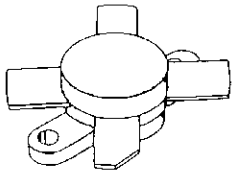
SGS-THOMSON MICROELECTRONICS

SD2920

RF MOS FIELD EFFECT TRANSISTORS HF/VHF APPLICATIONS

- 2 - 200 MHz
- 50 VOLTS
- IMD –30 dB
- CLASS AB
- WIDEBAND TUNING
- SIMPLE BIAS CIRCUITRY
- GOLD METALLIZATION FOR HIGH RELIABILITY
- COMMON SOURCE CONFIGURATION
- P_{OUT} = 150 W MIN. WITH 8.0 dB GAIN

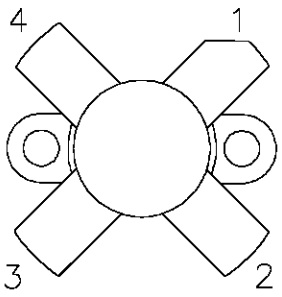


.500 4LFL (M174)
epoxy sealed

ORDER CODE
SD2920

BRANDING
SD2920

PIN CONNECTION



1. Drain
2. Source
3. Gate
4. Source

DESCRIPTION

The SD2920 is a gold metallized N-Channel MOS field-effect RF power transistor. The SD2920 is intended for use in 50 V dc large signal applications up to 200 MHz.

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

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-Source Voltage	125	V
V_{DGR}	Drain-Gate Voltage	125	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Drain Current	13.9	A
P_{DISS}	Power Dissipation	215	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	0.70 (Typ.)	°C/W

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

STATIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
$V_{(BR)DSS}$	V_{GS} = 0 V	I_D = 100 mA		125	—	—	V
I_{DSS}	V_{DS} = 50 V	V_{GS} = 0 V		—	—	5	mA
I_{GSS}	V_{GS} = 20 V	V_{DS} = 0 V		—	—	1	µA
V_{DS}(on)	V_{GS} = 10 V	I_D = 10 A		—	—	5	V
G_{FS}	V_{DS} = 10 V	I_D = 5 A		3	—	—	mhos
C_{ISS}	V_{DS} = 50 V	V_{GS} = 0 V	F = 1 MHz	—	—	500	pF
C_{OSS}	V_{DS} = 50 V	V_{GS} = 0 V	F = 1 MHz	—	—	250	pF
C_{RSS}	V_{DS} = 50 V	V_{GS} = 0 V	F = 1 MHz	—	—	50	pF
$V_{GS(TH)}$	V_{DS} = 10 V	I_D = 100 mA		1	—	5	V

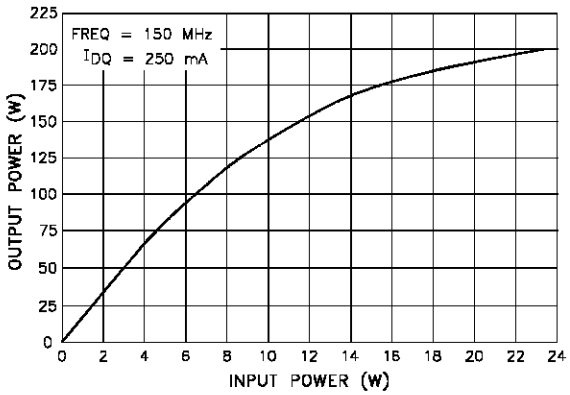
DYNAMIC

Symbol	Test Conditions				Value			Unit
					Min.	Typ.	Max.	
P_{OUT}	V_{DS} = 50 V	I_{DQ} = 250 mA	f = 150 MHz		150	—	—	W
η_D	V_{DS} = 50 V	P_{OUT} = 150 W	I_{DQ} = 250 mA	f = 150 MHz	45	—	—	%
G_{PS}	V_{DS} = 50 V	P_{OUT} = 150 W	I_{DQ} = 250 mA	f = 150 MHz	8.0	—	—	dB
IMD_3*	V_{DS} = 50 V	P_{OUT} = 150 W	I_{DQ} = 250 mA	f = 30 MHz	—	–30	—	dB

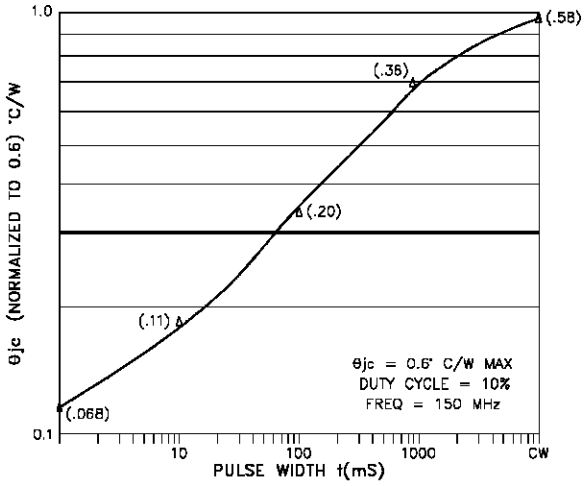
* 2 Tones, Δf = 1 kHz

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT



THERMAL RESPONSE

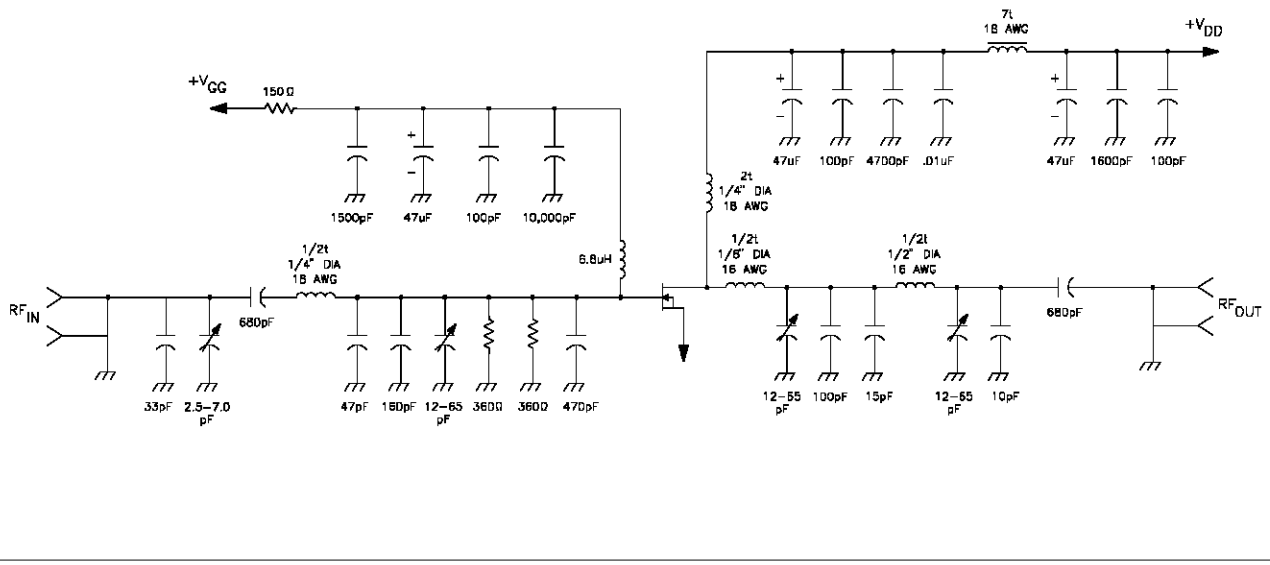


IMPEDANCE DATA

FREQ.	Z_{IN} (Ω)	Z_{CL} (Ω)
150 MHz	1.2 – j 1.4	2.2 + j 2.3

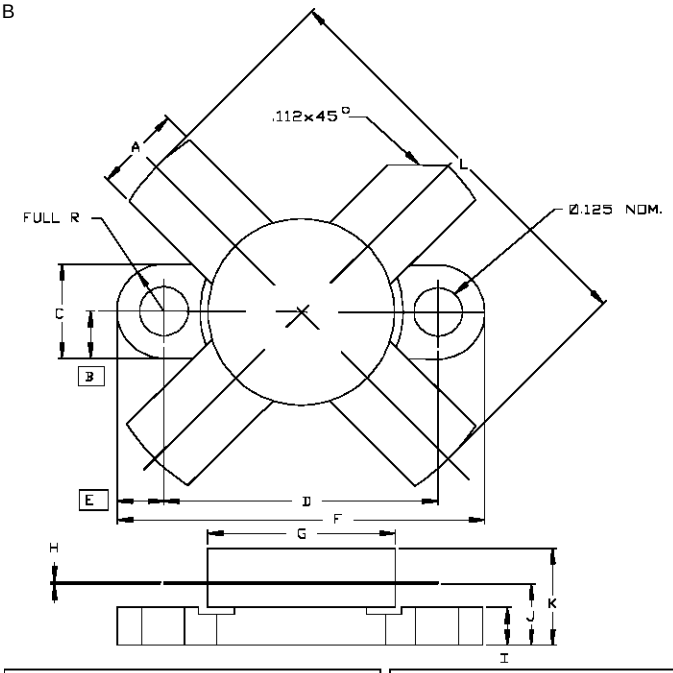
TEST CIRCUIT

f = 150 MHz



PACKAGE MECHANICAL DATA

Ref.: Dwg. No. 12-0174 rev. B
UDCS. No. 1011000



SGS-THOMSON MICROELECTRONICS		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84
B	.125/3,18	
C	.245/6,22	.255/6,48
D	.720/18,28	.730/18,54
E	.125/3,18	
F	.970/24,64	.980/24,89
G	.495/12,57	.505/12,83
H	.003/0,08	.007/0,18
I	.090/2,29	.110/2,79
J	.155/3,94	.175/4,45

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K		.280/7,11
L		1.050/26,67