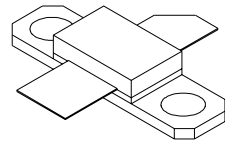


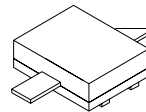
10W, 1GHz, 26V Broadband RF Power N-Channel Enhancement-Mode Lateral DMOS

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



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}	+/- 20	Volts
Total Device Dissipation @ Tcase = 70°C Derate above 70°C	P_D	20 0.2	Watts W/°C
Storage Temperature Range	T_{STG}	-65 to +150	°C
Operating Junction Temperature	T_J	200	°C

Thermal Characteristics

Characteristics	Symbol	Maximum	Unit
Thermal Resistance, Junction to Case	θ_{JC}	3.6, 3.2	°C/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 ($V_{GS}=0$, $I_{DS}=1\text{mA}$)	BV_{DSS}	65	-	-	Volts
Drain to Source Leakage current ($V_{DS}=28\text{V}$, $V_{GS}=0$)	I_{DSS}	-	-	100	μA
Gate to Source Leakage current ($V_{GS}=20\text{V}$, $V_{DS}=0$)	I_{GSS}	-	-	1.0	μA
Threshold Voltage ($V_{DS}=10\text{V}$, $I_{DS}=1\text{mA}$)	V_{TH}	2.0	3.0	5.0	Volts
Gate Quiescent Voltage ($V_{DS}=26\text{V}$, $I_{DS}=95\text{mA}$)	$V_{GS}(\text{on})$	3.0	4.0	6.0	Volts
Drain to Source On Voltage ($V_{DS}=10\text{V}$, $I_{DS}=1\text{A}$)	$V_{DS}(\text{on})$	-	0.9	-	Volts
Forward Transconductance ($V_{DS}=10\text{V}$, $I_D=0.5\text{A}$)	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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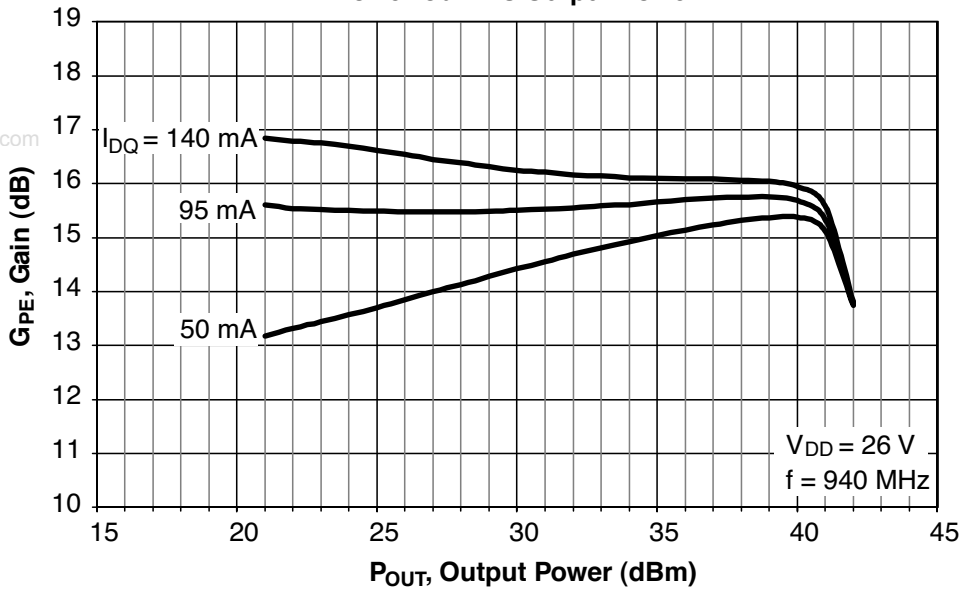
RF and Functional Tests ($T_c=25^\circ\text{C}$ unless otherwise specified, UltraRF Broadband Fixture)

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 ($V_{DS}=26\text{V}$, $I_{DQ}=95\text{mA}$, $P_{OUT}=10\text{W}$, $f=940\text{ MHz}$)	η	40	45	-	%
Intermodulation Distortion, Two Tone ($V_{DS}=26\text{V}$, $I_{DQ}=95\text{mA}$, $P_{OUT}=10\text{W PEP}$ $f_1=940\text{ MHz}$, $f_2=940.1\text{MHz}$)	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	-	-	

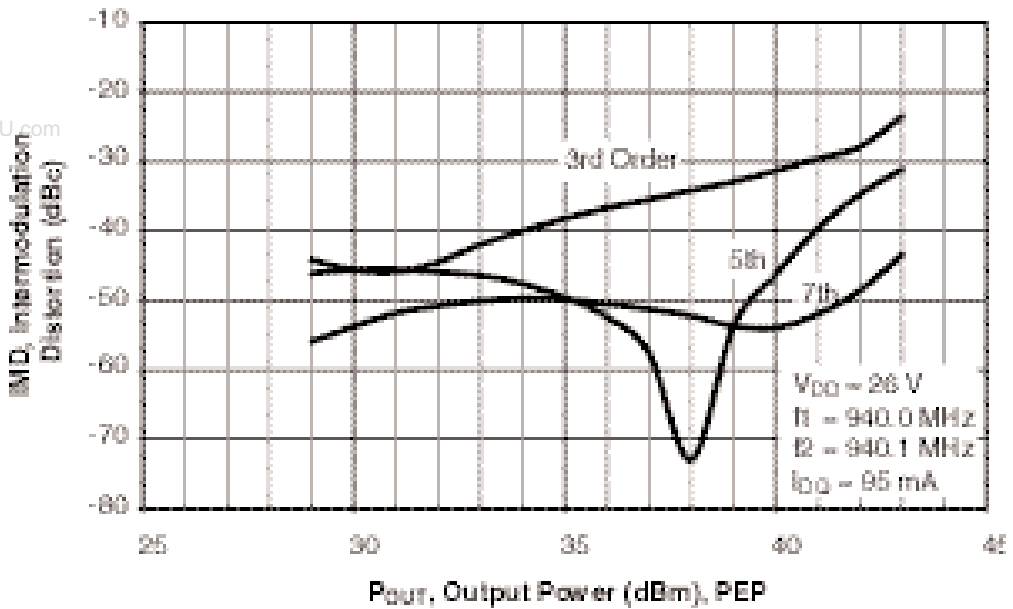
CAUTION - MOS Devices are susceptible to damage from ElectroStatic Discharge (ESD). Appropriate precautions in handling, packaging and testing MOS devices must be observed.

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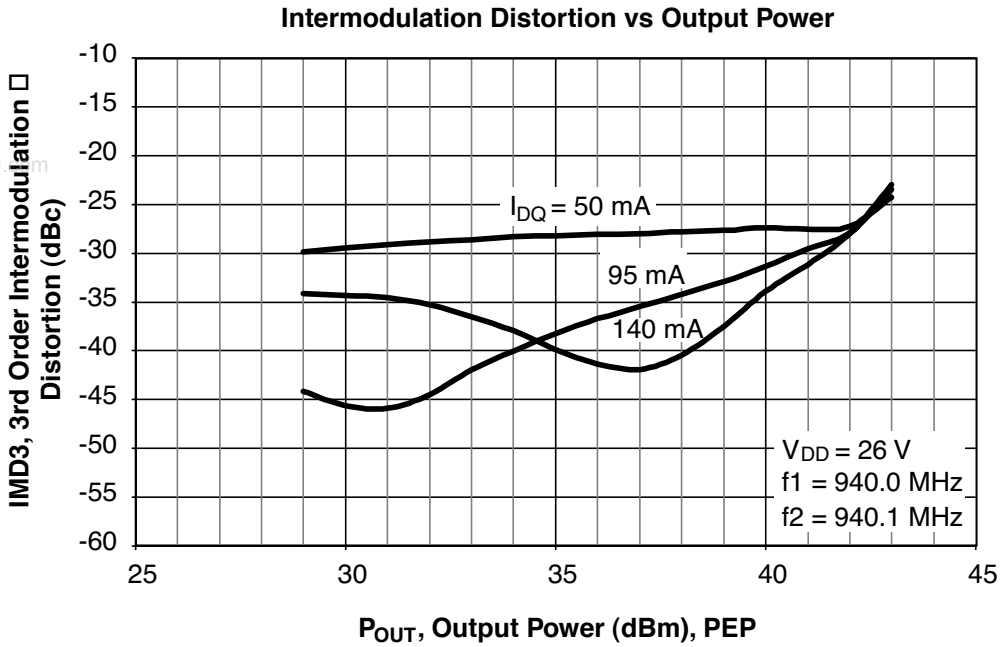
Power Gain vs Output Power



Intermodulation Distortion vs Output Power

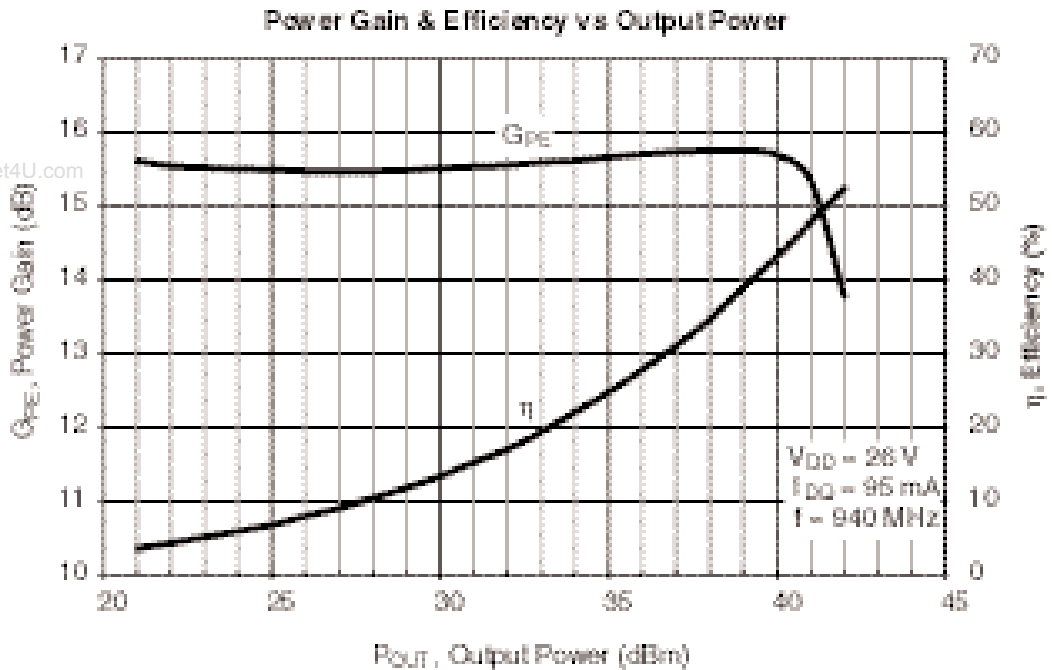


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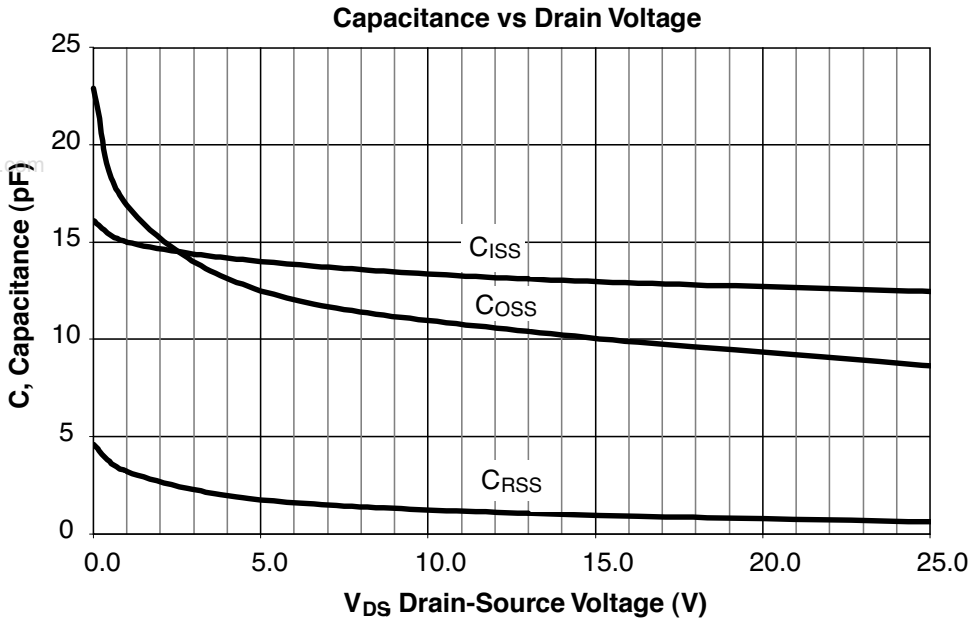


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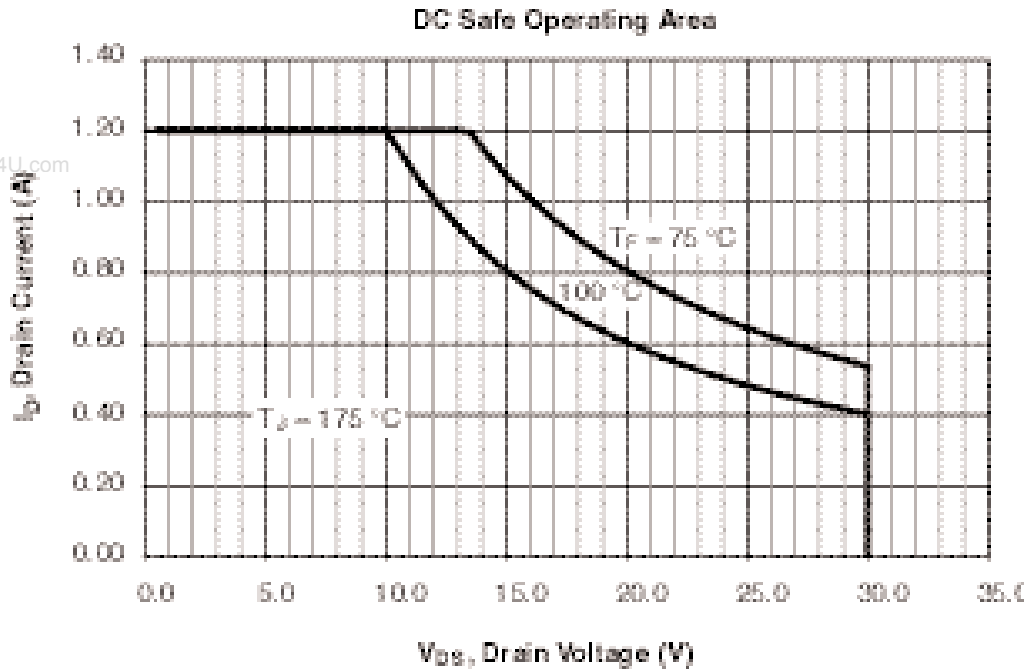


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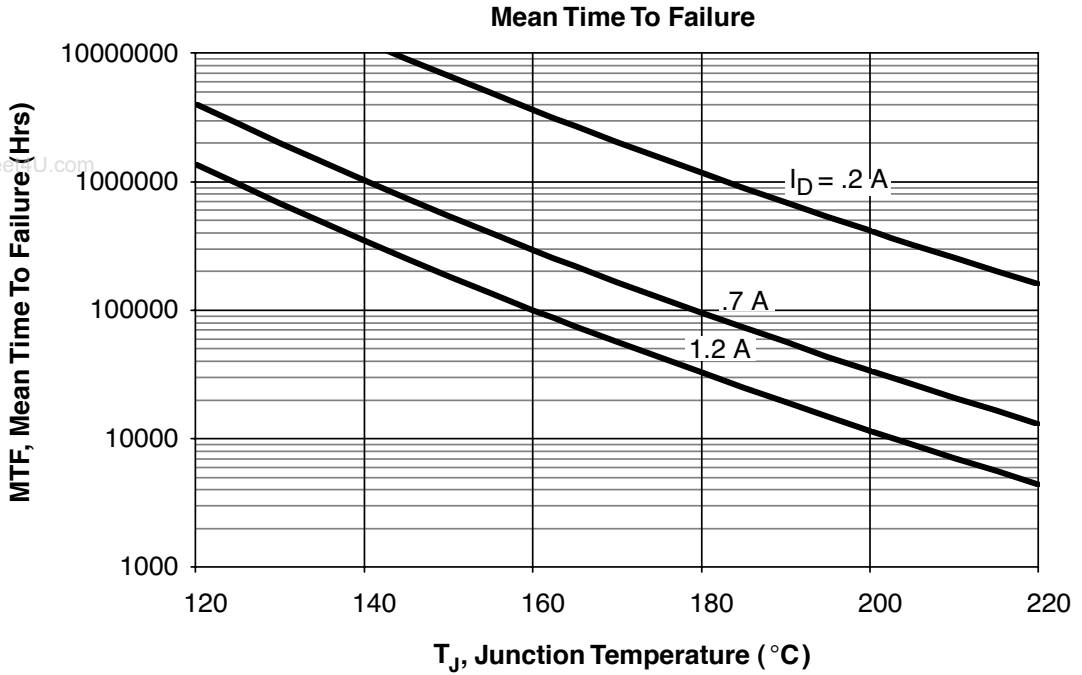


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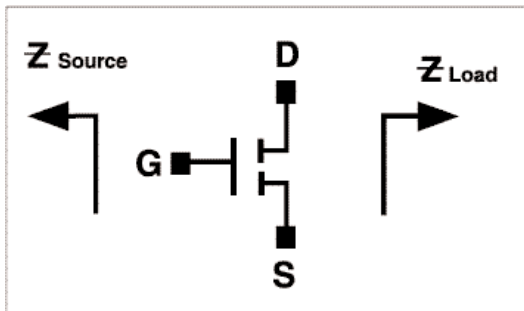
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$V_{DD} = 26V$
 $I_{DQ} = 95mA$

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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

$Z_S = 6 - j5.5$

$Z_L = 11 + j3$

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