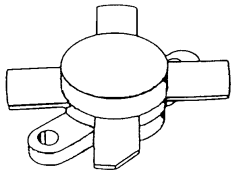
SD2921

RF & MICROWAVE TRANSISTORS HF/VHF/UHF N-CHANNEL MOSFETS

PRELIMINARY DATA

- GOLD METALLIZATION
- NO THERMAL RUNAWAY
- COMMON SOURCE CONFIGURATION
- P_{OUT} = 150W MIN. WITH 12.5 dB GAIN @ 175 MHz



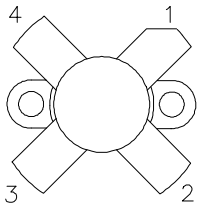
.500 4 LFL(M174)
epoxy sealed

ORDER CODE	BRANDING
SD2921	SD2921

DESCRIPTION

The SD2921 is a gold metallized N-Channel MOS field-effect RF power transistor. The SD2921 is intended for use in 50 V dc large signal applications up to 200 MHz.

PIN CONNECTION



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

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

Symbol	Parameter	Value	Unit
$V_{(BR)DSS}$	Drain-Source Voltage	125	V
V_{DGR}	Drain-Gate Voltage (R_{GS} = 1.0 MΩ)	125	V
V_{GS}	Gate-Source Voltage	± 40	V
I_D	Drain Current	16	A
P_{DISS}	Power Dissipation ($T_{heatsink} \leq 25°C$)	219	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	0.6	°C/W
$R_{TH(c-s)}$	Case-Heatsink Thermal Resistance	0.2	°C/W

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

STATIC

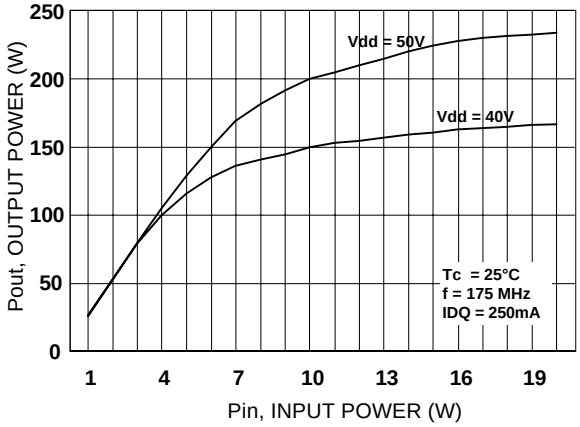
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$V_{(BR)DSS}$	V_{GS} = 0V I_{DS} = 100 mA	125	—	—	V
I_{DSS}	V_{GS} = 0V V_{DS} = 50V	—	—	5	mA
I_{GSS}	V_{GS} = 20V V_{DS} = 0V	—	—	1	μA
$V_{GS(TH)}$	V_{DS} = 10V I_D = 250 mA	1.0	—	5.0	V
$V_{DS(ON)}$	V_{GS} = 10V I_D = 10A	—	—	3.0	V
G_{FS}	V_{DS} = 10V I_D = 5A	4.0	—	—	mhos
C_{ISS}	V_{GS} = 0V V_{DS} = 50V F = 1MHz	—	411	425	pf
C_{OSS}	V_{GS} = 0V V_{DS} = 50V F = 1MHz	—	198	220	pf
C_{RSS}	V_{GS} = 0V V_{DS} = 50V F = 1MHz	—	27	30	pf

DYNAMIC

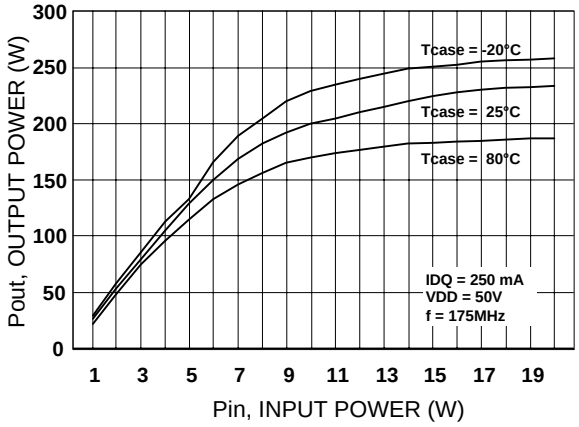
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	f = 175MHz V_{DD} = 50V I_{DQ} = 250mA	150	—	—	W
G_{PS}	f = 175MHz V_{DD} = 50V Pout = 150 W I_{DQ} = 250mA	12.5	14.0	—	dB
η_D	f = 175MHz V_{DD} = 50V Pout = 150 W I_{DQ} = 250mA	50	55	—	%

TYPICAL PERFORMANCE

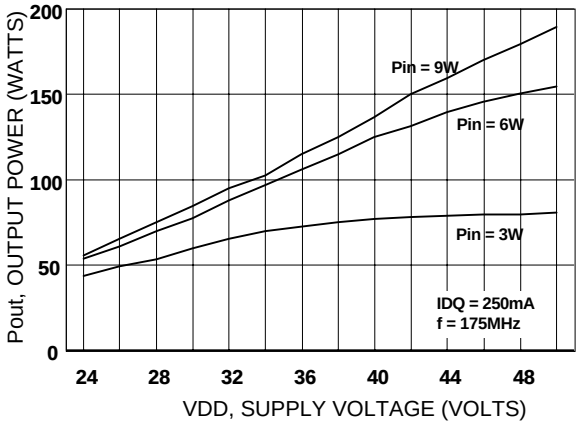
OUTPUT POWER VS INPUT POWER



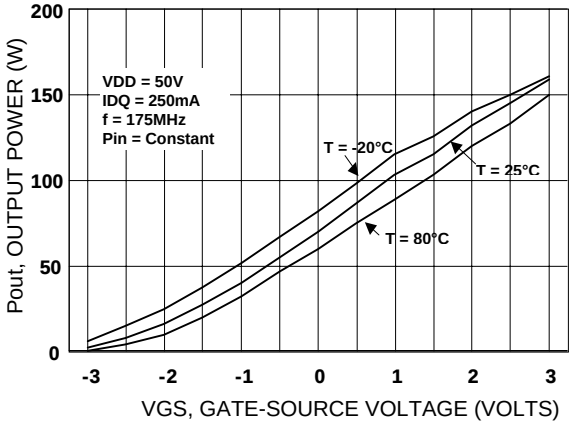
OUTPUT POWER VS INPUT POWER



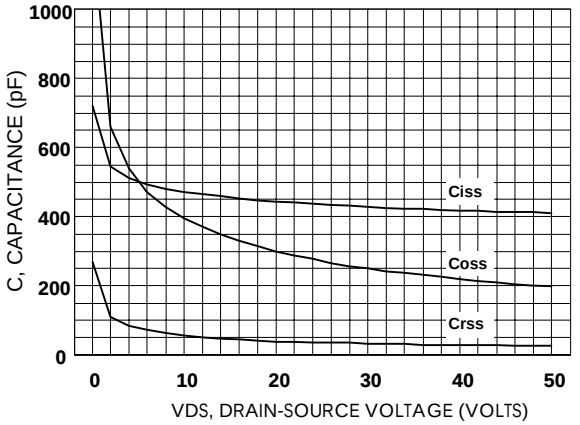
OUTPUT POWER VS SUPPLY VOLTAGE



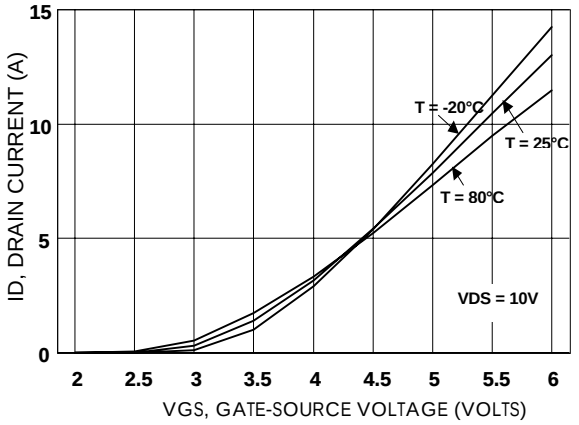
OUTPUT POWER VS GATE VOLTAGE



CAPACITANCE VS DRAIN-SOURCE VOLTAGE

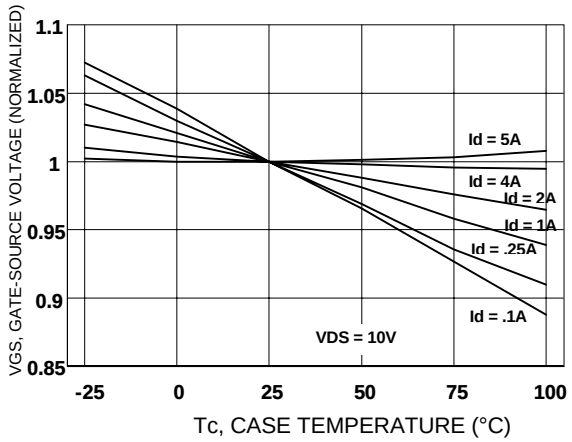


DRAIN CURRENT VS GATE VOLTAGE

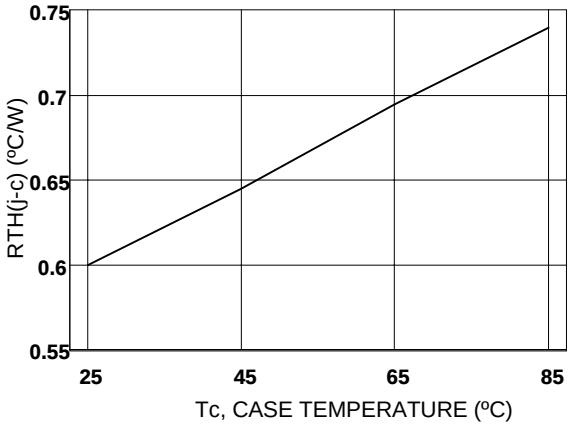


TYPICAL PERFORMANCE

GATE-SOURCE VOLTAGE VS CASE TEMPERATURE

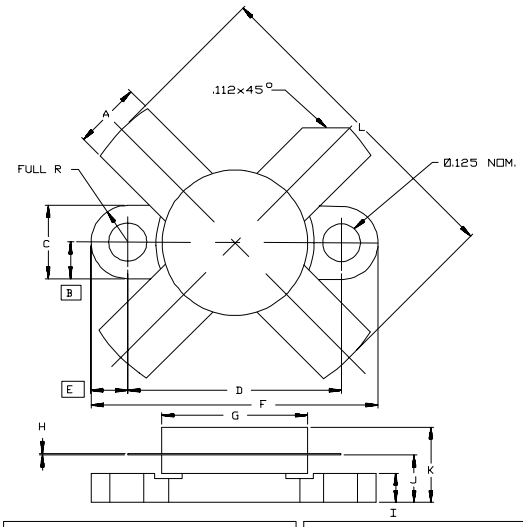


MAXIMUM THERMAL RESISTANCE VS CASE TEMPERATURE



PACKAGE MECHANICAL DATA

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



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	.150/3,81	.175/4,45

CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm
K		.280/7,11
L	.980/24,89	1.050/26,67