

# RF MOSFET Power Transistor, 30W, 40V

## 500 - 1000 MHz

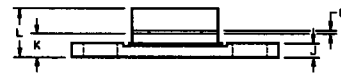
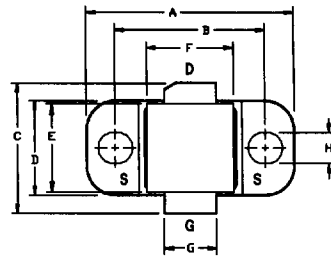
# LF4030C

V2.00

### Features

- N-Channel Enhancement Mode Device
- Gold Metallized
- Resfet Structure
- Lower Capacitances for Broadband Operation
- Common Source Configuration
- Applications

Broadband Linear Operation  
500 MHz to 1200 MHz



### Absolute Maximum Ratings at 25°C

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	80	V
Gate-Source Voltage	$V_{GS}$	20	V
Drain-Source Current	$I_{DS}$	5	A
Power Dissipation	$P_D$	58	W
Junction Temperature	$T_J$	200	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C
Thermal Resistance	$\theta_{JC}$	3	°C/W

LETTER DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	22.73	22.99	.895	.905
B	16.38	16.64	.645	.655
C	13.72	14.22	.540	.560
D	10.03	10.29	.395	.405
E	9.40	9.65	.370	.380
F	9.40	9.65	.370	.380
G	5.59	5.84	.220	.230
H	3.12	3.38	.123	.133
J	1.40	1.65	.055	.065
K	2.34	2.84	.092	.112
L	4.90	5.72	.193	.225
M	.05	.13	.002	.005

### Electrical Characteristics at 25°C

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	$BV_{DSS}$	80	-	V	$V_{GS}=0.0\text{ V}$ , $I_{DS}=20.0\text{ mA}$
Drain-Source Leakage Current	$I_{DSS}$	-	2.0	mA	$V_{DS}=40.0\text{ V}$ , $V_{GS}=0.0\text{ V}$
Gate-Source Leakage Current	$I_{GSS}$	-	10	$\mu\text{A}$	$V_{GS}=20\text{ V}$ , $V_{DS}=0.0\text{ V}$
Gate Threshold Voltage	$V_{GS(TH)}$	1.0	6.0	V	$V_{DS}=10.0\text{ V}$ , $I_{DS}=100.0\text{ mA}$
Forward Transconductance	$G_M$	500	-	mS	$V_{DS}=10.0\text{ V}$ , $I_{DS}=1.0\text{ mA}$ , 300 $\mu\text{s}$ Pulse
Input Capacitance	$C_{ISS}$	-	55	pF	$V_{DS}=40.0\text{ V}$ , $F=1.0\text{ MHz}$ , Reference only.*
Output Capacitance	$C_{OSS}$	-	25	pF	$V_{DS}=40.0\text{ V}$ , $F=1.0\text{ MHz}$
Reverse Capacitance	$C_{RSS}$	-	7	pF	$V_{DS}=40.0\text{ V}$ , $F=1.0\text{ MHz}$
Power Gain	$G_p$	10	-	dB	$V_{DD}=40.0\text{ V}$ , $I_{DD}=100\text{ mA}$ , $P_{OUT}=30.0\text{ W}$ , $F=1.0\text{ GHz}$
Drain Efficiency	$\eta_D$	50	-	%	$V_{DD}=40.0\text{ V}$ , $I_{DD}=100\text{ mA}$ , $P_{OUT}=30.0\text{ W}$ , $F=1.0\text{ GHz}$
Load Mismatch Tolerance	VSWR-T	-	3:1	-	$V_{DD}=40.0\text{ V}$ , $I_{DD}=100\text{ mA}$ , $P_{OUT}=30.0\text{ W}$ , $F=1.0\text{ GHz}$

\* Note: Due to the internal matching network, this parameter cannot be measured.

Specifications Subject to Change Without Notice.

MA-COM, Inc.

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Asia/Pacific: Tel. +81 (03) 3226-1671  
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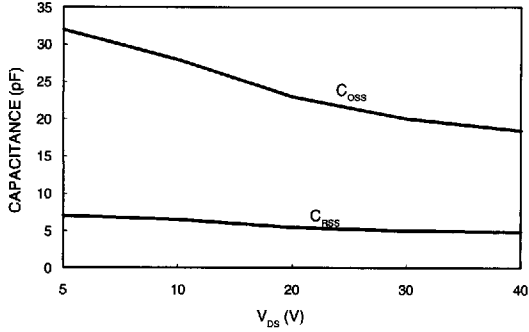
Europe: Tel. +44 (1344) 869 595  
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Typical Broadband Performance Curves

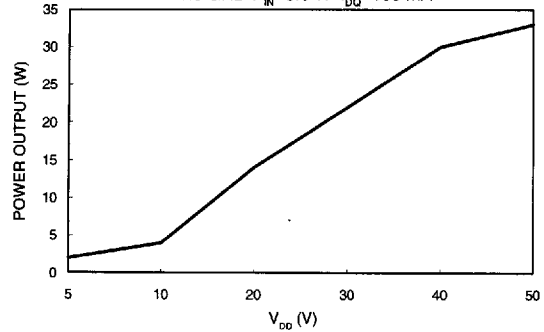
CAPACITANCES vs VOLTAGE

F=1.0 MHz



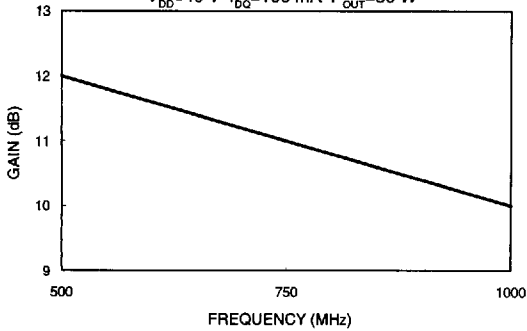
POWER OUTPUT vs VOLTAGE

F=1.0 GHz P<sub>IN</sub>=3.0 W I<sub>DC</sub>=100 mA



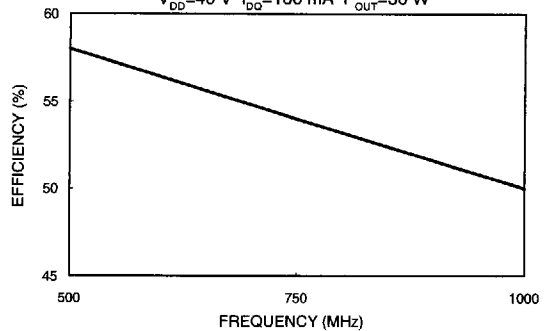
GAIN vs FREQUENCY

V<sub>DD</sub>=40 V I<sub>DC</sub>=100 mA P<sub>OUT</sub>=30 W



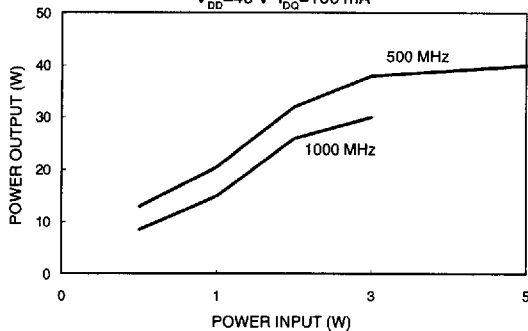
EFFICIENCY vs FREQUENCY

V<sub>DD</sub>=40 V I<sub>DC</sub>=100 mA P<sub>OUT</sub>=30 W



POWER OUTPUT vs POWER OUTPUT

V<sub>DD</sub>=40 V I<sub>DC</sub>=100 mA



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Typical Device Impedance

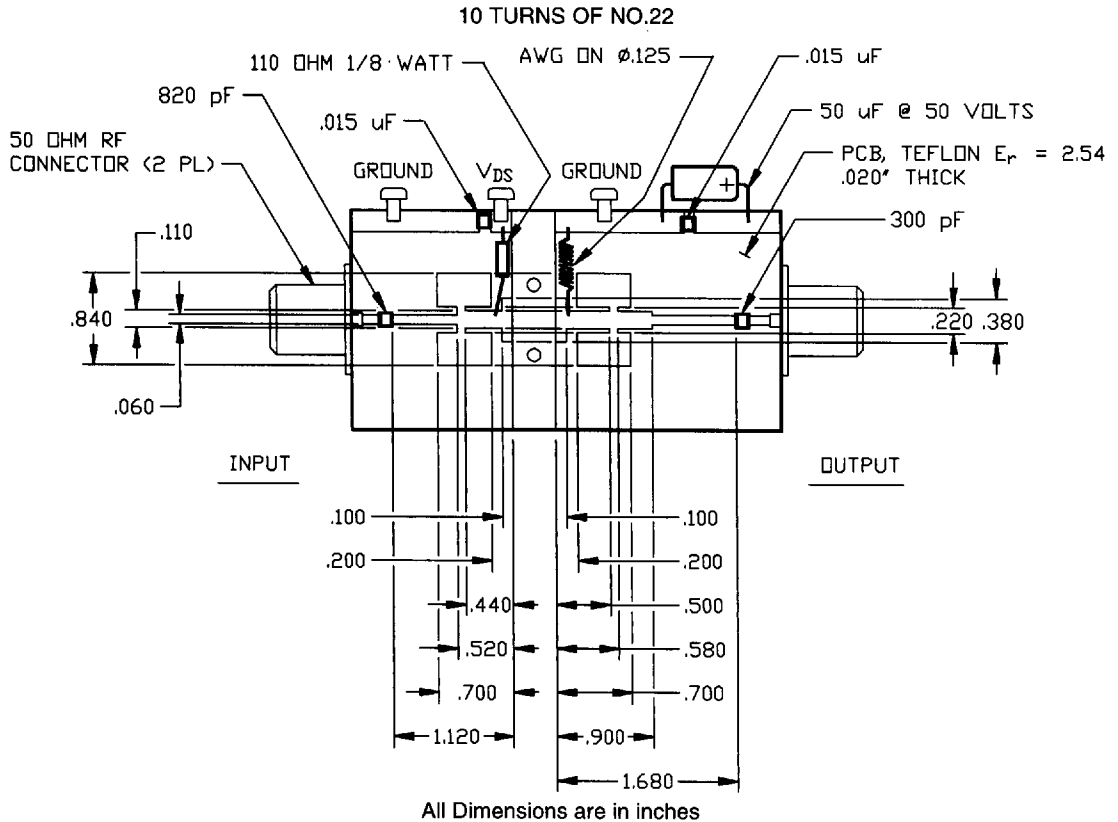
Frequency (MHz)	Z <sub>IN</sub> (OHMS)	Z <sub>LOAD</sub> (OHMS)
500	1.3 + j 1.6	5.5 + j 6.5
640	2.0 + j 4.0	4.0 + j 5.5
850	4.5 + j 3.0	3.2 + j 3.0
1000	3.5 + j 2.0	3.0 + j 2.0

V<sub>DD</sub>=40 V, I<sub>DQ</sub>=100 mA, P<sub>OUT</sub>=30.0 Watts

Z<sub>IN</sub> is the series equivalent input impedance of the device from gate to source.

Z<sub>LOAD</sub> is the optimum series equivalent load impedance as measured from drain to ground.

RF Test Fixture



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