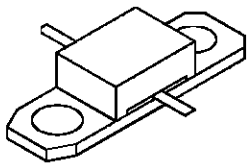
SGS-THOMSON MICROELECTRONICS

SD1888-03

RF & MICROWAVE TRANSISTORS 1.6 GHz SATCOM APPLICATIONS

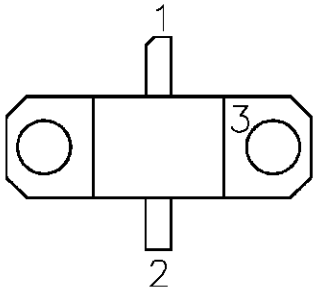
- 1.65 GHz
- 28 VOLTS
- EFFICIENCY 50% MIN.
- CLASS C OPERATION
- COMMON BASE
- INPUT/OUTPUT MATCHING
- P_{OUT} = 24 W MIN. WITH 9.0 dB GAIN



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

ORDER CODE	BRANDING
SD1888-03	1888-3

PIN CONNECTION



1. Collector
2. Emitter
3. Base

DESCRIPTION

The SD1888-03 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. SD1888-03 is packaged in a cost-effective epoxy sealed housing

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	45	V
V_{CEO}	Collector-Emitter Voltage	12	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Device Current	2.6	A
P_{DISS}	Power Dissipation	50	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	3.5	°C/W

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

STATIC

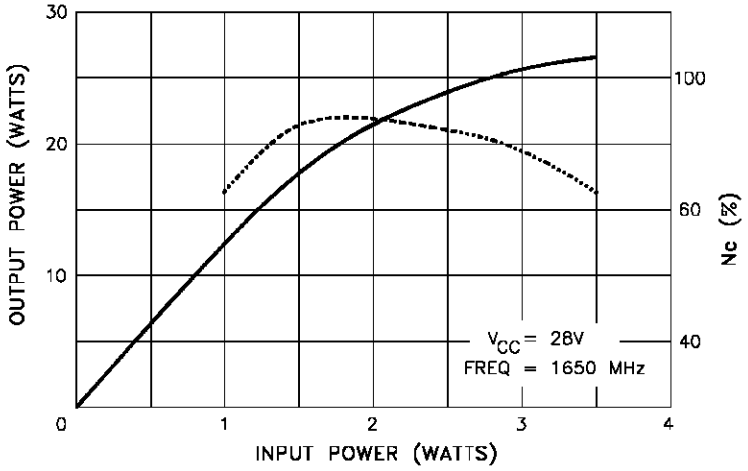
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 6 mA	I_E = 0 mA	45	—	—	V
BV_{CEO}	I_C = 6 mA	I_B = 0 mA	12	—	—	V
BV_{EBO}	I_E = 6 mA	I_C = 0 mA	3.0	—	—	V
h_{FE}	V_{CE} = 5 V	I_C = 1.2 A	15	—	150	—

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 1.65 GHz	P_{IN} = 3.0 W	V_{CE} = 28 V	24	—	—	W
G_P	f = 1.65 GHz	P_{IN} = 3.0 W	V_{CE} = 28 V	9.0	—	—	dB
ηc	f = 1.65 GHz	P_{IN} = 3.0 W	V_{CE} = 28 V	50	—	—	%

TYPICAL PERFORMANCE

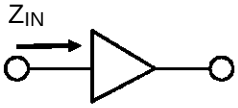
POWER OUTPUT & EFFICIENCY vs POWER INPUT



IMPEDANCE DATA

TYPICAL INPUT IMPEDANCE

Z_{IN}

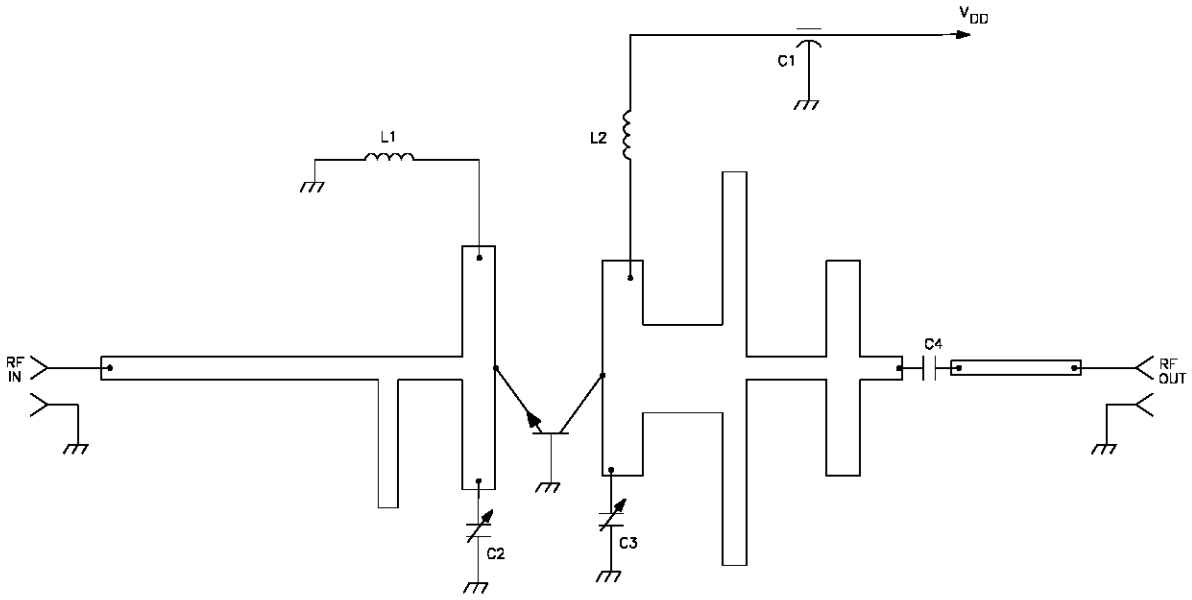


TYPICAL COLLECTOR LOAD IMPEDANCE

Z_{CL}

FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
1600 MHz	9.0 + j 14.0	11.0 + j 2.0
1650 MHz	11.5 + j 12.0	9.0 + j 4.0
1700 MHz	23.0 + j 8.0	8.0 + j 5.5

TEST CIRCUIT

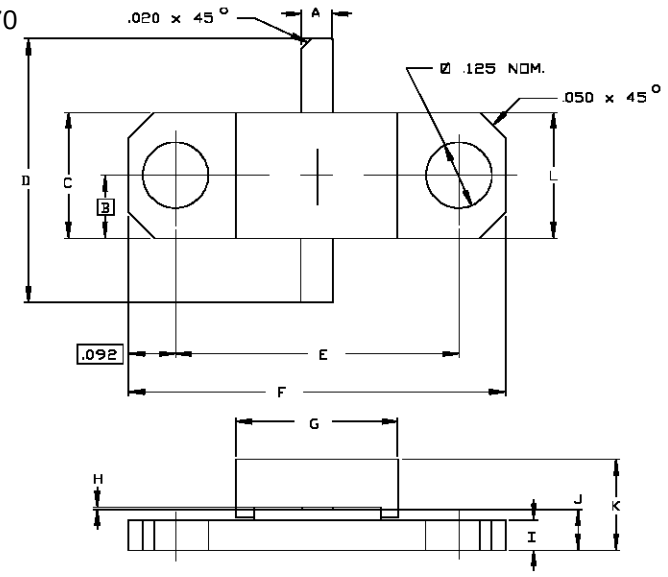


C1 : 1500pF Feedtrhu Capacitor Erie
C2, C3 : 0.4 - 2.5pF Trim Capacitor Johanson Gigatrim
C4 : 100pF ATC Chip Capacitor

L1, L2 : RF Chokes; 3 Turns #22 Wire .100" Diameter

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			