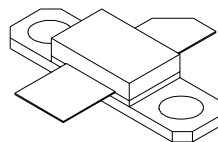


## 10W, 1GHz, 26V Broadband RF Power N-Channel Enhancement-Mode Lateral DMOS

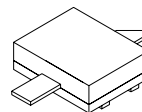
This device is designed for base station applications up to frequencies of 1GHz. Rated with a minimum output power of 10W, it is ideal for CDMA, TDMA, GSM, FM, Single or Multi-Carrier Power Amplifiers in Class A or AB operation.

- Industry standard package.
- Low intermodulation distortion of -30dBc at 10W (PEP).
- Gold Metalization, Gold Bond Wires, Gold-Plated Packages.



Package Type 440095  
UPF1010F

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Package Type 440109  
UPF1010P

# UPF1010

## Maximum Ratings

Rating	Symbol	Value	Unit
Drain to Source Voltage, gate connected to source	$V_{DSS}$	65	Volts
Gate to Source Voltage	$V_{GS}$	$\pm 20$	Volts
Total Device Dissipation @ $T_{case} = 70^{\circ}C$ Derate above $70^{\circ}C$	$P_D$	20 0.2	Watts $W/^{\circ}C$
Storage Temperature Range	$T_{STG}$	-65 to +150	$^{\circ}C$
Operating Junction Temperature	$T_J$	200	$^{\circ}C$

## Thermal Characteristics

Characteristics	Symbol	Maximum	Unit
Thermal Resistance, Junction to Case	$\Theta_{JC}$	3.6, 3.2	$^{\circ}C/W$

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

Rating	Symbol	Min	Typ	Max	Unit
Drain to Source Voltage, gate connected to source ( $V_{GS}=0$ , $I_{DS}=1mA$ )	$BV_{DSS}$	65	-	-	Volts
Drain to Source Leakage current ( $V_{DS}=28V$ , $V_{GS}=0$ )	$I_{DSS}$	-	-	100	$\mu A$
Gate to Source Leakage current ( $V_{GS}=20V$ , $V_{DS}=0$ )	$I_{GSS}$	-	-	1.0	$\mu A$
Threshold Voltage ( $V_{DS}=10V$ , $I_{DS}=1mA$ )	$V_{TH}$	2.0	3.0	5.0	Volts
Gate Quiescent Voltage ( $V_{DS}=26V$ , $I_{DS}=95mA$ )	$V_{GS(on)}$	3.0	4.0	6.0	Volts
Drain to Source On Voltage ( $V_{DS}=10V$ , $I_{DS}=1A$ )	$V_{DS(on)}$	-	0.9	-	Volts
Forward Transconductance ( $V_{DS}=10V$ , $I_D=0.5A$ )	$G_M$	-	.5	-	S

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

Rating	Symbol	Min	Typ	Max	Unit
Input Capacitance ( $V_{DS}=26\text{V}$ , $V_{GS}=0$ , freq= 1MHz)	$C_{ISS}$	-	12.4	-	pF
Output capacitance ( $V_{DS}= 26\text{V}$ , $V_{GS}=0\text{V}$ , freq= 1MHz)	$C_{OSS}$	-	8.5	-	pF
Feedback capacitance ( $V_{DS}=26\text{V}$ , $V_{GS}=0\text{V}$ , freq= 1MHz)	$C_{RSS}$	-	.6	-	pF

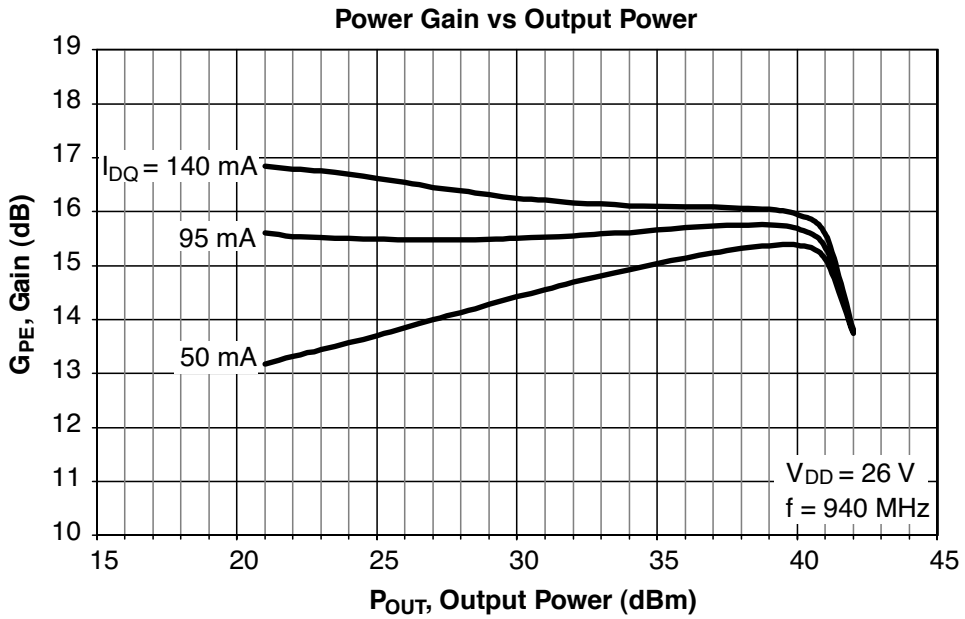
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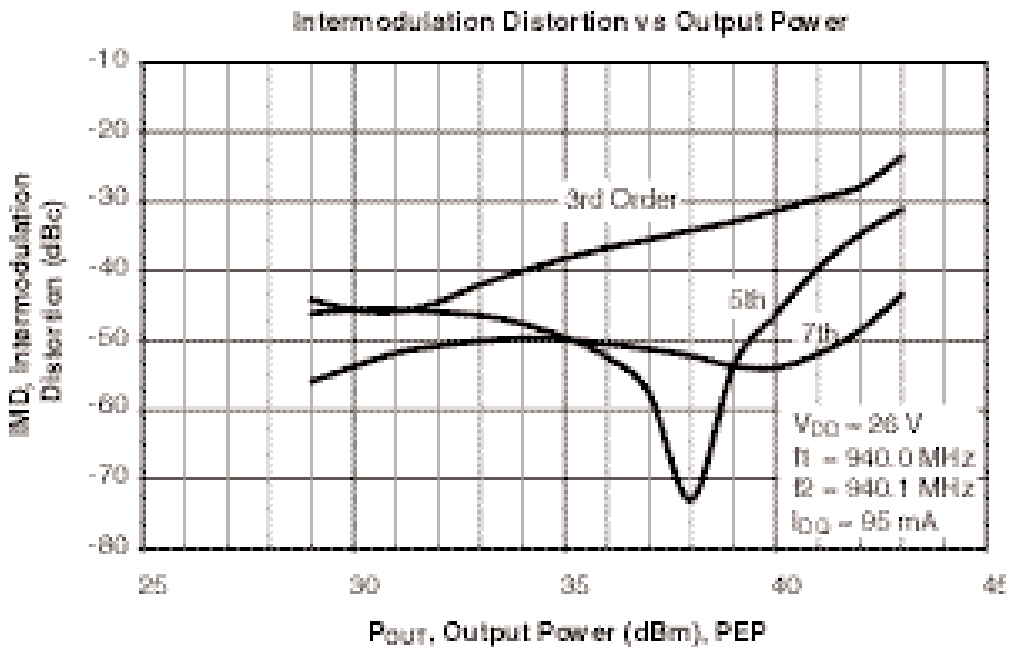
## RF and Functional Tests ( $T_C=25^\circ\text{C}$ unless otherwise specified, UltraRF Broadband Fixture)

Rating	Symbol	Min	Typ	Max	Unit
Linear Power Gain, Single Tone ( $V_{DS}=26\text{V}$ , $I_{DQ}=95\text{mA}$ , $P_{OUT}=3\text{W}$ , $f=940\text{ MHz}$ )	$G_{plin}$	14.0	15.5	-	dB
Compressed Power Gain, Single tone ( $V_{DS}=26\text{V}$ , $I_{DQ}=95\text{mA}$ , $P_{OUT}=10\text{W}$ , $f=940\text{ MHz}$ )	$G_{ps}$	13.5	15.0	-	dB
Drain Efficiency, Single Tone ( $V_{DS}=26\text{V}$ , $I_{DQ}=95\text{mA}$ , $P_{OUT}=10\text{W}$ , $f=940\text{ MHz}$ )	$\eta$	40	45	-	%
Intermodulation Distortion, Two Tone ( $V_{DS}=26\text{V}$ , $I_{DQ}=95\text{mA}$ , $P_{OUT}=10\text{W PEP}$ $f1=940\text{ MHz}$ , $f2=940.1\text{MHz}$ )	IMD	-	-33	-30	dBc
Load Mismatch Tolerance ( $V_{DS}=26\text{V}$ , $I_{DQ}=95\text{mA}$ , $P_{OUT}=10\text{W}$ , $f=940\text{ MHz}$ )	VSWR	10:1	-	-	

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

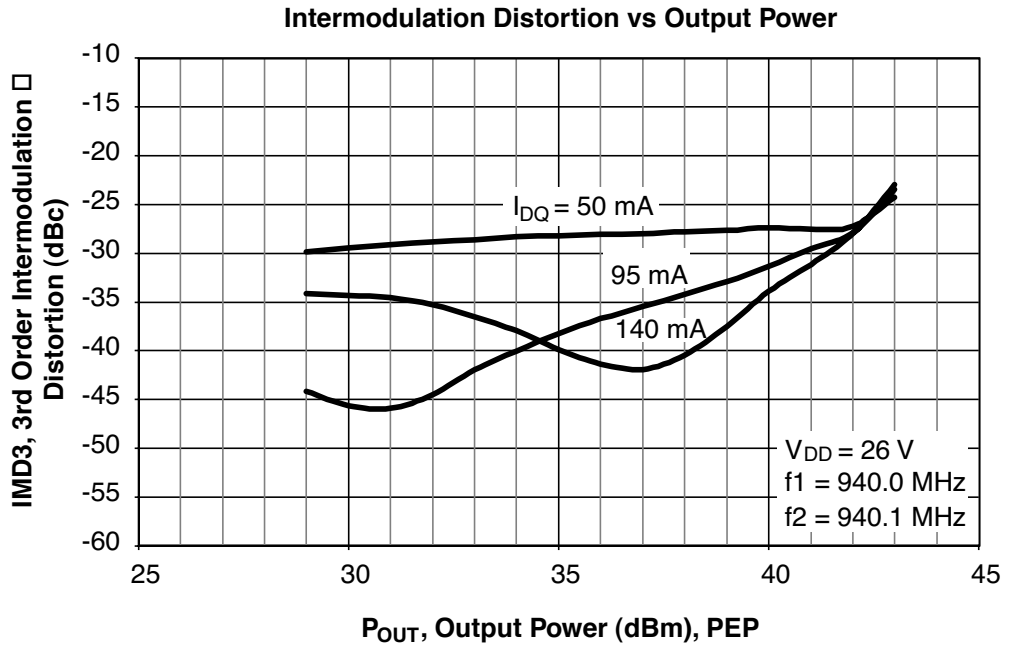
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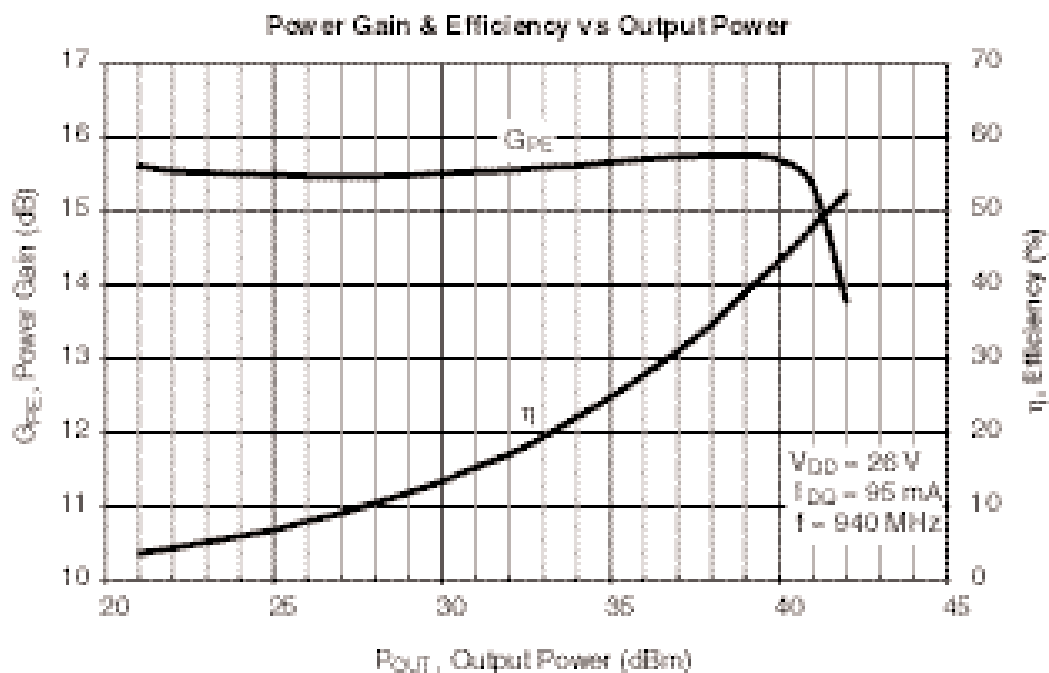




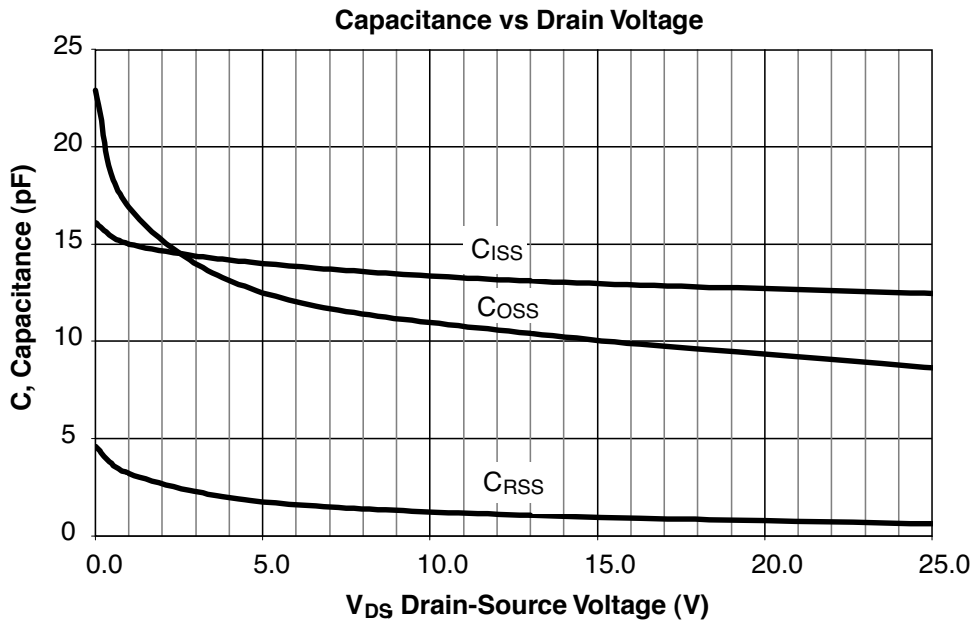
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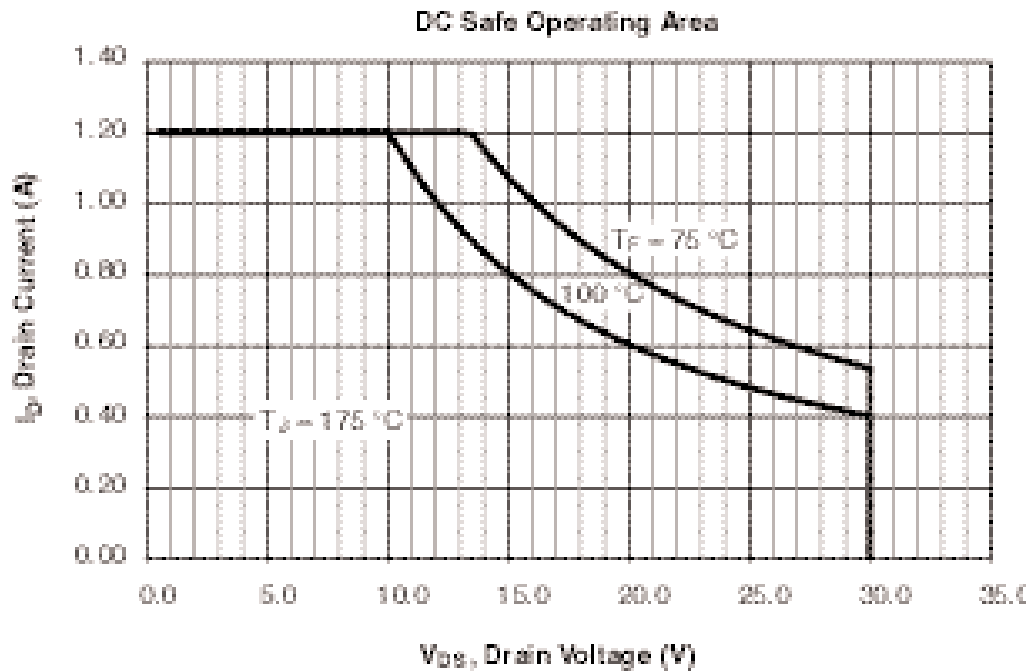




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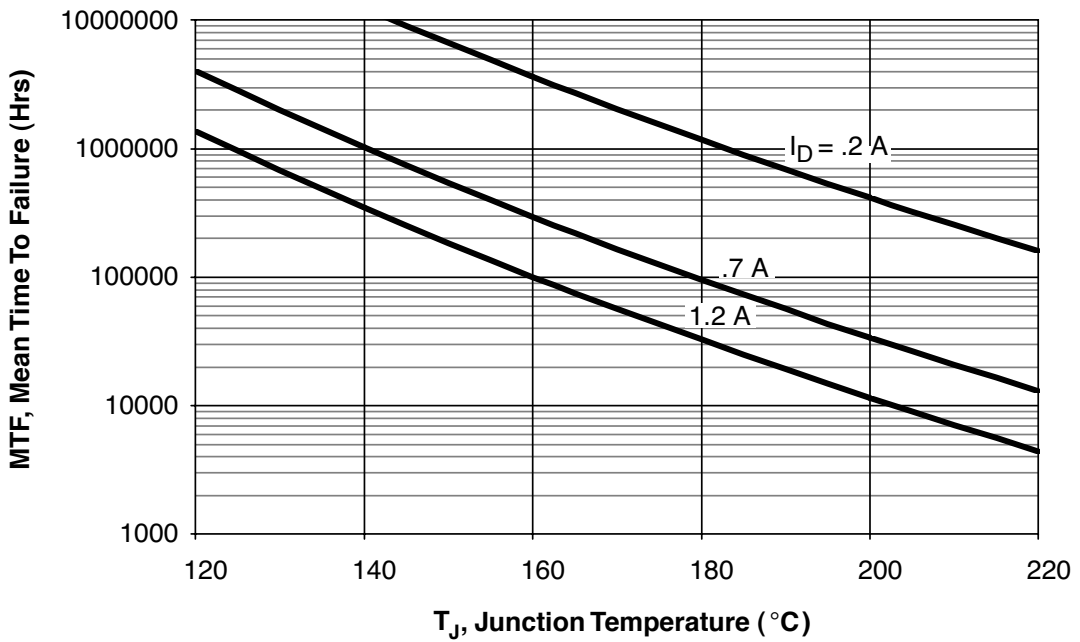


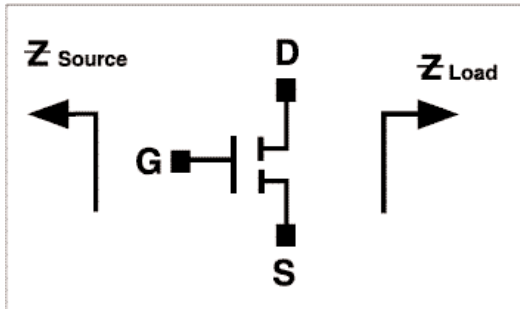




# UPF1010

**Mean Time To Failure**





$V_{DD} = 26V$   
 $I_{DQ} = 95mA$

Frequency (MHz)	Z Source	Z Load
900		$11.58 + j2.16$
940		$9.92 + j2.06$
980		$19.06 + j1.81$

Note: Measured in 440095 Package

$$Z_S = 6 - j5.5$$

$$Z_L = 11 + j3$$

# UPF1010

