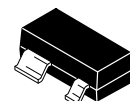


Advance Information
**The RF Small Signal Line
Gallium Arsenide
N-Channel Depletion-Mode MESFET**

MRF9811T1

**21 dBm, 5.8 V
HIGH FREQUENCY
GaAs FET TRANSISTOR**



**CASE 318A-05, STYLE 7
(SOT-143)**

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.

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 @ $T_C = 50^\circ\text{C}$ Derate above 50°C	P_D	0.77 7.7	W mW/ $^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature	T_J	150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Gate-Drain Breakdown Voltage ($I_{GD} = 0.25 \text{ mA}$, Source Open)	$V_{(BR)GDO}$	15	-	-	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 1.5 \text{ Vdc}$, $V_{GS} = 0$)	I_{DSS}	0.35	-	-	Adc
Gate-Source Leakage Current ($V_{GS} = -5.0 \text{ Vdc}$, 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 ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

Gate Threshold Voltage ($V_{DS} = 5.8 \text{ Vdc}$, $I_D = 0.25 \text{ A}$)	$V_{GS(th)}$	–	–2	–	Vdc
Forward Transconductance ($V_{DS} = 5.8 \text{ Vdc}$, $I_D = 30 \text{ mA}$)	g_{fs}	–	90	–	mmhos

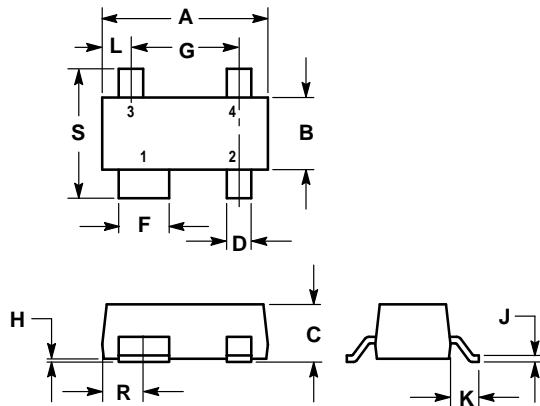
DYNAMIC CHARACTERISTICS

Input Capacitance ($V_{DS} = 5.8 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{iss}	–	2	–	pF
Output Capacitance ($V_{DS} = 5.8 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$)	C_{oss}	–	3.5	–	pF

FUNCTIONAL CHARACTERISTICS (In specified test circuit shown on data sheet)

Common Source Output Power ($V_{DS} = 5.8 \text{ V}$, $I_{DQ} = 30 \text{ mA}$, $P_{in} = 7 \text{ dBm}$, $f = 900 \text{ MHz}$)	G_{ps}	14	–	–	dB
Drain Efficiency ($V_{DS} = 5.8 \text{ V}$, $I_{DQ} = 30 \text{ mA}$, $P_{in} = 7 \text{ dBm}$, $f = 900 \text{ MHz}$)	η_D	55	–	–	%

PACKAGE DIMENSIONS




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

DIM	MILLIMETERS		INCHES	
	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**

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MRF9811T1/D