

**UGF09030**

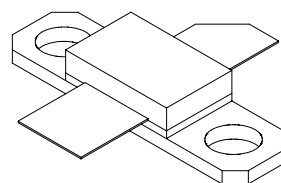
**30W, 1 GHz, 26V Broadband RF Power N-Channel  
Enhancement-Mode Lateral MOSFET**

Designed for base station applications in the frequency band 800MHz to 1000MHz. Rated with a minimum output power of 30W, it is ideal for CDMA, TDMA, WCDMA, GSM, and Multi-Carrier Power Amplifiers in Class AB operation.

- ALL GOLD metal system for highest reliability
- Industry standard package
- Suggested alternative to the MRF9030
- Internally matched for repeatable manufacturing
- High gain, high efficiency and high linearity

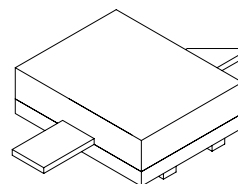
• **Application Specific Performance, 870MHz**

<b>GSM:</b>	<b>30 Watts</b>	<b>17.50dB</b>
<b>EDGE:</b>	<b>13 Watts</b>	<b>17.50dB</b>
<b>IS95 CDMA:</b>	<b>3.5 Watts</b>	<b>17.50 dB</b>
<b>CDMA2000:</b>	<b>TBD Watts</b>	<b>17.50dB</b>



**Package Type 440095**

**PN: UGF9030F**



**Package Type 440109**

**PN: UGF9030P**

### Maximum Ratings

Rating	Symbol	Value	Unit
Drain to Source Voltage, Gate connected to Source	$V_{DSS}$	65	Volts
Gate to Source Voltage	$V_{GSS}$	+15 to -5	Volts
Total Device Dissipation @ $T_{case} = 70^{\circ}C$ Derate above $70^{\circ}C$	$P_D$	-	Watts $W/^{\circ}C$
Storage Temperature Range	$T_{stg}$	-65 to +150	$^{\circ}C$
Operating Junction Temperature	$T_J$	200	$^{\circ}C$

### Thermal Characteristics

Characteristic	Symbol	Typical	Unit
Thermal Resistance, Junction to Case	$\Theta_{JC}$	-	$^{\circ}C/W$

### Electrical DC Characteristics ( $T_C = 25^{\circ}C$ unless otherwise specified)

Rating	Symbol	Min	Typ	Max	Unit
Drain to Source Breakdown Voltage ( $V_{GS}=0$ , $I_D=1mA$ )	$BV_{DSS}$	65	-	-	Volts
Drain to Source Leakage current ( $V_{DS}=26V$ , $V_{GS}=0$ )	$I_{DSS}$	-	-	1.0	mA
Gate to Source Leakage current ( $V_{GS}=15V$ , $V_{DS}=0$ )	$I_{GSS}$	-	-	1.0	$\mu A$
Threshold Voltage ( $V_{DS}=10V$ , $I_D=1mA$ )	$V_{GS(th)}$	-	3.5	-	Volts
Gate Quiescent Voltage ( $V_{DS}=26V$ , $I_D=350mA$ )	$V_{GS(Q)}$	3.0	4.0	6.0	Volts
Drain to Source On Voltage ( $V_{GS}=10V$ , $I_D=1A$ )	$V_{DS(on)}$	-	0.3	-	Volts
Forward Transconductance ( $V_{DS}=10V$ , $I_D=5A$ )	$G_m$	-	-	-	S

### AC Characteristics ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Rating	Symbol	Min	Typ	Max	Unit
Input Capacitance * ( $V_{DS}=26\text{V}$ , $V_{GS}=0\text{V}$ , $f = 1\text{MHz}$ )	$C_{ISS}$	-	-	-	pF
Output capacitance * ( $V_{DS}= 26\text{V}$ , $V_{GS}=0\text{V}$ , $f = 1\text{MHz}$ )	$C_{OSS}$	-	-	-	pF
Feedback capacitance * ( $V_{DS}=26\text{V}$ , $V_{GS}=0\text{V}$ , $f = 1\text{MHz}$ )	$C_{RSS}$	-	-	-	pF

### RF and Functional Tests ( $T_C=25^\circ\text{C}$ unless otherwise specified, Cree Microwave Broadband Fixture)

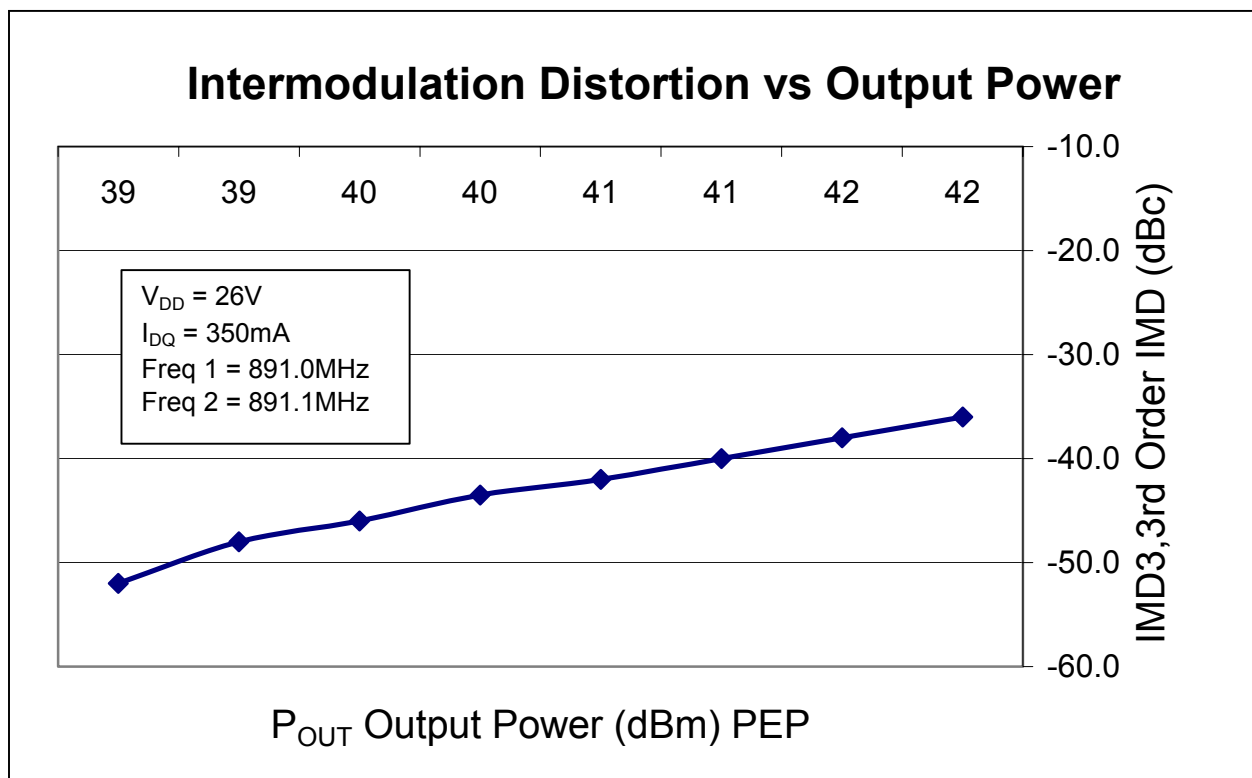
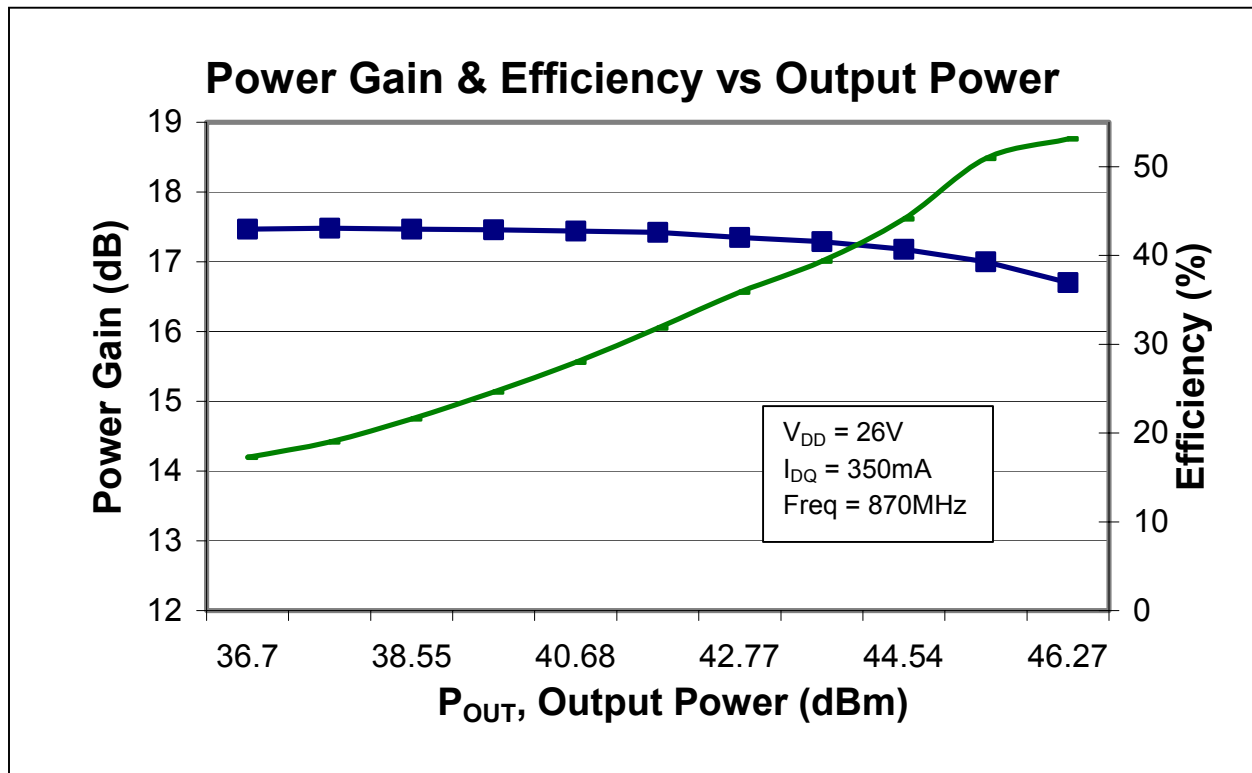
Rating	Symbol	Min	Typ	Max	Unit
CW Small Signal Gain, $P_{out}=0.1\text{W}$ $V_{DD}=26\text{V}$ , $I_{DQ}=350\text{mA}$	$G_L$	-	17.5	-	dB
CW Power Gain, $P_{out} = 30\text{ W}$ $V_{DD}=26\text{V}$ , $I_{DQ}=350\text{mA}$	$G_P$	-	17	-	dB
CW Drain Efficiency, $P_{out} = 30\text{ W}$ , $f=870\text{ MHz}$ , $V_{DD}=26\text{V}$ , $I_{DQ}=350\text{mA}$ ,	$\eta_D$	-	45	-	%
Two-Tone Common-Source Amplifier Power Gain $V_{DD}=26\text{V}$ , $I_{DQ}=350\text{mA}$ , $P_{out} = 30\text{ W PEP}$ $f_1=870\text{ MHz}$ and $f_2=870.1\text{ MHz}$	$G_{TT}$	-	17.5	-	dB
Two-Tone Inter-modulation Distortion $V_{DD}=26\text{V}$ , $I_{DQ}=350\text{mA}$ , $P_{out} = 30\text{ W PEP}$ $f_1=870\text{ MHz}$ and $f_2=870.1\text{ MHz}$	$I_{MD}$	-	-36	-	dBc
Two-Tone Drain Efficiency $V_{DD}=26\text{V}$ , $I_{DQ}=350\text{mA}$ , $P_{out} = 30\text{ W PEP}$ $f_1=870\text{ MHz}$ and $f_2=870.1\text{ MHz}$	$\eta_{D2T}$	-	36	-	%
Input Return Loss $V_{DD} = 26\text{V}$ , $P_{out} = 30\text{ W PEP}$ , $I_{DQ}=350\text{mA}$ $f_1=850\text{ MHz}$ and $900\text{ MHz}$ , Tone Spacing = 100kHz	IRL	-	10	-	dB
Load Mismatch Tolerance $V_{DS}=26\text{V}$ , $I_{DQ}= 350\text{ mA}$ , $P_{out}=30\text{W}$ , $f=900\text{ MHz}$	VSWR*	10:1	-	-	$\Psi$

Note (unless otherwise specified):

1. Source and load impedance shall be 50 ohms.

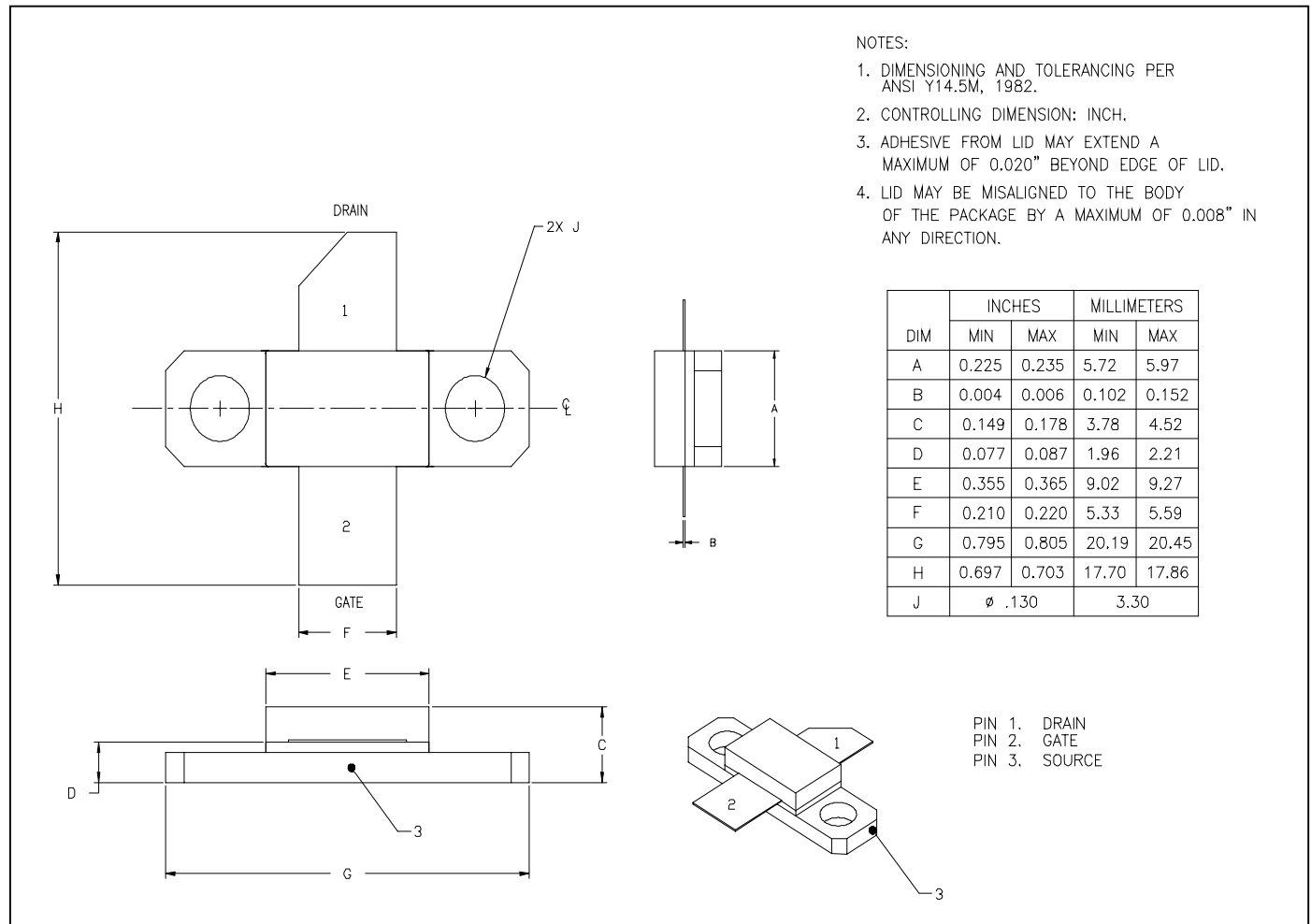
\*No degradation in device performance after test.

**CAUTION** - MOS Devices are susceptible to damage from Electrostatic Discharge (ESD). Appropriate precautions in handling, packaging and testing MOS devices must be observed.



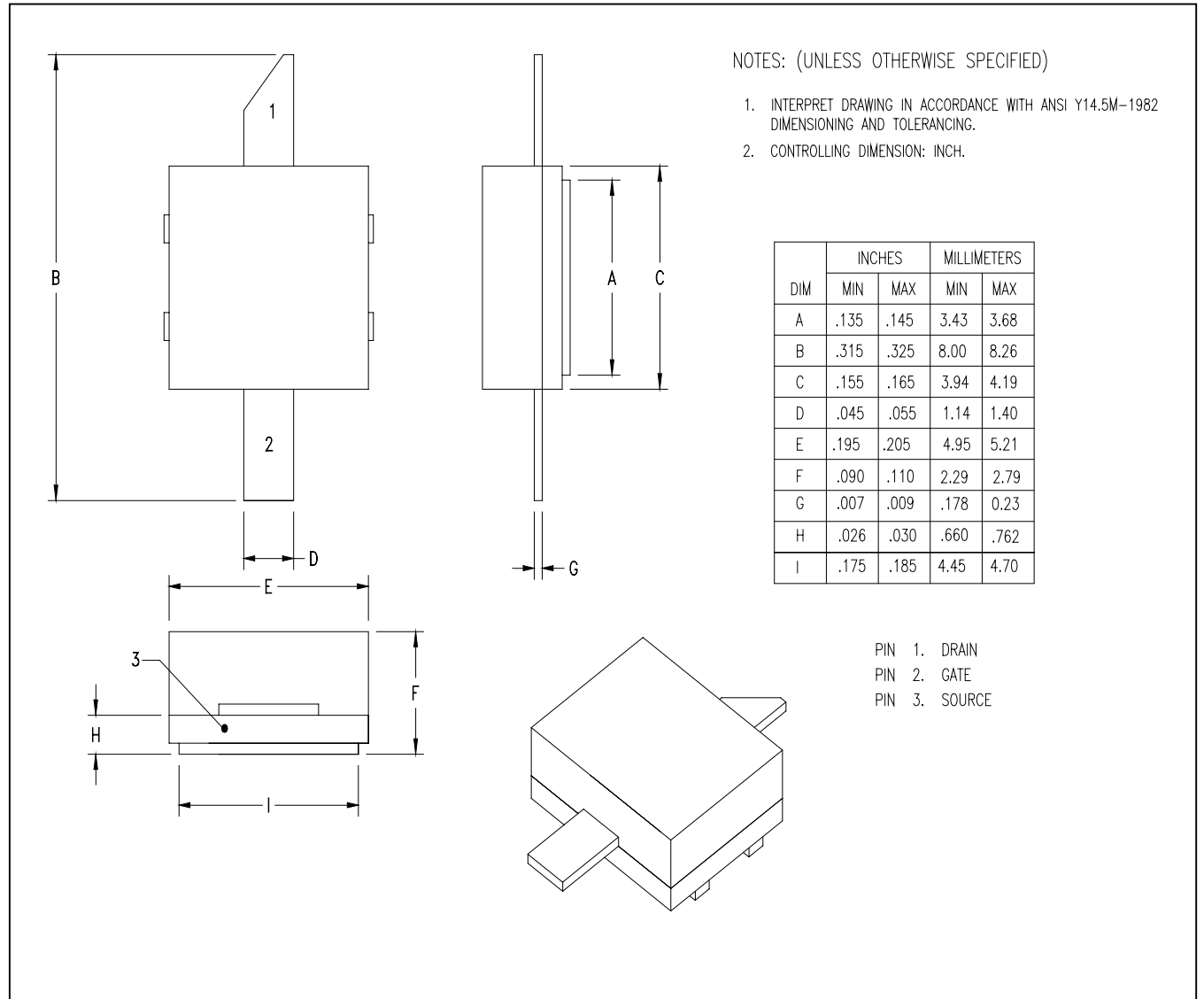
**Product Dimensions**

**UPF0930F – Package Number 440095**



**Package Dimensions**

**UGF09030P – Package Number 440109**



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