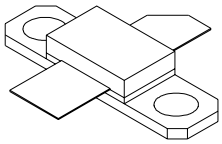
UPF1010

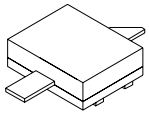
10W, 1GHz, 26V Broadband RF Power N-Channel Enhancement-Mode Lateral DMOS

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°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	µA
Gate to Source Leakage current (V_{GS}=20V, V_{DS}=0)	I_{GSS}	-	-	1.0	µA
Threshold Voltage (V_{DS}=10V, I_{DS}=1mA)	V_{TH}	2.0	3.0	5.0	Volts
Gate Quiescent Voltage (V_{DS}=26 V, 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

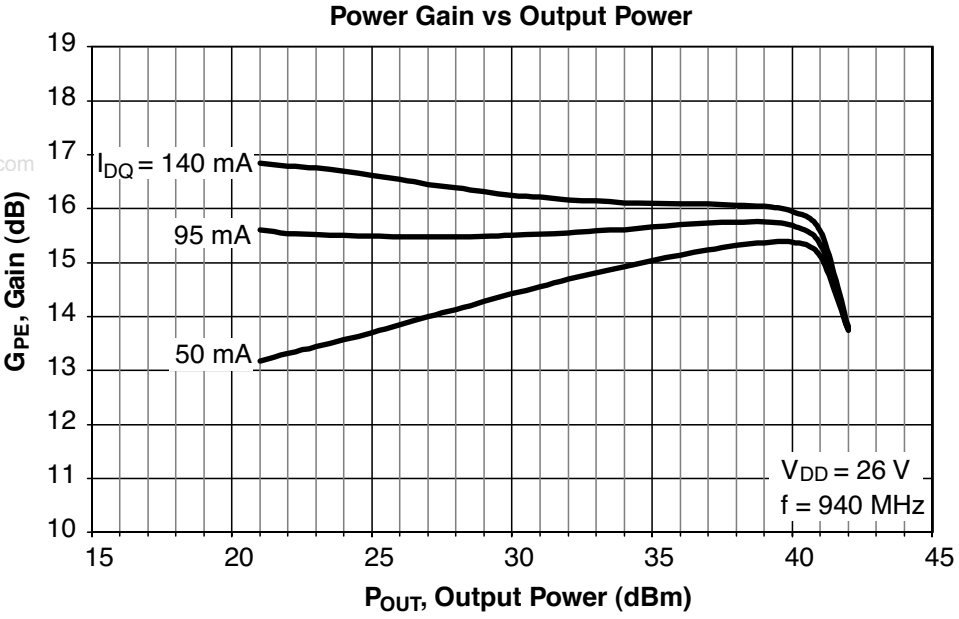
AC Characteristics (T_C=25°C unless otherwise specified)

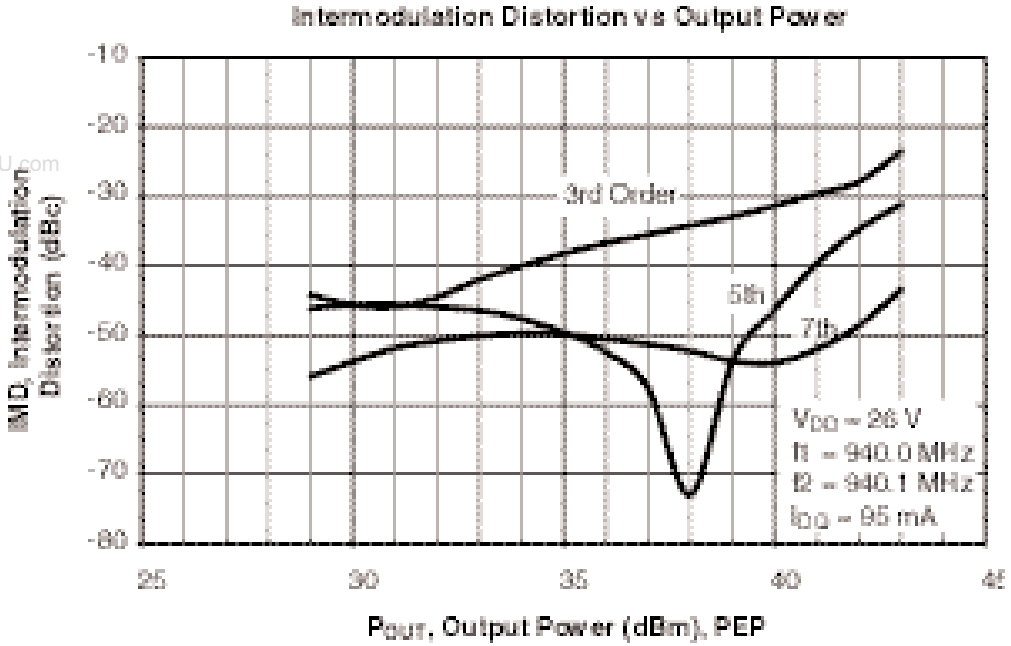
Rating	Symbol	Min	Typ	Max	Unit
Input Capacitance (V_{DS}=26V, V_{GS}=0, freq= 1MHz)	C_{ISS}	-	12.4	-	pF
Output capacitance (V_{DS}= 26V, V_{GS}=0V, freq= 1MHz)	C_{OSS}	-	8.5	-	pF
Feedback capacitance (V_{DS}=26V, V_{GS}=0V, freq= 1MHz)	C_{RSS}	-	.6	-	pF

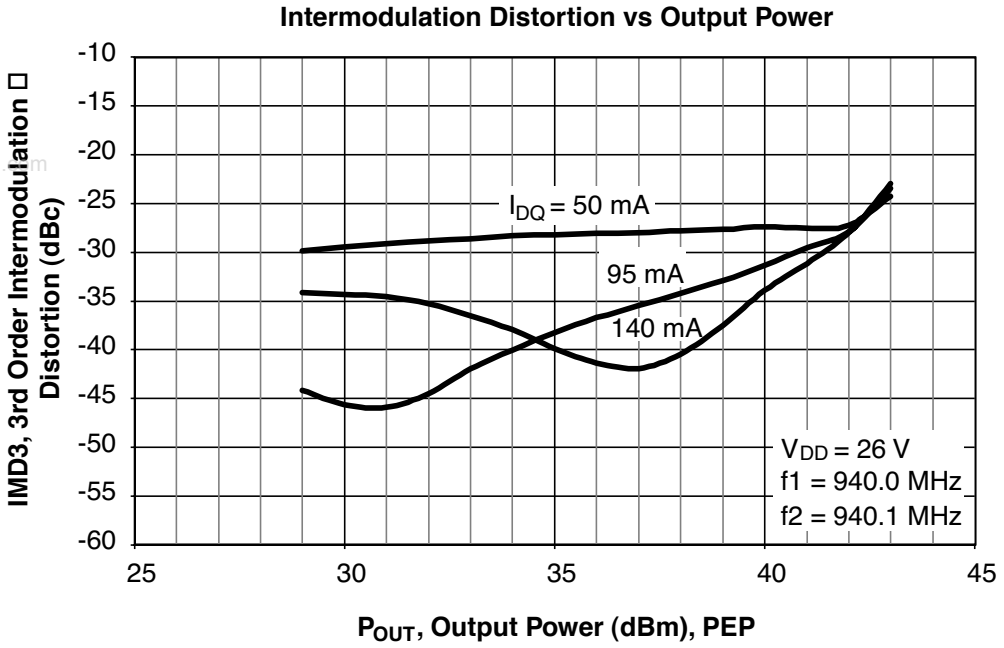
RF and Functional Tests (T_C=25°C unless otherwise specified, UltraRF Broadband Fixture)

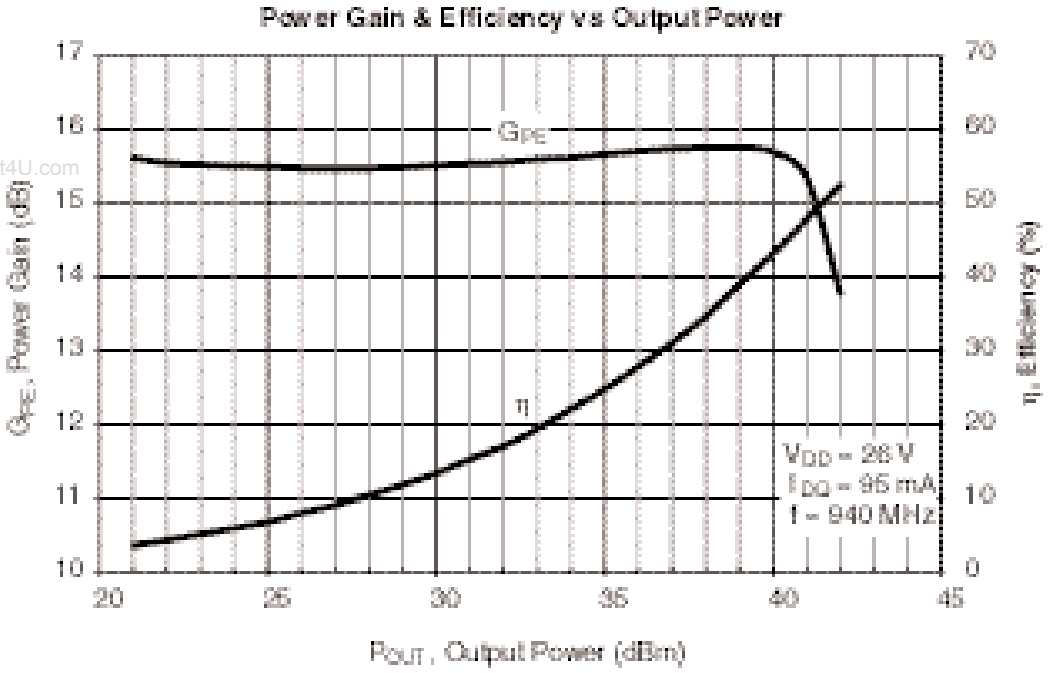
Rating	Symbol	Min	Typ	Max	Unit
Linear Power Gain, Single Tone (V_{DS}=26V, I_{DQ}=95mA, P_{OUT}=3W, f=940 MHz)	G_{plin}	14.0	15.5	-	dB
Compressed Power Gain, Single tone (V_{DS}=26V, I_{DQ}=95mA, P_{OUT}=10W, f=940 MHz)	G_{ps}	13.5	15.0	-	dB
Drain Efficiency, Single Tone (V_{DS}=26V, I_{DQ}=95mA, P_{OUT}=10W,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

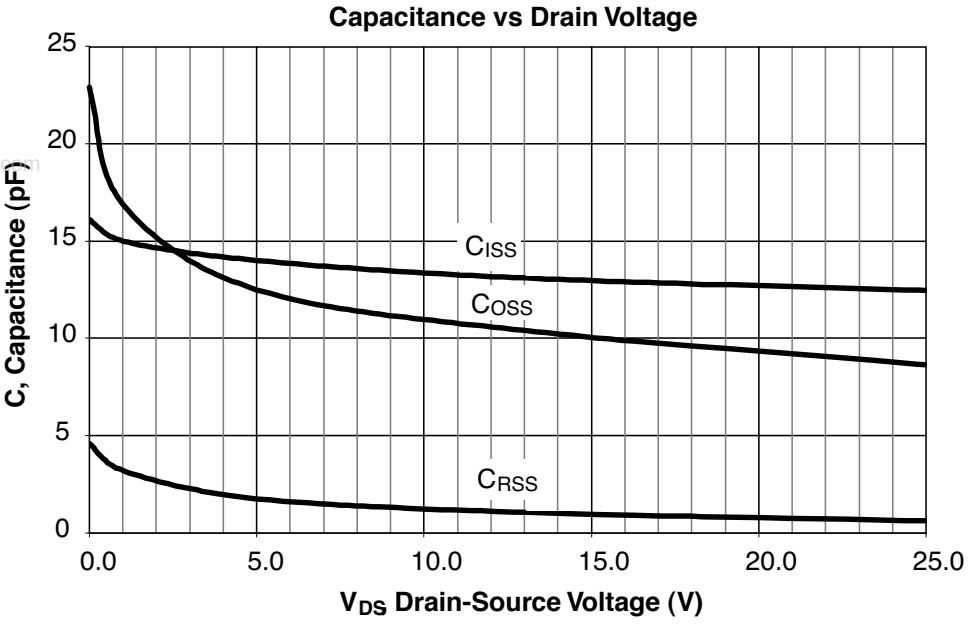
CAUTION - MOS Devices are susceptible to damage from ElectroStatic Discharge (ESD). Appropriate precautions in handling, packaging and testing MOS devices must be observed.

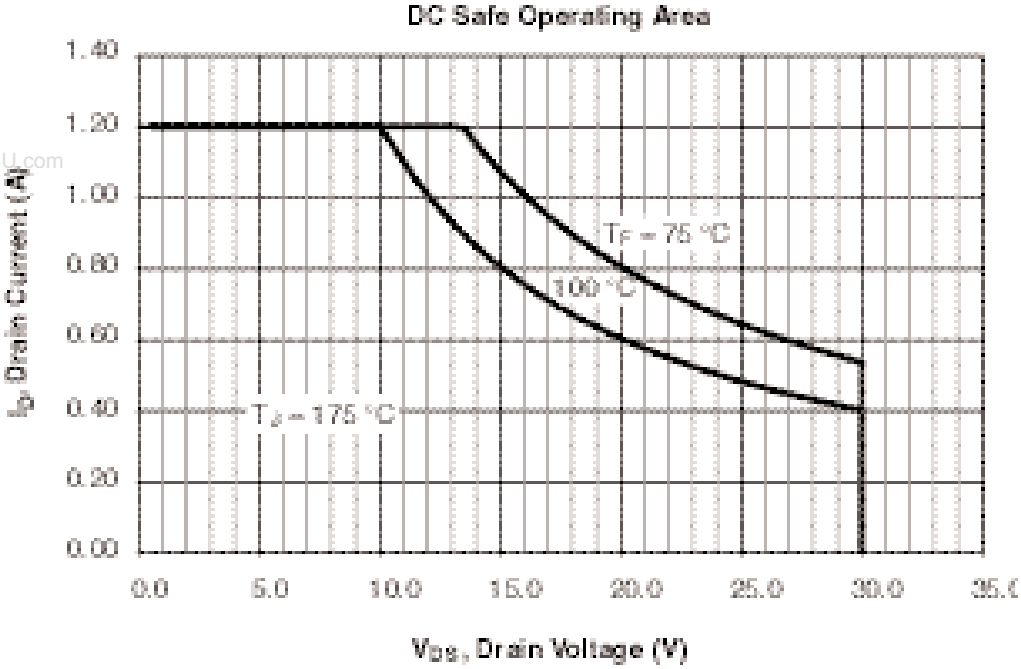


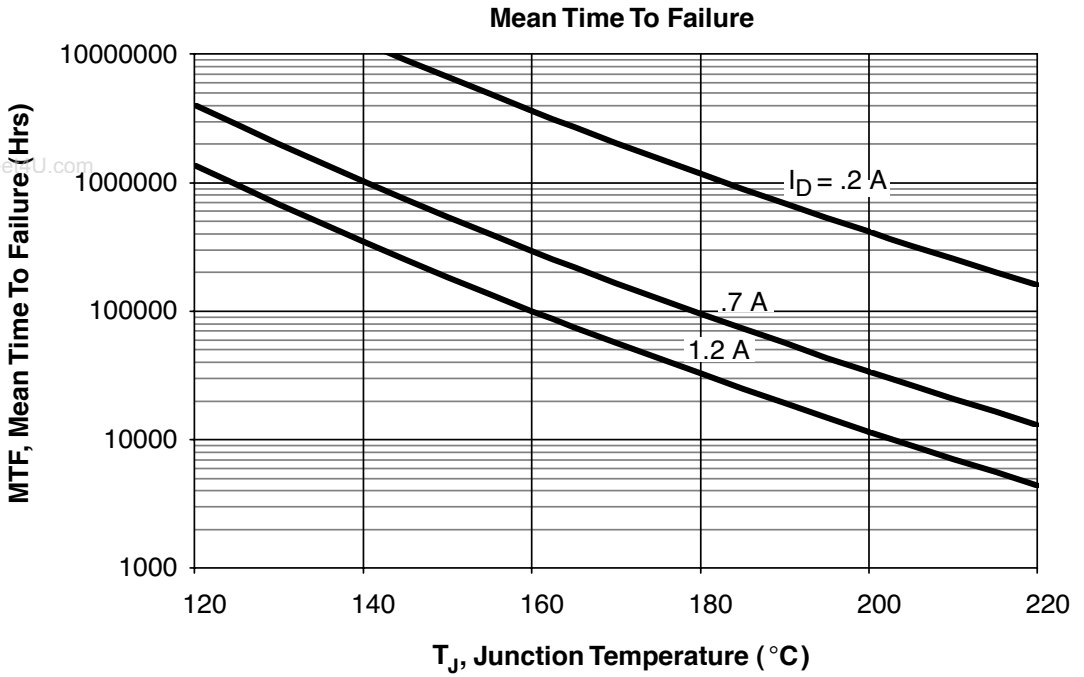


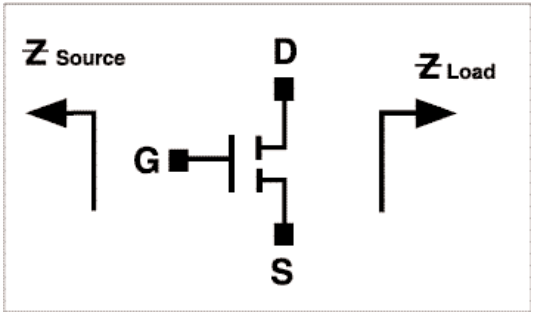












V_{DD} = 26V
I_{DQ} = 95mA

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