Advance Information

The RF Small Signal Line

Gallium Arsenide

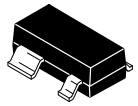
N–Channel Depletion–Mode MESFET

MRF9811T1

21 dBm, 5.8 V
HIGH FREQUENCY
GaAs FET TRANSISTOR

Designed for use in driver stages of moderate power RF amplifiers to 2 GHz. Typical applications are cellular radios and personal communication transmitters such as AMPS, ETACS, NMT, GSM, PCN, JDC and DECT.

- Performance Specifications at 900 MHz, 5.8 V:
  Output Power = 21 dBm
  Power Gain = 14 dB Min
  Drain Efficiency = 55% Min
- Plastic Surface Mount Package
- Order MRF9811T1 for Tape and Reel Packaging.
  T1 Suffix = 3,000 Units per 8 mm, 7 inch Reel.



CASE 318A–05, STYLE 7
(SOT–143)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DSS}	10	Vdc
Gate–Source Voltage	V_{GS}	±5	Vdc
Drain Current — Continuous	I_D	0.7	Adc
Total Device Dissipation @ T_C = 50°C Derate above 50°C	P_D	0.77 7.7	W mW/°C
Storage Temperature Range	T_{stg}	–55 to +150	°C
Operating Junction Temperature	T_J	150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	130	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

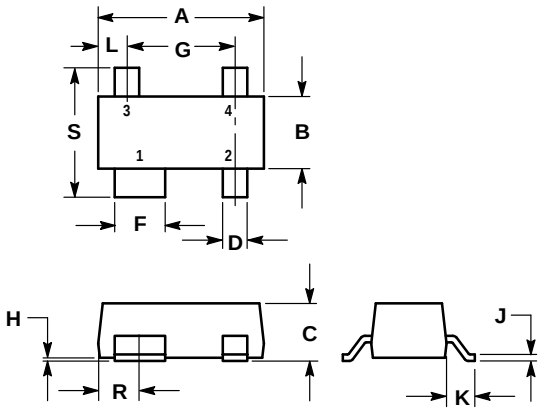
Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Gate–Drain Breakdown Voltage (I_{GD} = 0.25 mA, Source Open)	$V_{(BR)GDO}$	15	–	–	Vdc
Zero Gate Voltage Drain Current (V_{DS} = 1.5 Vdc, V_{GS} = 0)	I_{DSS}	0.35	–	–	Adc
Gate–Source Leakage Current (V_{GS} = –5.0 Vdc, Drain Open)	I_{GSO}	–	0.5	10	μAdc

NOTE – **CAUTION** – MOS devices are susceptible to damage from electrostatic charge. Reasonable precautions in handling and packaging MOS devices should be observed.

ELECTRICAL CHARACTERISTICS continued (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
Gate Threshold Voltage (V_{DS} = 5.8 Vdc, I_D = 0.25 A)	$V_{GS(th)}$	–	–2	–	Vdc
Forward Transconductance (V_{DS} = 5.8 Vdc, I_D = 30 mA)	g_{fs}	–	90	–	mmhos
DYNAMIC CHARACTERISTICS					
Input Capacitance (V_{DS} = 5.8 V, V_{GS} = 0, f = 1 MHz)	C_{iss}	–	2	–	pF
Output Capacitance (V_{DS} = 5.8 V, V_{GS} = 0, f = 1 MHz)	C_{oss}	–	3.5	–	pF
FUNCTIONAL CHARACTERISTICS (In specified test circuit shown on data sheet)					
Common Source Output Power (V_{DS} = 5.8 V, I_{DQ} = 30 mA, P_{in} = 7 dBm, f = 900 MHz)	G_{ps}	14	–	–	dB
Drain Efficiency (V_{DS} = 5.8 V, I_{DQ} = 30 mA, P_{in} = 7 dBm, f = 900 MHz)	η_D	55	–	–	%

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	2.80	3.04	0.110	0.120
B	1.20	1.39	0.047	0.055
C	0.84	1.14	0.033	0.045
D	0.39	0.50	0.015	0.020
F	0.79	0.93	0.031	0.037
G	1.78	2.03	0.070	0.080
H	0.013	0.10	0.0005	0.004
J	0.08	0.15	0.003	0.006
K	0.46	0.60	0.018	0.024
L	0.445	0.60	0.0175	0.024
R	0.72	0.83	0.028	0.033
S	2.11	2.48	0.083	0.098

STYLE 7:
PIN 1. SOURCE
2. GATE
3. DRAIN
4. SOURCE

CASE 318A–05
ISSUE R

How to reach us:

USA / EUROPE / Locations Not Listed: Motorola Literature Distribution;
P.O. Box 5405, Denver, Colorado 80217. 303–675–2140 or 1–800–441–2447

Mfax™: RMFAX0@email.sps.mot.com – TOUCHTONE 602–244–6609
– US & Canada ONLY 1–800–774–1848

INTERNET: http://motorola.com/sps

JAPAN: Nippon Motorola Ltd.: SPD, Strategic Planning Office, 4–32–1,
Nishi–Gotanda, Shinagawa–ku, Tokyo 141, Japan. 81–3–5487–8488

ASIA / PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298