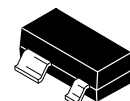


*Advance Information*  
**The RF Small Signal Line  
Gallium Arsenide  
N-Channel Depletion-Mode MESFET**

**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	$V_{GS}$	$\pm 5$	Vdc
Drain Current — Continuous	$I_D$	0.7	Adc
Total Device Dissipation @ $T_C = 50^\circ\text{C}$ Derate above $50^\circ\text{C}$	$P_D$	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	$\mu\text{Adc}$

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

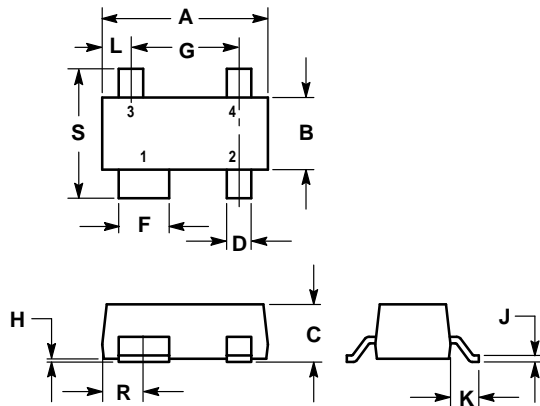
**DYNAMIC CHARACTERISTICS**

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 ( $V_{DS} = 5.8 \text{ V}$ , $I_{DQ} = 30 \text{ mA}$ , $P_{in} = 7 \text{ dBm}$ , $f = 900 \text{ MHz}$ )	$\eta_D$	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**