

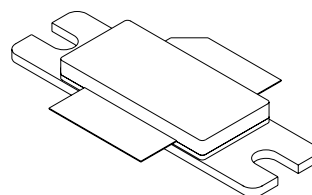
60W, 2 GHz, 26V Broadband RF Power N-Channel Enhancement-Mode Lateral MOSFET

Designed for PCS and PCN base station applications in the frequency band 1.9 to 2.0 GHz. Ideal for CDMA, TDMA, GSM, and Multi-Carrier Power Amplifiers in Class A or AB operation.

- ALL GOLD metal system for highest reliability
- Industry standard package
- Suggested alternative to the MRF19060
- Internally matched for repeatable manufacturing
- High gain, high efficiency and high linearity

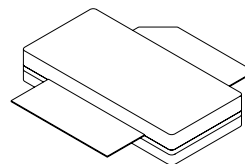
Application Specific Performance, 1.96 GHz

GSM:	60 Watts	11.8 dB
EDGE:	25 Watts	11.8 dB
IS95 CDMA:	7.5 Watts	11.8 dB
W-CDMA:	5 Watts	11.8 dB



Package Type 440117

- **Typical CDMA Performance: 1960 MHz, 26 Volts**
IS-95 CDMA:
Pilot, Sync, Paging, Traffic Codes 8 through 13
Output Power—7.5W
Associated PAE – 18 %
Power Gain – 11.8 dB
- **Adjacent Channel Power-**
885 kHz -45dBc at 30kHz BW
1.25 MHz -55 dBc at 12.5kHz BW
2.25 MHz -55 dBc at 1MHz BW



Package Type 440133

UPF19060

Maximum Ratings

Rating	Symbol	Value	Unit
Drain to Source Voltage, Gate connected to Source	V_{DSS}	65	Volts
Gate to Source Voltage	V_{GSS}	+15 to -0.5	Volts
Total Device Dissipation @ TC = 70°C Derate above 70°C	P_D	100 0.83	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}	1.2	°C/W

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

Rating	Symbol	Min	Typ	Max	Unit
Drain to Source Breakdown Voltage ($V_{GS}=0$, $I_D=1\text{mA}$)	BV_{DSS}	65	-	-	Volts
Drain to Source Leakage current ($V_{DS}=28\text{V}$, $V_{GS}=0$)	I_{DSS}	-	-	2.0	mA
Gate to Source Leakage current ($V_{GS}=15\text{V}$, $V_{DS}=0$)	I_{GSS}	-	-	2.0	μA
Threshold Voltage ($V_{DS}=10\text{V}$, $I_D=1\text{mA}$)	$V_{GS(th)}$	-	3.5	-	Volts
Gate Quiescent Voltage ($V_{DS}=26\text{V}$, $I_D=540\text{mA}$)	$V_{GS(q)}$	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	0.25	Volts
Forward Transconductance ($V_{DS}=10\text{V}$, $I_D=5\text{A}$)	G_m	2.2	3.0	-	S

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

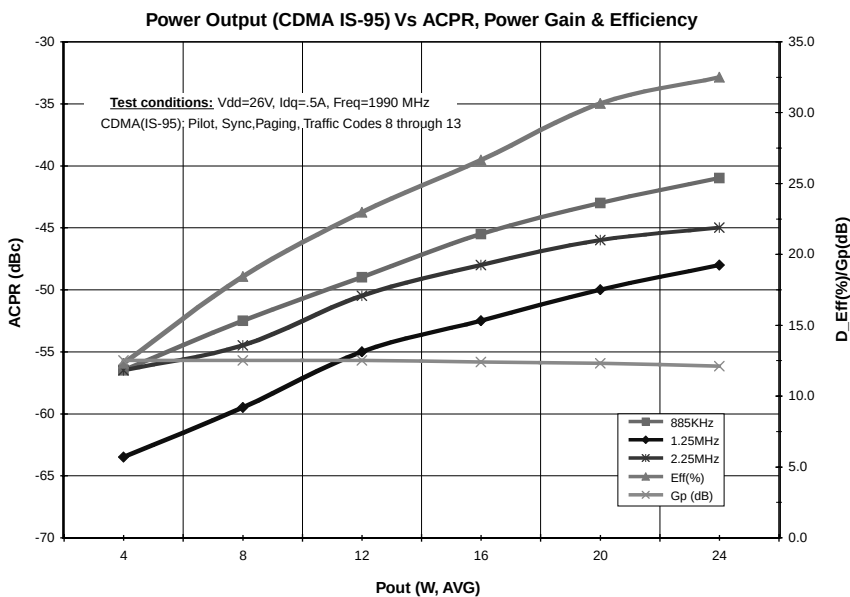
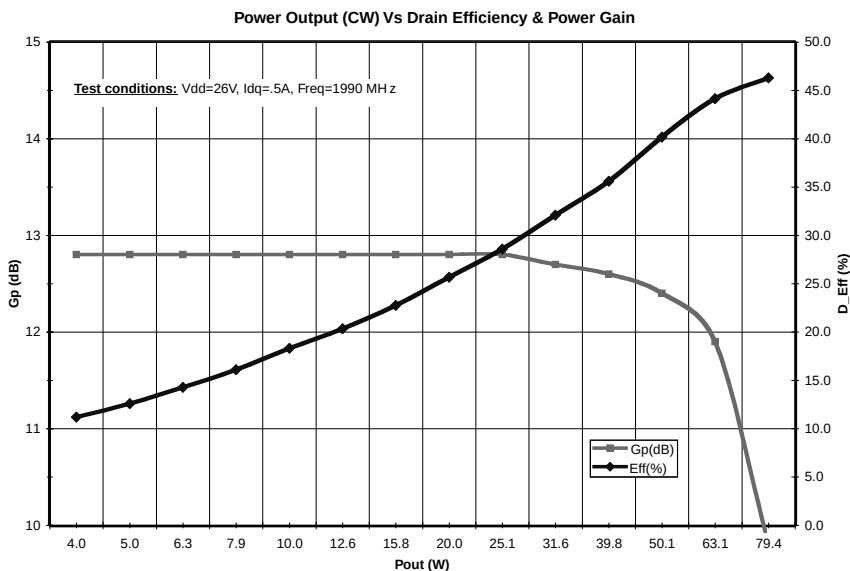
Rating	Symbol	Min	Typ	Max	Unit
Output Capacitance* ($V_{DS}=26\text{V}$, $V_{GS}=0\text{V}$, freq= 1MHz)	C_{OSS}	-	70	-	pF
Feedback Capacitance ($V_{DS}=26\text{V}$, $V_{GS}=0\text{V}$, freq= 1MHz)	C_{RSS}	-	3.5	-	pF

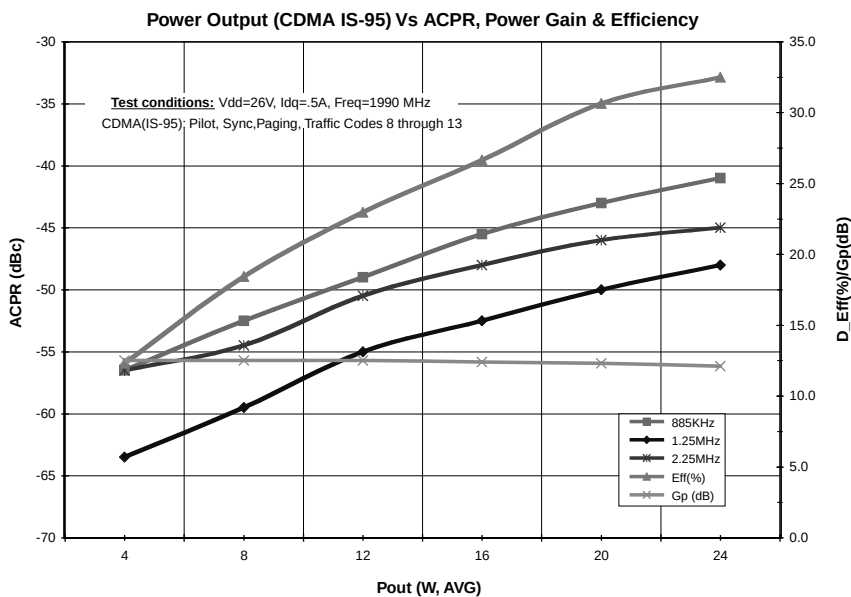
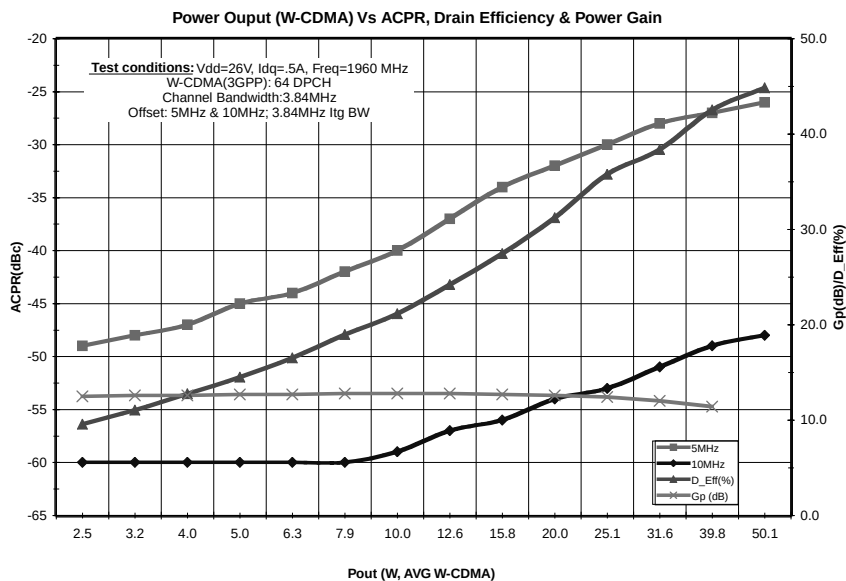
* Part is internally matched on input.

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

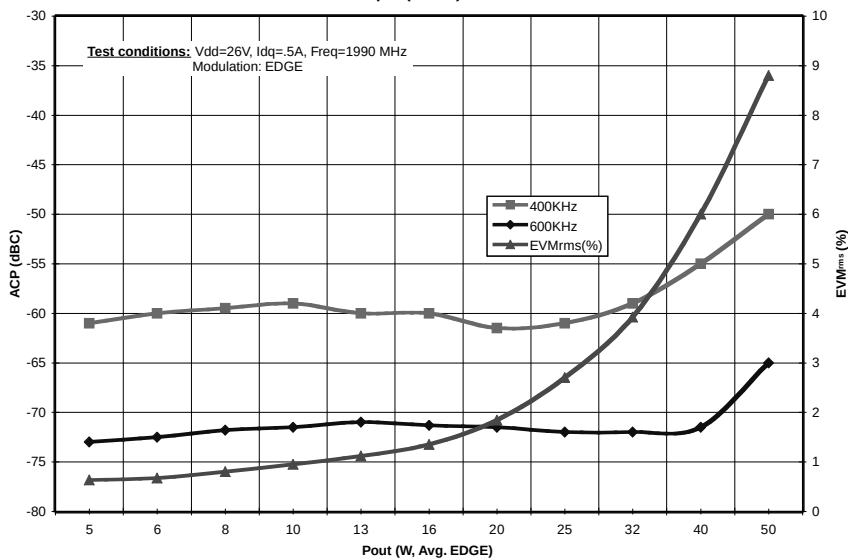
Rating	Symbol	Min	Typ	Max	Unit
CW Common-Source Amplifier Power Gain $V_{DD}=26\text{V}$, $I_{DQ}=500\text{mA}$, $P_{OUT}=60\text{W}$ Freq=1990 MHz	G_{PS}	11	11.8	-	dB
CW Drain Efficiency $V_{DD}=26\text{V}$, $P_{OUT}=60\text{W}$, $I_{DQ}=500\text{mA}$ Freq=1990 MHz	η	39	42	-	%
3rd Order Intermodulation Distortion $V_{DD}=26\text{V}$, $P_{OUT}=60\text{W}$ PEP, $I_{DQ}=500\text{mA}$ $f_1=1930$ MHz and 1990MHz, Tone Spacing = 100kHz	IMD_3	-	-30	-26	dBc
Input Return Loss $V_{DD}=26\text{V}$, $P_{OUT}=60\text{W}$, CW $I_{DQ}=500\text{mA}$ Freq=1990 MHz	IRL	-	-10	-	dB
Load Mismatch Tolerance $V_{DS}=26\text{V}$, $I_{DQ}= 500$ mA, $P_{OUT}=60\text{W}$, $f=1990$ 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.

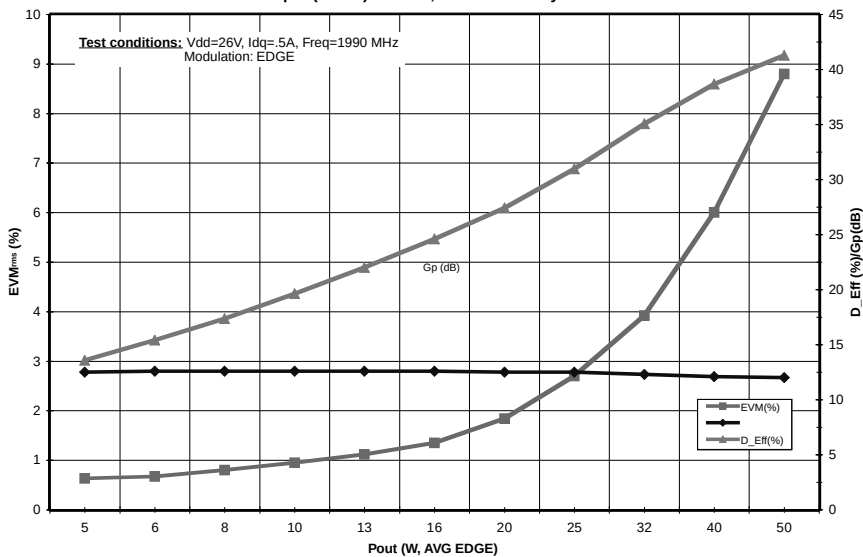


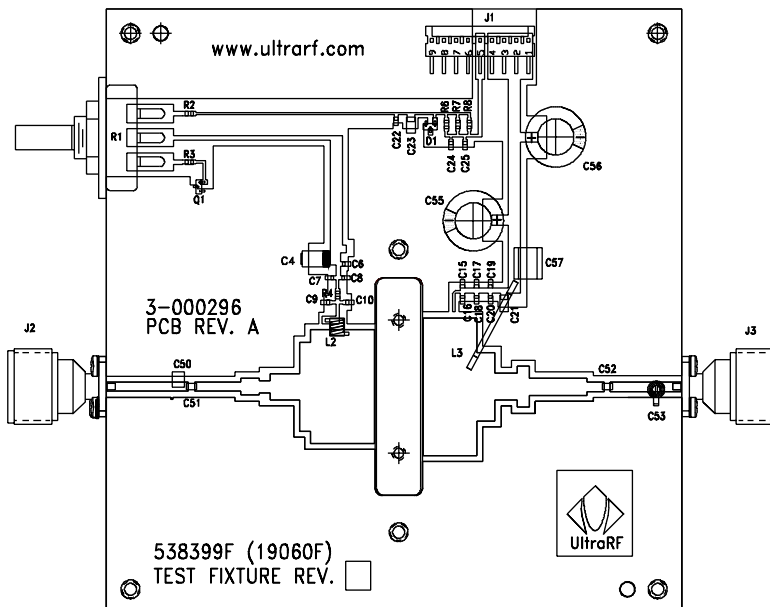
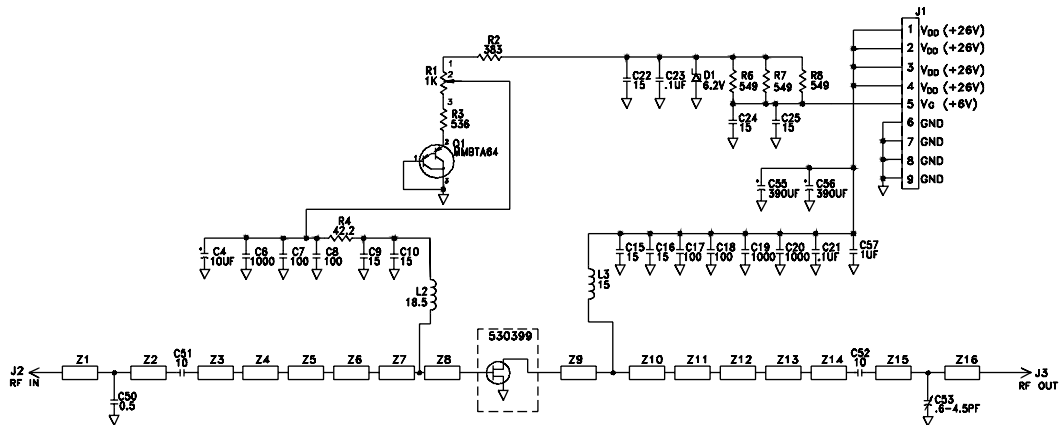


Power Output (EDGE) Vs ACP & EVM



Power Output (EDGE) Vs EVM, Drain Efficiency & Power Gain



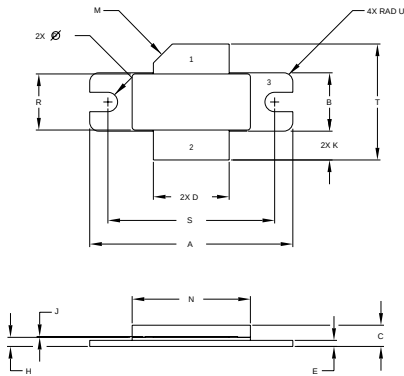


UPF19060

Parts List for RF Test Fixture 538399

(Tuned for 1930-1990 MHz, 60W, CW)

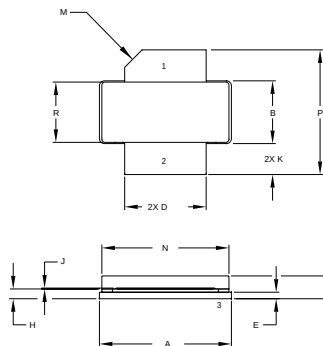
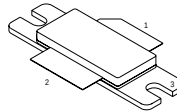
Designator	Description	Qty
R2	RES,1/16W,0603,1%,383 OHMS	1
R4	RES,1/16W,0603,1%,42.2 OHMS	1
R3	RES,1/16W,0603,1%,536 OHMS	1
R6,7,8	RES,1/16W,0603,1%,549 OHMS	3
R1	POTENTIOMETER,1K OHM,PANEL MT	1
C21, C23	CAP .1UF 1206 SMT MONO 50V	2
C4	CAP, 10uf 16V TANTALUM	1
C55, C56	CAP LOW ESR 390UF 35V	2
C50	CAP 0.5PF ATC100 110MIL	1
C53	TRIM CAP 0.6-4.5 PF	1
C51,52	CAP 10PF ATC100 110MIL	2
C7,8,17,18	CAP,100 PF,0603 PKG, 100 VOLTS	4
C6,19,20	CAP,1000 PF,0603 PKG,100 VOLTS	3
C9,10,15,16,22,24,25	CAP,15 PF,0603 PKG, 100 VOLTS	7
D1	DIODE,ZENER,6.2V,SOT-23,SMT	1
Q1	PNP DARL XSTR,MMBTA64,SOT-23	1
L3	WIRE MAGNET #18 1.3 in., 0.44 in ID, 0.5 turn	1
L2	IND 18.5NH SPG,AIR CORE SMT A	1
J1	DC Connector HEADER RT>PLZ .1CEN LK 9POS	1
J2,3	RF Connector CONN,N,FEM,W/.500 SMA FLNG	2
PCB	PTFE .031, 2oz/2oz CU, Er=2.55	1
Z1	55Ω, λ=.139 @1990MHz	
Z2	55Ω, λ=.0269 @1990MHz	
Z3	55Ω, λ=.0942 @1990MHz	
Z4	35.5Ω, λ=.038 @1990MHz	
Z5	44.2Ω, λ=.022 @1990MHz	
Z6	25.5Ω, λ=.062 @1990MHz	
Z7	9Ω, λ=.023 @1990MHz	
Z8	7.1Ω, λ=.140 @1990MHz	
Z9	5.9Ω, λ=.118@1990MHz	
Z10	11.3Ω, λ=.040 @1990MHz	
Z11	25Ω, λ=.047 @1990MHz	
Z12	17.7Ω, λ=.026 @1990MHz	
Z13	35.3Ω, λ=.120 @1990MHz	
Z14	52.5Ω, λ=.0345 @1990MHz	
Z15	52.5Ω, λ=.085 @1990MHz	
Z16	52.5Ω, λ=.058 @1990MHz	



- NOTES:
1. DIMENSIONING AND TOLERANCING PER
ANSI Y14.5M, 1992.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.335	1.345	33.91	34.16
B	0.380	0.390	9.65	9.91
C	0.135	0.149	3.43	3.78
D	0.495	0.505	12.57	12.83
E	0.035	0.045	.89	1.14
H	0.057	0.067	1.45	1.70
J	0.003	0.006	.08	.15
K	0.170	0.210	4.32	5.33
M	45H REF		45H REF	
N	0.773	0.787	19.63	19.99
P	0.123	0.133	3.12	3.38
R	0.364	0.374	9.25	9.50
S	1.095	1.105	27.81	28.07
T	0.745	0.785	18.92	19.94
U	0.060 REF		1.52 REF	

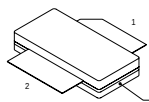
PIN 1. DRAIN
PIN 2. GATE
PIN 3. SOURCE



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1. DIMENSIONING AND TOLERANCING PER
ANSI Y14.5M, 1992.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.805	0.815	20.45	20.70
B	0.390	0.390	9.65	9.91
C	0.135	0.149	3.43	3.78
D	0.495	0.505	12.57	12.83
E	0.035	0.045	.89	1.14
H	0.057	0.067	1.45	1.70
J	0.003	0.006	.08	.15
K	0.170	0.210	4.32	5.33
M	45H REF		45H REF	
N	0.773	0.787	19.63	19.99
P	0.745	0.785	18.92	19.94
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