

**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.

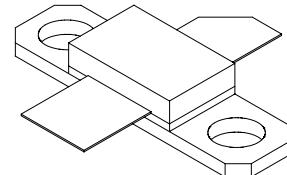
- ALL GOLD metal system for highest reliability
- Industry standard package
- Suggested alternative to the MRF9030
- Internally matched for repeatable manufacturing
- High gain, high efficiency and high linearity
- **Application Specific Performance, 870MHz**

GSM: **30 Watts** **17.50dB**

EDGE: **13 Watts** **17.50dB**

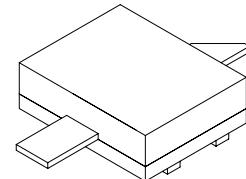
IS95 CDMA: **3.5 Watts** **17.50 dB**

CDMA2000: **TBD Watts** **17.50dB**



Package Type 440095

PN: UGF09030F



Package Type 440109

PN: UGF09030P

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	Θ_{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	μA
Threshold Voltage ($V_{DS}=10V$, $I_D=1mA$)	$V_{GS(th)}$	-	3.5	-	Volts
Gate Quiescent Voltage ($V_{DS}=26 V$, $I_D=350mA$)	$V_{GS(Q)}$	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)

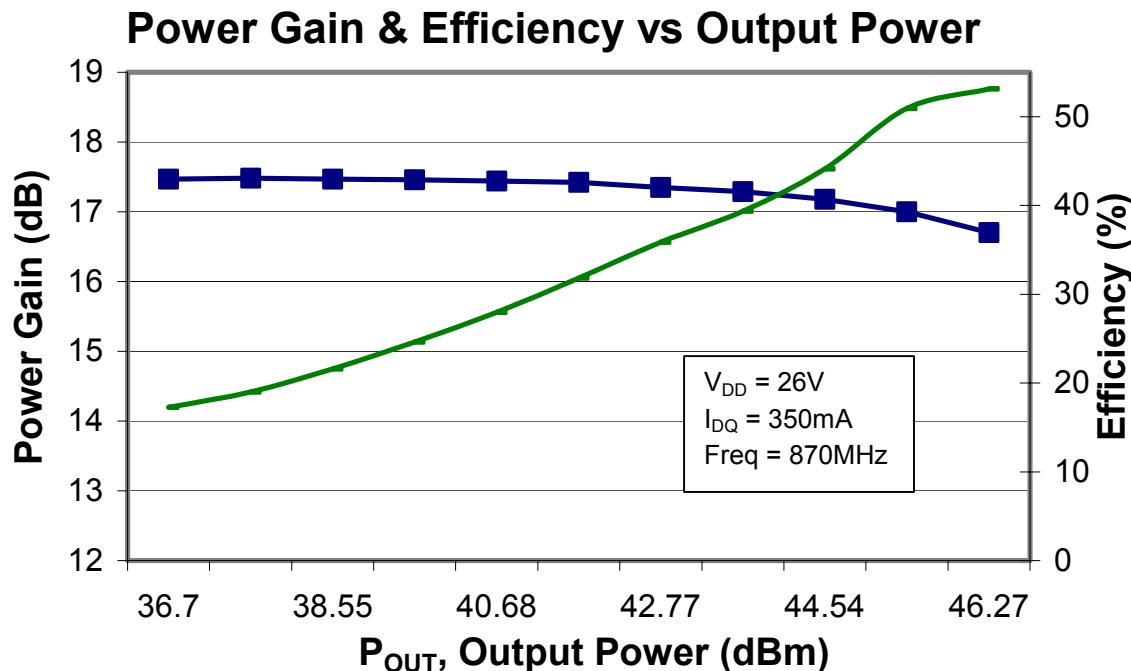
Rating	Symbol	Min	Typ	Max	Unit
CW Small Signal Gain, $P_{out}=0.1\text{W}$ $V_{DD}=26\text{V}$, $I_{DQ}=350\text{mA}$	G_L	-	17.5	-	dB
CW Power Gain, $P_{out} = 30\text{ W}$ $V_{DD}=26\text{V}$, $I_{DQ}=350\text{mA}$	G_P	-	17	-	dB
CW Drain Efficiency, $P_{out} = 30\text{ W}$, $f=870\text{ MHz}$, $V_{DD}=26\text{V}$, $I_{DQ}=350\text{mA}$,	η_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 $f_2 = 870.1\text{ MHz}$	η_{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 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	-	-	Ψ

Note (unless otherwise specified):

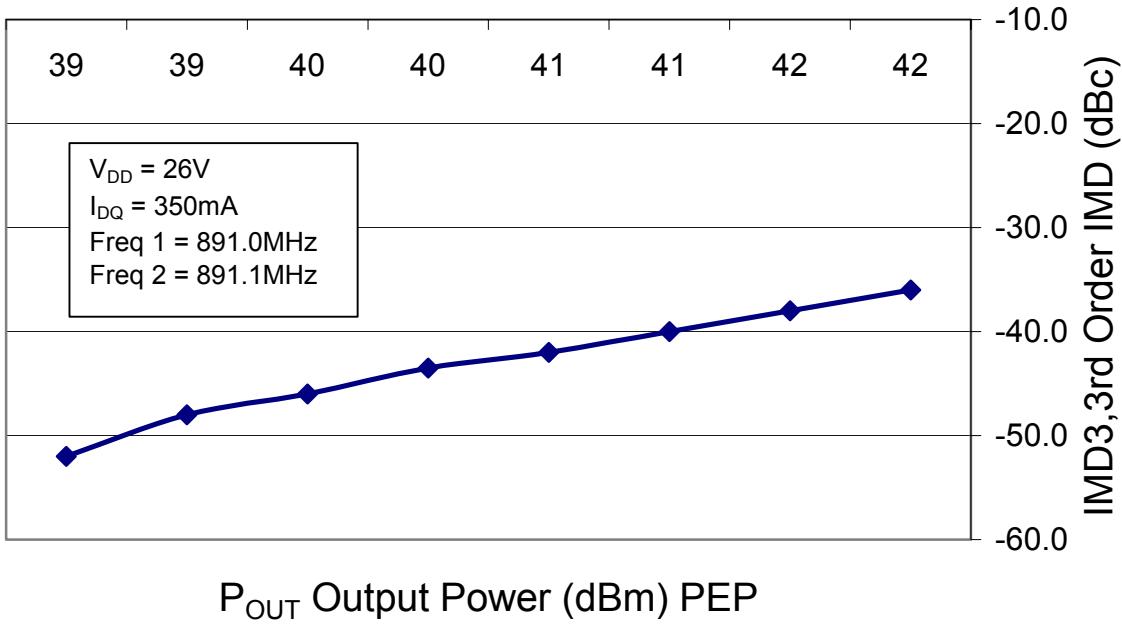
1. Source and load impedance shall be 50 ohms.

*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.

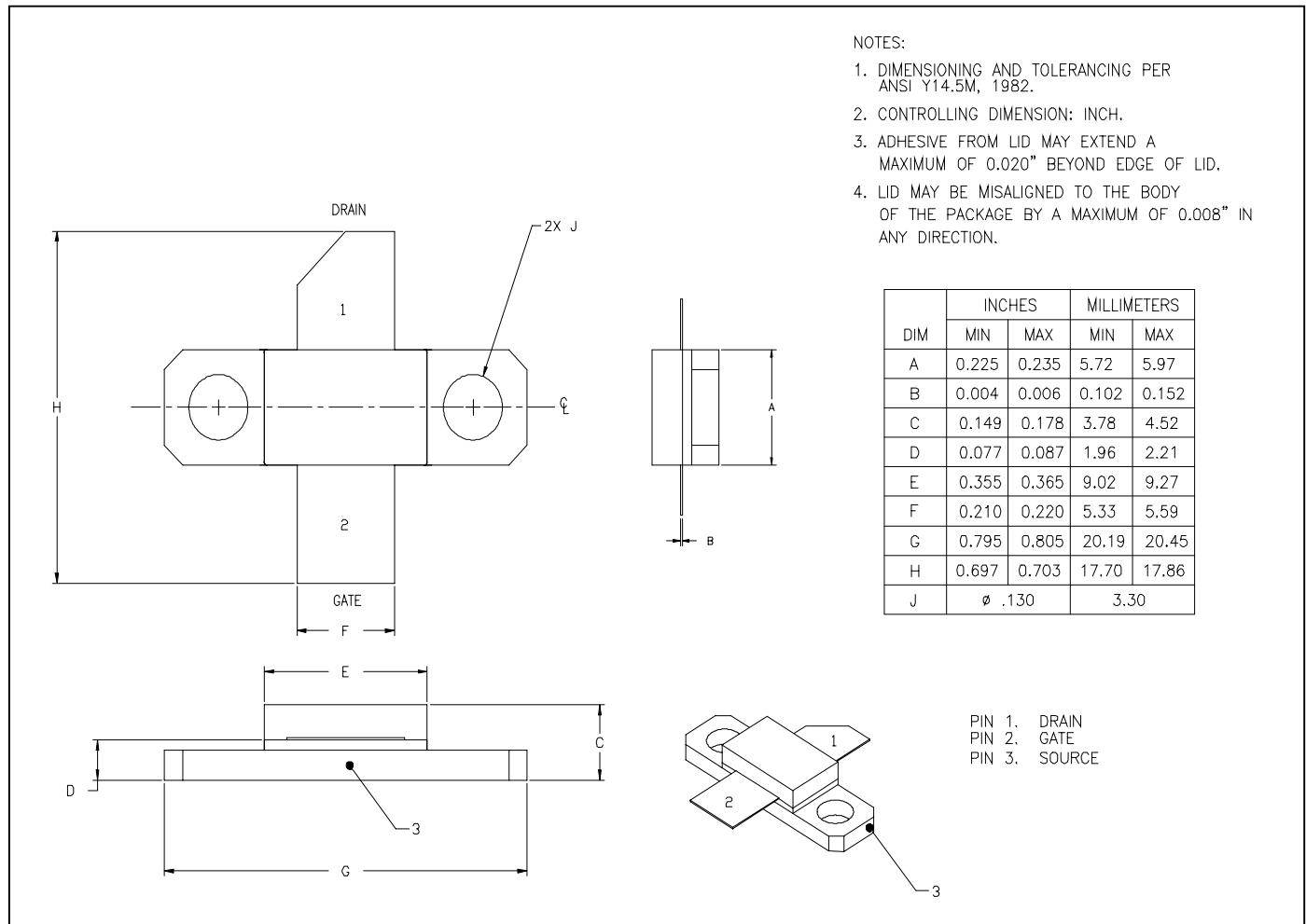


Intermodulation Distortion vs Output Power



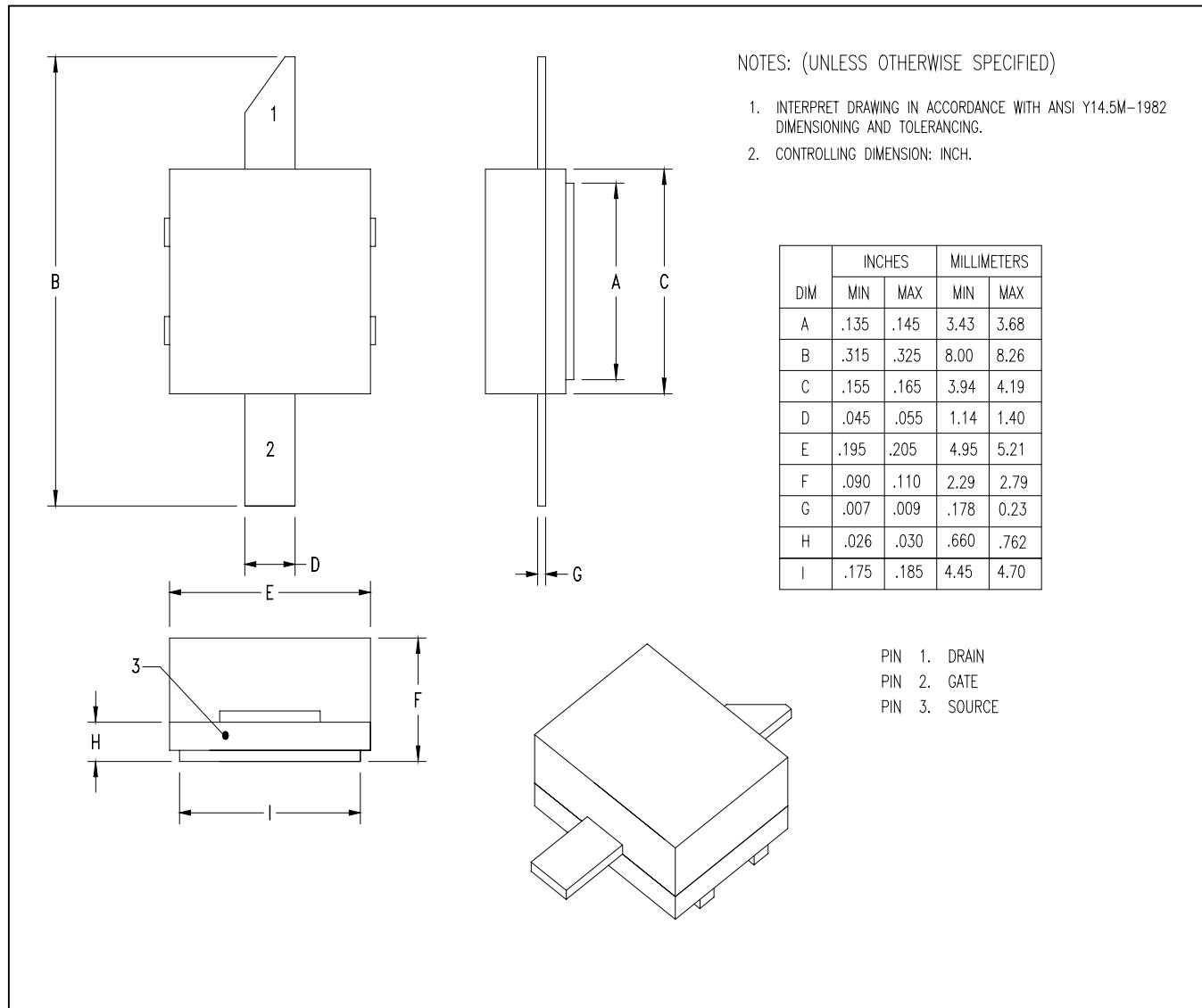
Product Dimensions

UPF0930F – Package Number 440095



Package Dimensions

UGF09030P – Package Number 440109



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