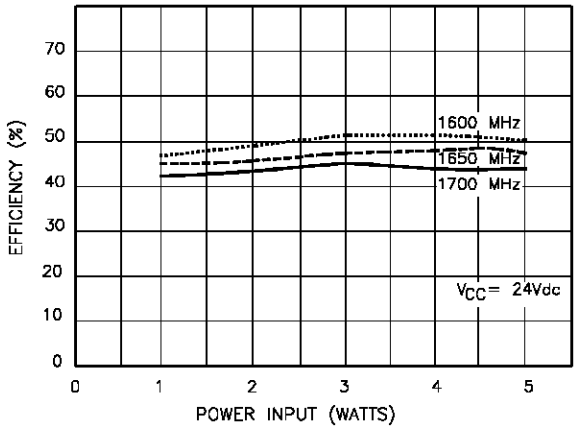
POWER INPUT vs EFFICIENCY



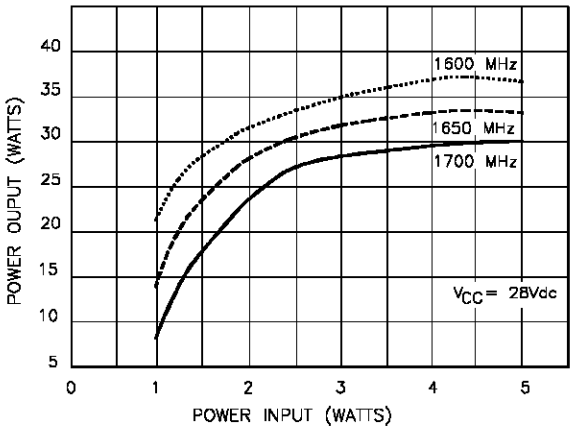
POWER INPUT vs POWER OUTPUT



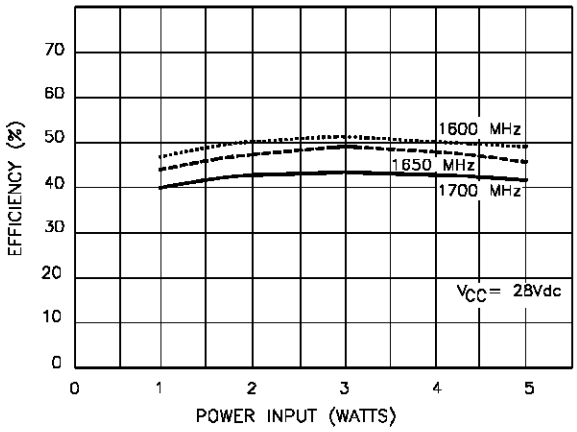
POWER INPUT vs EFFICIENCY



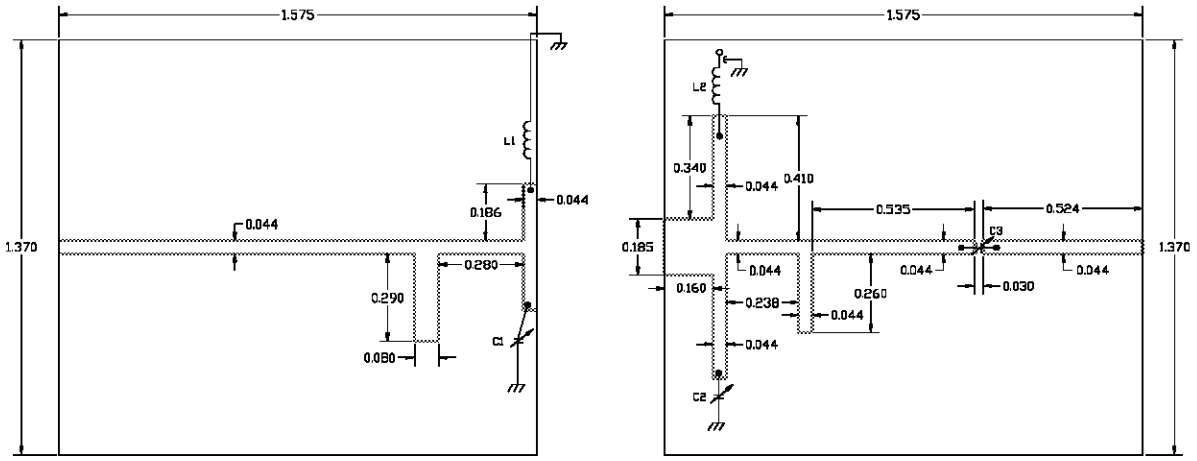
POWER INPUT vs POWER OUTPUT



POWER INPUT vs EFFICIENCY



TEST CIRCUIT



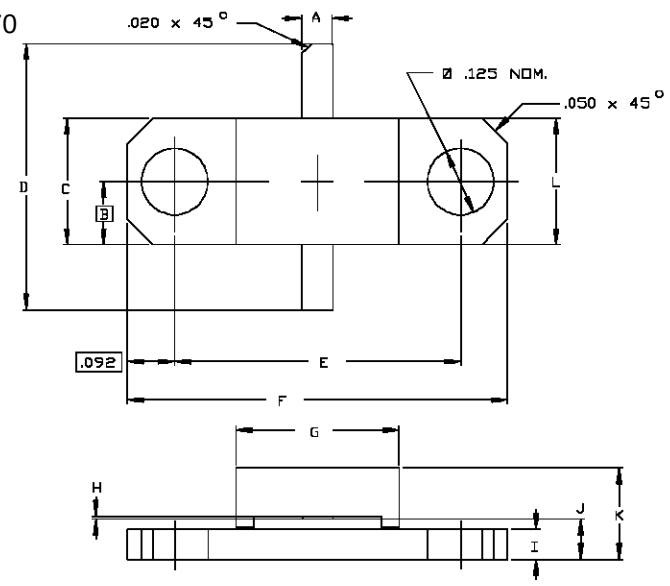
C1 : .3 - 1.2 pf Johanson Capacitor
C2 : .4 - 2.5 pf Johanson Capacitor #27283
C3 : 100 pf Chip Capacitor ATC 100 A101KCA 150
C4 : 15,000 pf EMI filter Murata/Erie 9900-381-6604

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

Board Material:
EPSILAM 10, Er = 10.2, .050" Thick,
1Oz. Copper, SMA Launcher CDI (2 pieces)

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			