



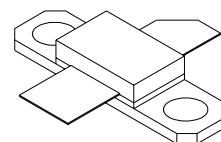
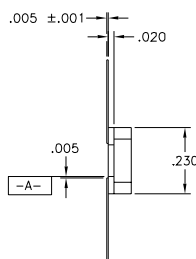
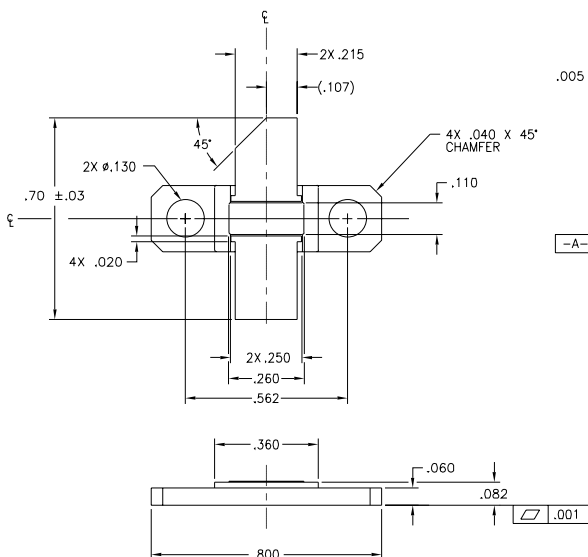
UPF1010

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

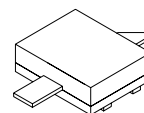
Description

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.

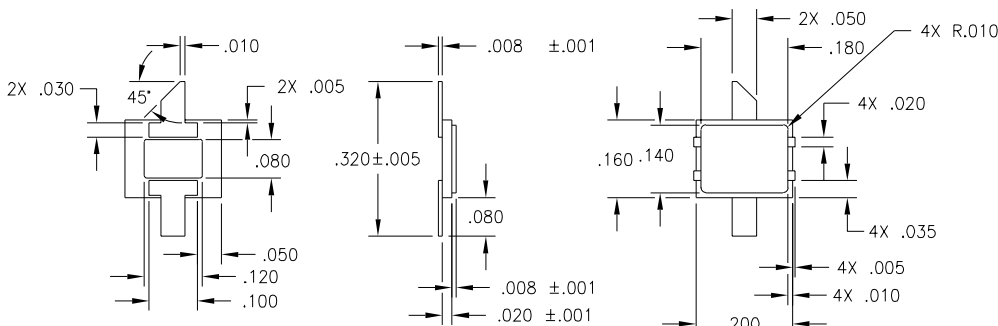
- Industry standard package.
- Low intermodulation distortion of -30dBc at 10W (PEP).
- Gold Metalization, Gold Bond Wires, Gold-Plated Packages.



Package Type 440095



Package Type 440109



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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}	6.2	°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 ($V_{DS}=26\text{V}$, $I_{DS}=95\text{mA}$)	$V_{GS(on)}$	3.0	4.0	6.0	Volts
Drain to Source On Voltage ($V_{DS}=10\text{V}$, $I_{DS}=1\text{A}$)	$V_{DS(on)}$	-	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

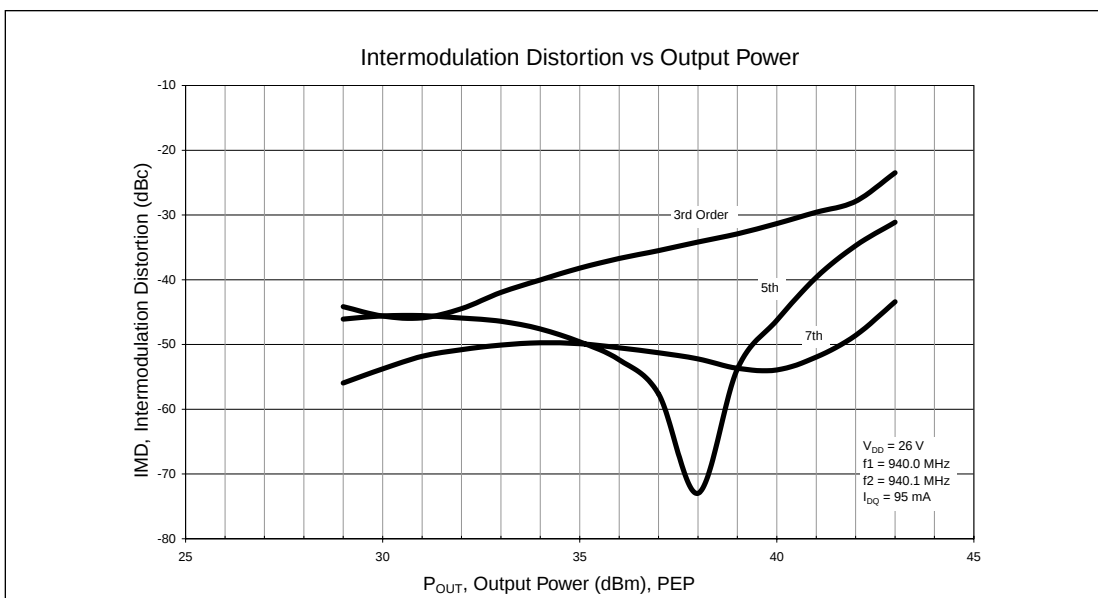
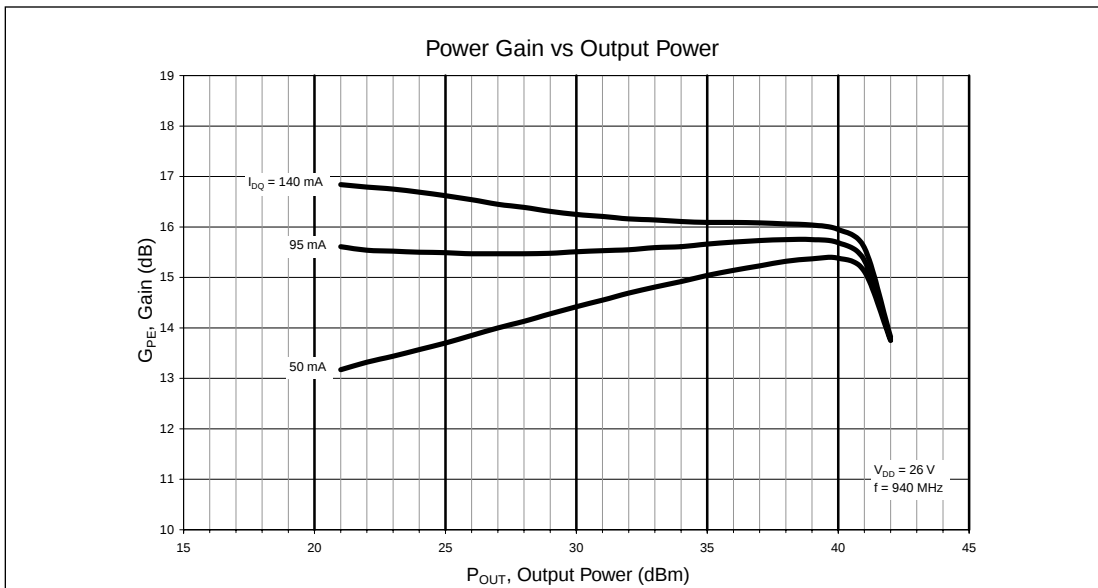
RF and Functional Tests ($T_C=25^{\circ}\text{C}$ unless otherwise specified, UltraRF Broadband Fixture)

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 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 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 MHz)	η	40	45	-	%
Intermodulation Distortion, Two Tone ($V_{DS}=26\text{V}$, $I_{DQ}=95\text{mA}$, $P_{OUT}=10\text{W PEP}$ f1=940 MHz, f2=940.1MHz)	IMD	-	-33	-30	dBc
Load Mismatch Tolerance ($V_{DS}=26\text{V}$, $I_{DQ}=95\text{mA}$, $P_{OUT}=10\text{W}$, 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.

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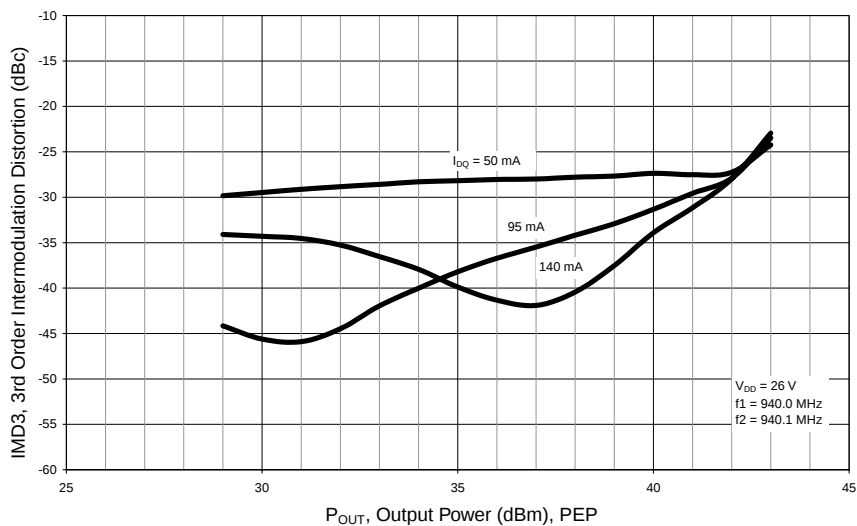
Fixture Drawings



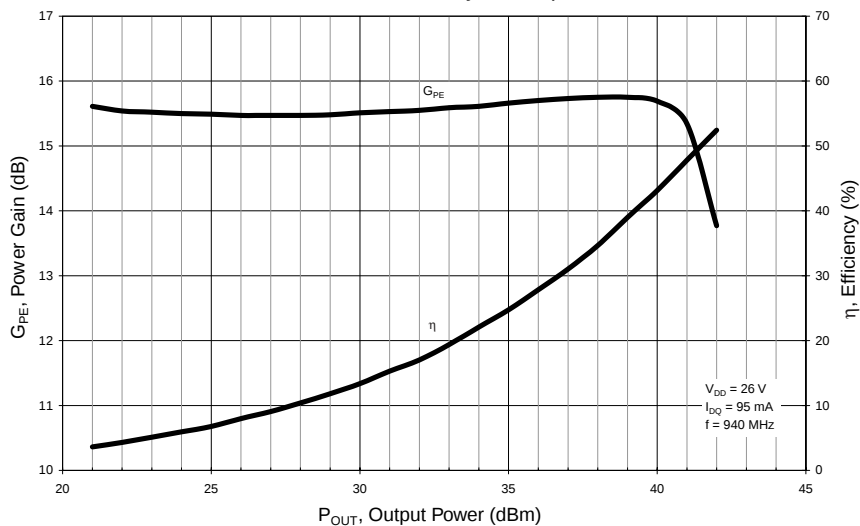
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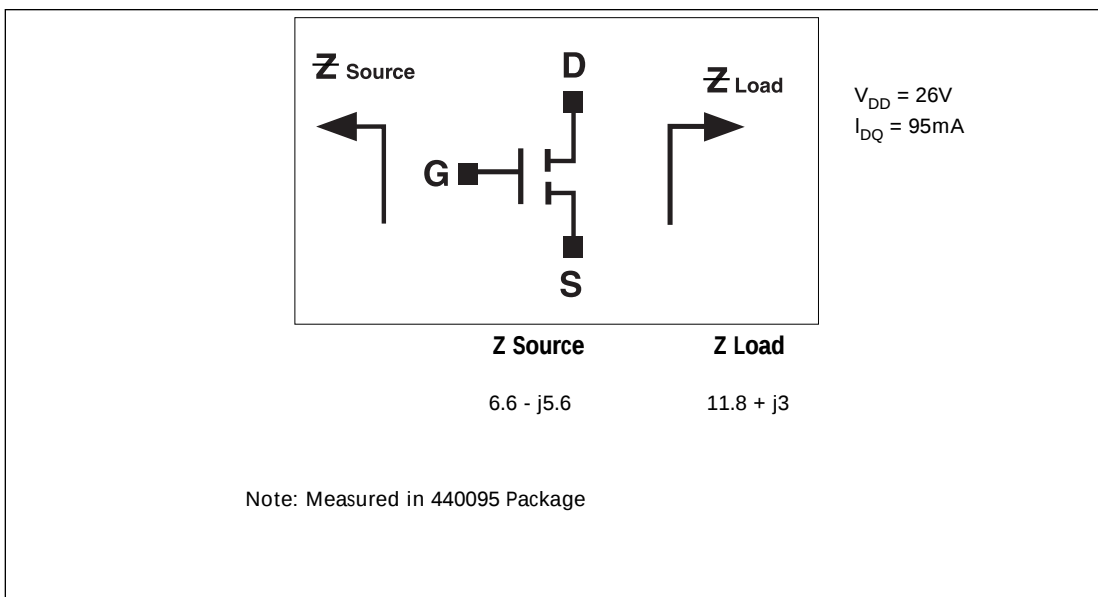
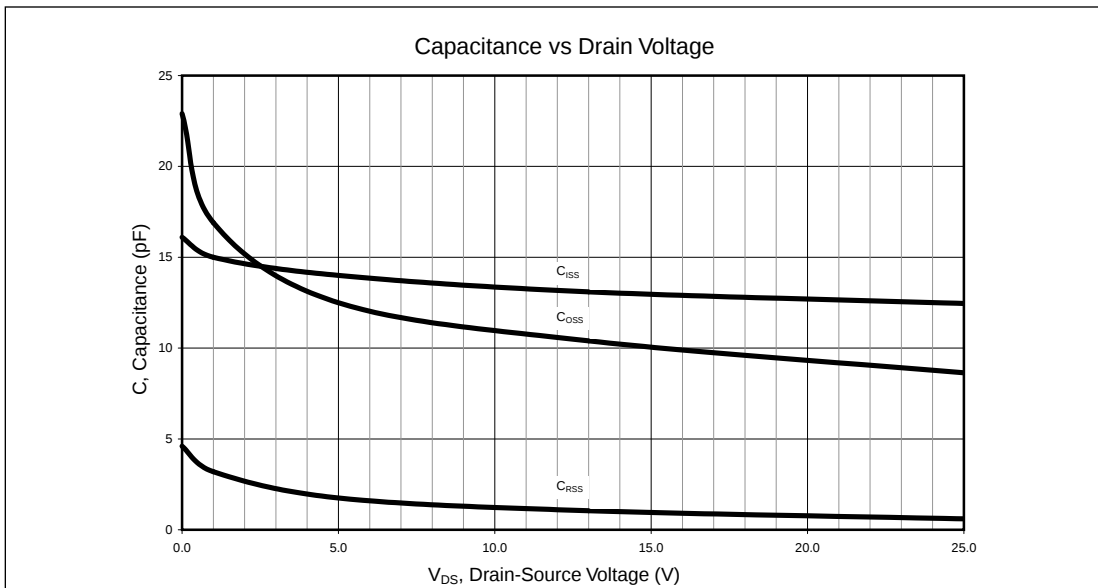
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Intermodulation Distortion vs Output Power



Power Gain & Efficiency vs Output Power





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