Freescale Semiconductor
Technical Data

Document Number: MRF9582NT1
Rev. 1, 7/2006

RoHS

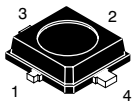
Silicon Lateral FET, N-Channel Enhancement-Mode MOSFET

Designed for use in medium voltage, moderate power amplifiers such as portable analog and digital cellular radios and PC RF modems.

- Typical CW RF Performance @ 849 MHz: V_{DD} = 12.5 Volts, I_{DQ} = 300 mA, P_{out} = 38 dBm
  Power Gain — 10.5 dB
  Drain Efficiency — 55%
- Capable of Handling 10:1 VSWR, @ 12.5 Vdc, 849 MHz, 38 dBm
- RoHS Compliant
- In Tape and Reel. T1 Suffix = 1,000 Units per 12 mm, 7 inch Reel

MRF9582NT1

849 MHz, 38 dBm, 12.5 V
HIGH FREQUENCY
POWER TRANSISTOR
LDMOS FET



CASE 449-02, STYLE 1
PLD-1

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	17	Vdc
Drain-Gate Voltage (R_{GS} = 1.0 MΩ)	V_{DGO}	17	Vdc
Gate-Source Voltage	V_{GS}	4.0	Vdc
Drain Current - Continuous	I_D	1.5	Adc
Total Device Dissipation @ T_C = 85°C	P_D	10.5	W
Storage Temperature Range	T_{stg}	-65 to 150	°C
Operating Junction Temperature	T_J	150	°C

Table 2. Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	6	°C/W

Table 3. Moisture Sensitivity Level

Test Methodology	Rating	Package Peak Temperature	Unit
Per JESD 22-A113, IPC/JEDEC J-STD-020	1	260	°C

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

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Table 4. Electrical Characteristics (T_C = 25°C, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Off Characteristics					
Drain-Source Breakdown Voltage (V_{GS} = 0, I_D = 100 nAdc)	$V_{(BR)DSS}$	—	45	—	Vdc
Drain-Source Leakage Current (V_{DS} = 12.5 Vdc, V_{GS} = 0)	I_{DSS}	—	—	100	nAdc
Gate-Source Leakage Current (V_{GS} = 5 Vdc, V_{DS} = 0)	I_{GSS}	—	—	100	nAdc
On Characteristics					
Gate Threshold Voltage	V_{GS}	—	2.4	—	Vdc
Resistance Drain-Source (V_{GS} = 5 Vdc, I_D = 300 mA)	$R_{DS(on)}$	0.05	0.5	0.8	Ω
Dynamic Characteristics					
Input Capacitance (V_{DS} = 12.5 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	—	30.77	—	pF
Output Capacitance (V_{DS} = 12.5 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{oss}	—	15.6	—	pF
Feedback Capacitance (V_{DS} = 12.5 Vdc, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	—	0.82	—	pF
Typical Characteristics					
Power Gain (V_{DD} = 12.5 Vdc, P_{in} = 27.5 dBm, f = 849 MHz)	G_{ps}	—	10.5	—	dB
Drain Efficiency (V_{DD} = 12.5 Vdc, P_{in} = 27.5 dBm, f = 849 MHz)	η_D	—	55	—	%
Output Power	P_{out}	—	38	—	dBm

ARCHIVE INFORMATION

TYPICAL CHARACTERISTICS

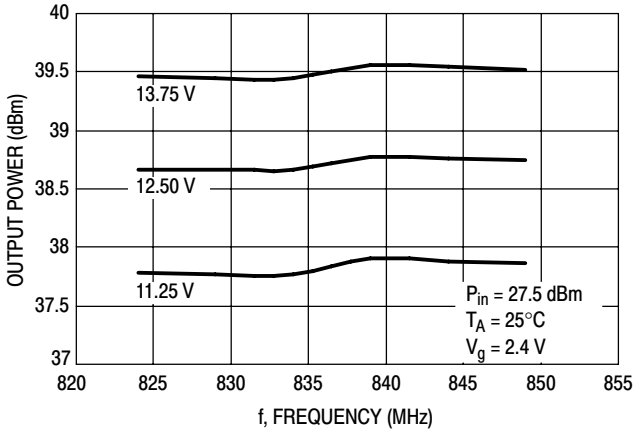

Figure 1. Output Power versus Frequency

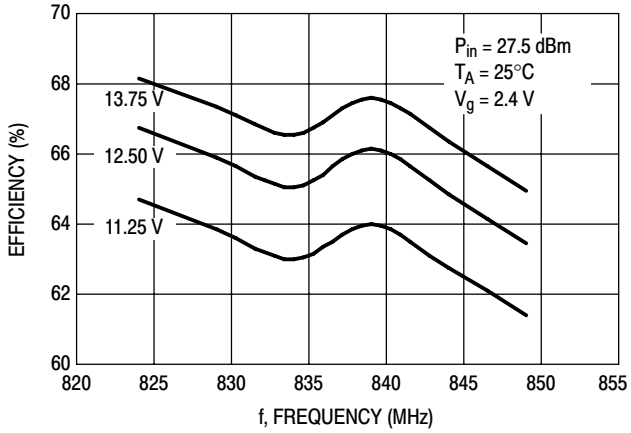

Figure 2. Efficiency versus Frequency

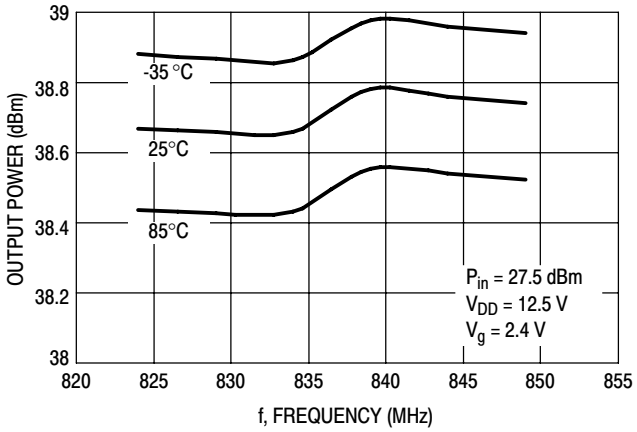

Figure 3. Output Power versus Frequency

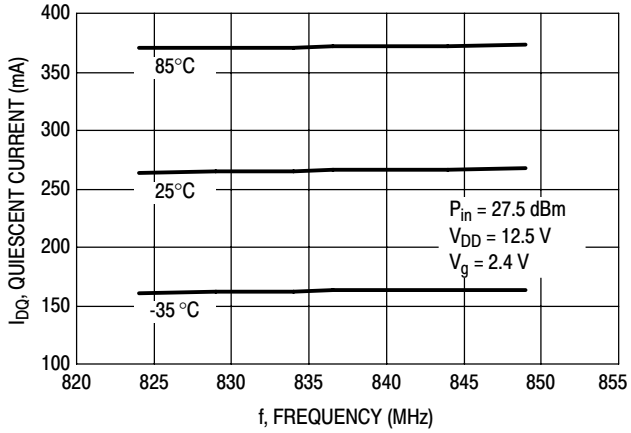

Figure 4. Quiescent Current versus Frequency

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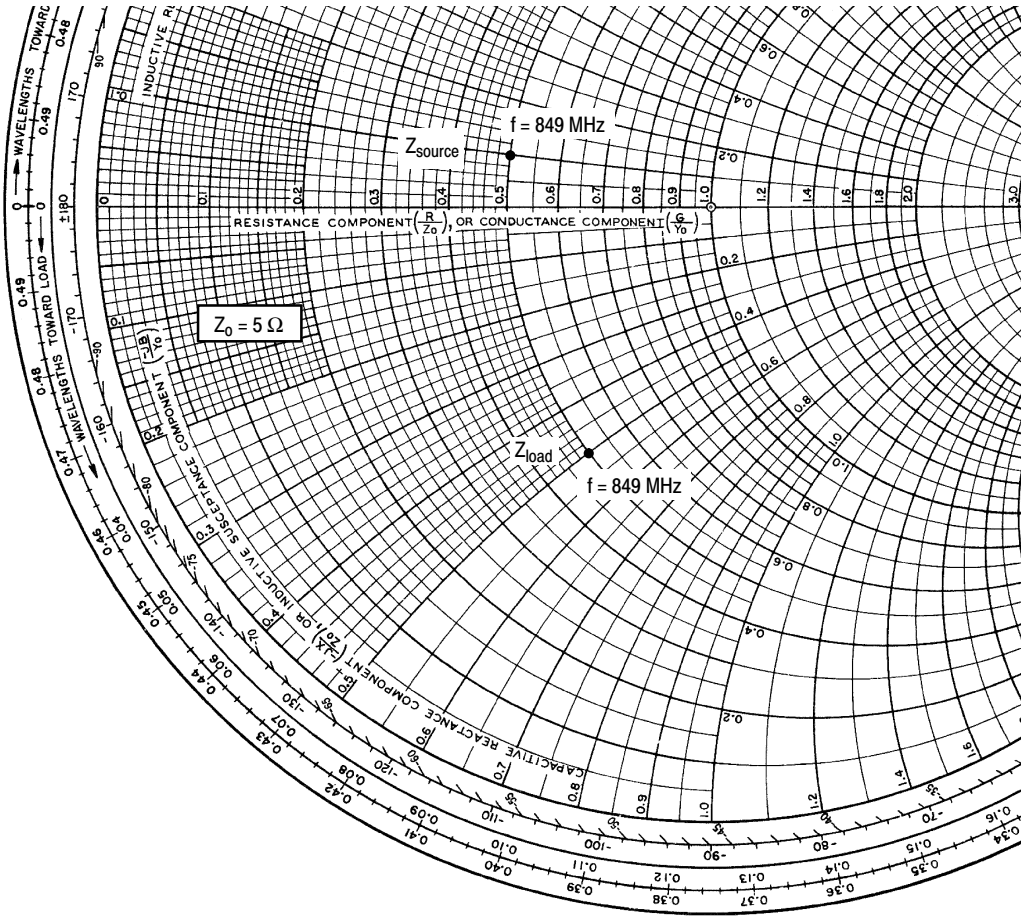


V_{DD} = 12.5 Vdc, I_{DQ} = 300 mA, P_{out} = 38 dBm

f MHz	Z_{source} Ω	Z_{load} Ω
849	2.5 + j0.5	2.5 - j2.5

Z_{source} = Test circuit impedance as measured from gate to ground.

Z_{load} = Test circuit impedance as measured from drain to ground.

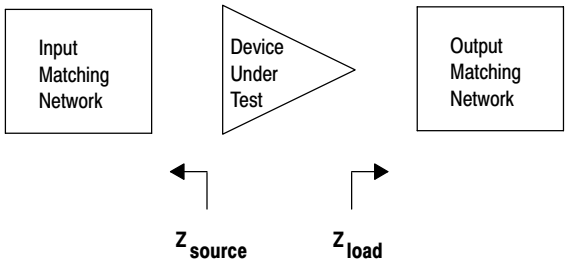
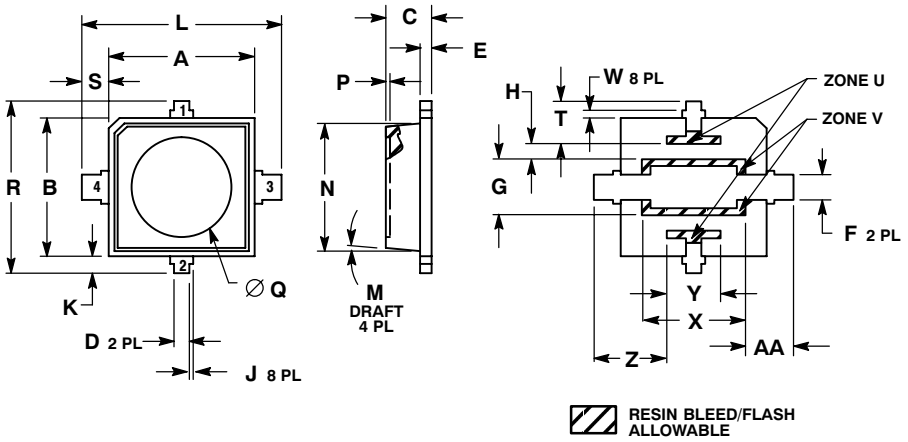


Figure 5. Series Equivalent Source and Load Impedance

PACKAGE DIMENSIONS



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

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.185	0.195	4.70	4.95
B	0.175	0.185	4.44	4.70
C	0.058	0.064	1.47	1.63
D	0.017	0.023	0.43	0.58
E	0.014	0.017	0.36	0.43
F	0.027	0.033	0.69	0.84
G	0.071	0.077	1.80	1.96
H	0.017	0.023	0.43	0.58
J	0.000	0.007	0.00	0.18
K	0.018	0.026	0.46	0.66
L	0.253	0.263	6.43	6.68
M	5 °REF		5 °REF	
N	1.75 REF		4.44 REF	
P	0.000	0.006	0.00	0.15
Q	0.120	0.130	3.05	3.30
R	0.220	0.230	5.59	5.84
S	0.030	0.038	0.76	0.97
T	0.050	0.060	1.27	1.52
U	0.000	0.018	0.00	0.46
V	0.000	0.014	0.00	0.36
W	0.004	0.016	0.10	0.41
X	0.131	0.141	3.33	3.58
Y	0.065	0.075	1.65	1.90
Z	0.089	0.099	2.26	2.51
AA	0.056	0.066	1.42	1.67

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

CASE 449-02
ISSUE A

ARCHIVE INFORMATION

REVISION HISTORY

The following table summarizes revisions to this document.

Revision	Date	Description
1	Dec. 2009	• Data sheet archived. Part no longer manufactured.

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