

## UPF14060

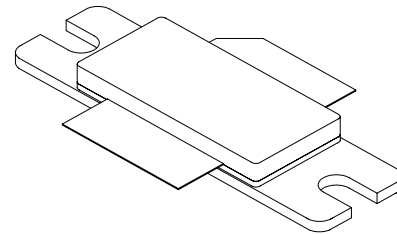
### 60W, 1.4 GHz, 26V Broadband RF Power N-Channel Enhancement-Mode Lateral MOSFET

Designed for DCS base station applications at 1400 MHz. Rated with a minimum output power of 60W, it is ideal for 16 QAM, CDMA, TDMA, GSM, and Multi-Carrier Power Amplifiers in Class A or AB operation.

- All Gold Metal system for highest reliability
- Industry standard package
- Internally matched for repeatable manufacturing
- High gain, high efficiency and high linearity

#### Application Specific Performance (Typical, 1.4 GHz)

<b>GSM:</b>	<b>60 Watts</b>	<b>13.5 dB</b>
<b>EDGE:</b>	<b>25 Watts</b>	<b>13 dB</b>
<b>IS95 CDMA</b>	<b>7.5 Watts</b>	<b>13 dB</b>
<b>W-CDMA:</b>	<b>5 Watts</b>	<b>13 dB</b>
<b>16 QAM</b>	<b>35 Watts</b>	<b>13.5dB</b>

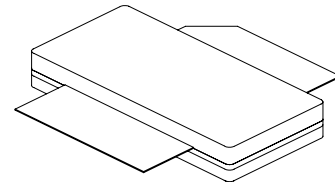


**Package Type 440171**

**PN: UPF14060F**

- **Typical Edge Performance (ETSI 300-910 GSM 05.05 v. 5.5.1)**

Average Load Power	25W
PAE	30%
Power Gain	13 dB
ACPR1	57 dBc
(30 kHz BW offset $\pm$ 400 kHz normalized to total power in a 30 kHz BW)	
ACPR2	66 dBc
(30 kHz BW offset $\pm$ 600 kHz normalized to total power in a 30 kHz BW)	



**Package Type 440133**

**PN: UPF14060P**



# PRELIMINARY DATA SHEET

## UPF14060

### Maximum Ratings

Rating	Symbol	Value	Unit
Drain to Source Voltage, Gate connected to Source	$BV_{DSS}$	65	Volts
Gate to Source Voltage	$BV_{GSS}$	+15/-0.5	Volts
Total Device Dissipation @ $T_C = 70^\circ\text{C}$ Derate above $70^\circ\text{C}$	$P_D$	100 0.8	Watts $\text{W}/^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Operating Junction Temperature	$T_J$	200	$^\circ\text{C}$

### Thermal Characteristics

Characteristic	Symbol	Typical	Unit
Thermal Resistance, Junction to Case	$\Theta_{JC}$	0.97	$^\circ\text{C}/\text{W}$

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

Rating	Symbol	Min	Typ	Max	Unit
Drain to Source Voltage, Gate connected to source ( $V_{GS}=0$ , $I_D=1\text{mA}$ )	$BV_{DSS}$	65	-	-	Volts
Drain to Source Leakage current ( $V_{DS}=26\text{V}$ , $V_{GS}=0$ )	$I_{DSS}$	-	-	2.0	mA
Gate to Source Leakage current ( $V_{GS}=15\text{V}$ , $V_{DS}=0$ )	$I_{GSS}$	-	-	2.0	$\mu\text{A}$
Threshold Voltage ( $V_{DS}=10\text{V}$ , $I_D=1\text{mA}$ )	$V_{TH}$	-	3.5	-	Volts
Gate Quiescent Voltage ( $V_{DS}=26\text{V}$ , $I_D=540\text{mA}$ )	$V_{GS(on)}$	3.0	4.0	5.0	Volts
Drain to Source On Voltage ( $V_{GS}=10\text{V}$ , $I_D=1\text{A}$ )	$V_{DS(on)}$	-	0.14	-	Volts
Forward Transconductance ( $V_{DS}=10\text{V}$ , $I_D=5\text{A}$ )	$G_m$	-	3.0	-	S



# PRELIMINARY DATA SHEET

## UPF14060

### AC Characteristics (T<sub>C</sub>=25°C unless otherwise specified)

Rating	Symbol	Min	Typ	Max	Unit
Input Capacitance * (V <sub>DS</sub> =26V, V <sub>GS</sub> =0V, freq= 1MHz)	C <sub>ISS</sub>	-	-	-	pF
Output capacitance * (V <sub>DS</sub> = 26V, V <sub>GS</sub> =0V, freq = 1MHz)	C <sub>OSS</sub>	-	52	-	pF
Feedback capacitance * (V <sub>DS</sub> =26V, V <sub>GS</sub> =0V, freq = 1MHz)	C <sub>RSS</sub>	-	3.0	-	pF

\* Part is internally matched.

### RF and Functional Tests (T<sub>C</sub>=25°C unless otherwise specified, Cree Microwave Broadband Fixture)

Rating	Symbol	Min	Typ	Max	Unit
Two-Tone Common-Source Amplifier Power Gain (V <sub>DD</sub> =26V, I <sub>DQ</sub> =540mA, P <sub>out</sub> = 60W PEP f <sub>1</sub> =1400 MHz and 1400.1 MHz,	G <sub>ps</sub>	12.0	13	-	dB
Two-Tone Drain Efficiency (V <sub>DD</sub> =26V, P <sub>out</sub> = 60W PEP, I <sub>DQ</sub> =540mA Freq=1400 MHz and 1400.1 MHz	η	-	35	-	%
P <sub>out</sub> = 1dB Compression Point (V <sub>DD</sub> =26V, P <sub>out</sub> = 60W CW, f = 1660 MHz	P1db	60	-	-	W
Input Return Loss (V <sub>DD</sub> =26V, P <sub>out</sub> = 60W PEP, I <sub>DQ</sub> =540mA f <sub>1</sub> =1400 MHz and 1400.1 MHz	IRL	-	-12	-	dB
Load Mismatch Tolerance (V <sub>DS</sub> =26V, I <sub>DQ</sub> =540mA, P <sub>out</sub> =60W, f=1400 MHz)	VSWR	10:1	-	-	Ψ

Note (unless otherwise specified):

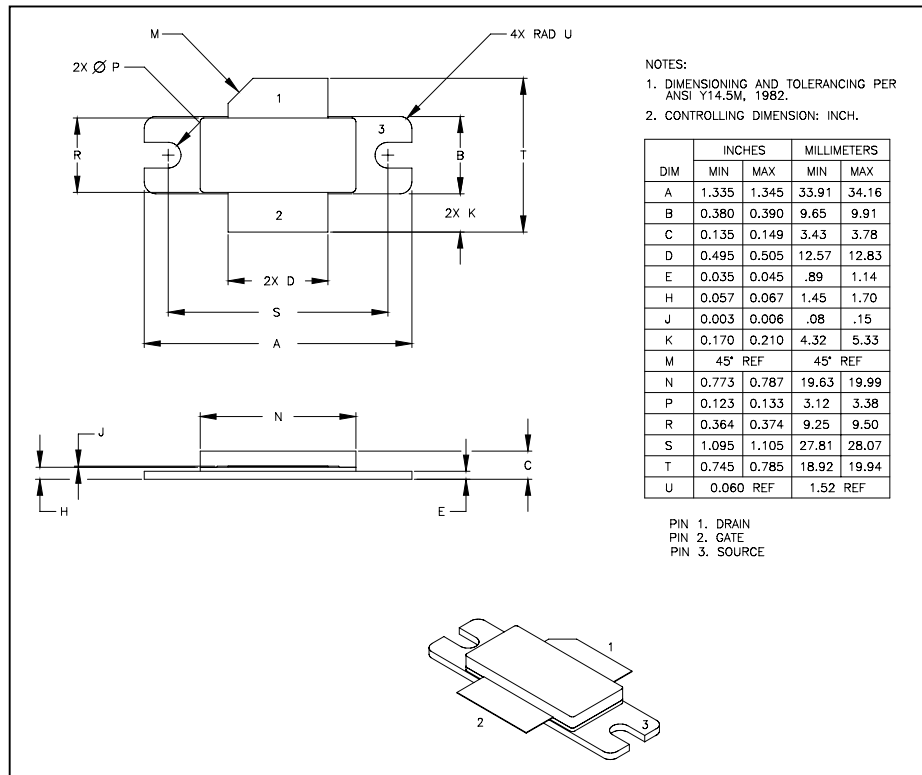
1. Source and load impedance shall be 50 ohms.

\*No degradation in device performance after test.

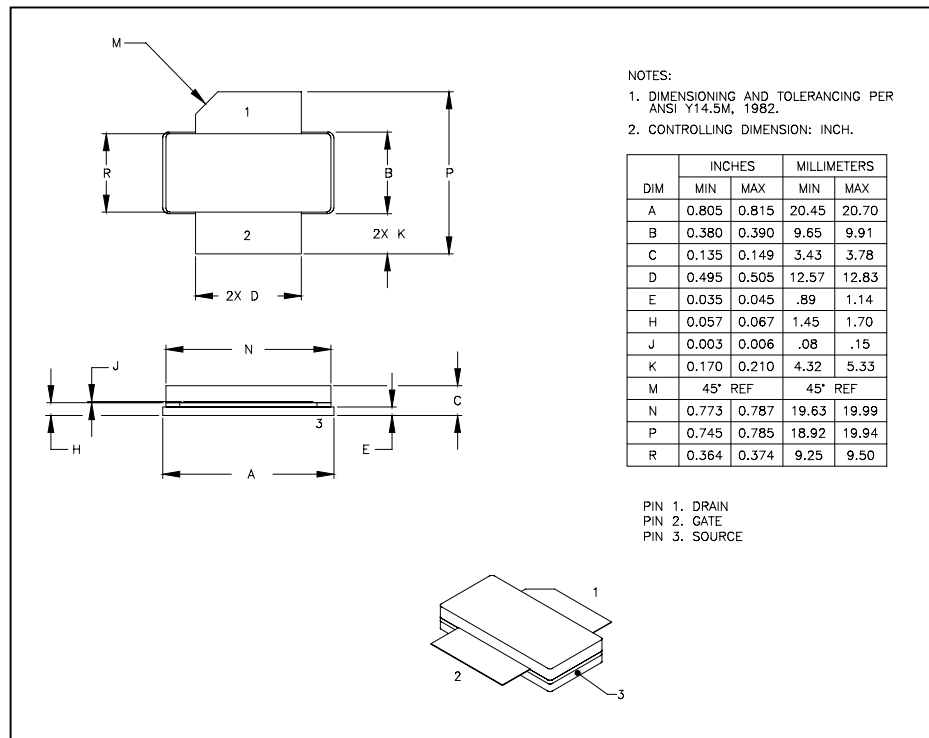
**CAUTION** - MOS Devices are susceptible to damage from Electrostatic Discharge (ESD). Appropriate precautions in handling, packaging and testing MOS devices must be observed.

### Package Dimensions

#### UPF14060F -Package Number 440171



#### UPF14060P -Package Number 440133





## PRELIMINARY DATA SHEET

**UPF14060**

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