

tyco Electronics

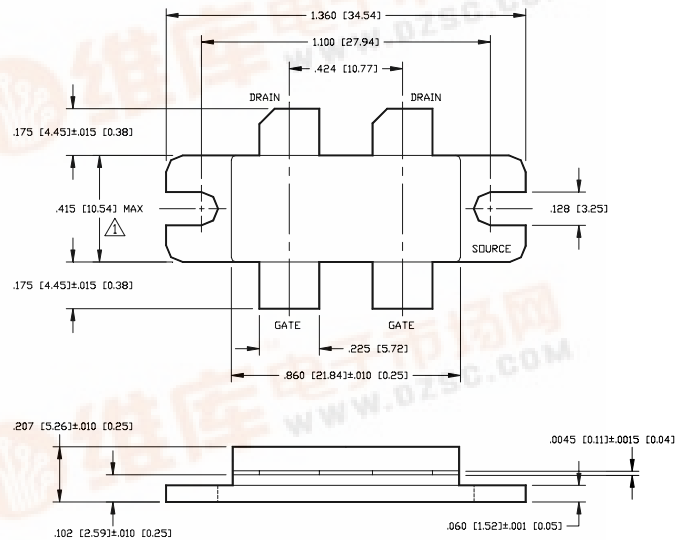


**UF28150J PRELIMINARY
POWER MOSFET TRANSISTOR
150 WATTS, 100 - 500 MHz, 28 V**

FEATURES

- N-Channel Enhancement Mode Device
- Applications
- 150 Watts CW
- Common Source Gemini Configuration
- RESFET Structure
- Internal Input Impedance Matching
- Gold Metallization

OUTLINE DRAWING



UNLESS OTHERWISE NOTED, TOLERANCES ARE INCHES ±.005" [MILLIMETERS ±0.13MM]

NOTES:
△ CAP MISALIGNMENT OF .005" [0.13] MAXIMUM. DIMENSION NOT INCLUDING EPDXY.

ABSOLUTE MAXIMUM RATINGS AT 25°C

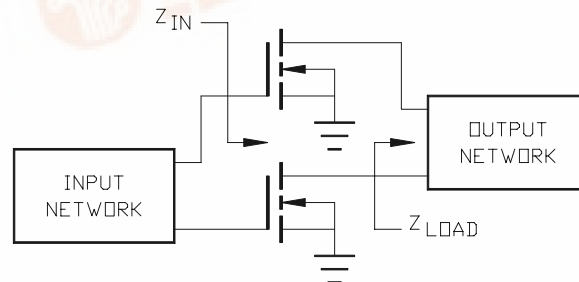
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	20	V
Drain-Source Current	I_{DS}	28	A
Dissipation @25°C	P_D	233	W
Storage Temperature	T_{stg}	-55 to +150	°C
Junction Temperature	T_j	200	°C
Thermal Resistance	θ_{jc}	0.75	°C/W

ELECTRICAL CHARACTERISTICS AT 25°C (*per side)

Parameter	Symbol	Min	Max	Units	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	V	$I_D=40\text{ mA}, V_{GS}=0.0\text{ V}^*$
Drain-Source Leakage Current	I_{DSS}	-	4.0	mA	$V_{DS}=28.0\text{ V}, V_{GS}=0.0\text{ V}^*$
Gate-Source Leakage Current	I_{GSS}	-	2.0	μA	$V_{GS}=20\text{ V}, V_{DS}=0.0\text{ V}^*$
Gate Threshold Voltage	$V_{GS(th)}$	2.0	6.0	V	$V_{DS}=10.0\text{ V}, I_{DS}=200\text{ mA}^*$
Forward Transconductance	G_m	1.0	-	S	$V_{DS}=10.0\text{ V}, I_{DS}=2000\text{ mA (pulsed)}^*$
Input Capacitance	C_{ISS}	-	200	pF	$V_{DS}=28.0\text{ V}, f=1.0\text{ MHz (Reference Only)}^*$
Reverse Capacitance	C_{RSS}	-	50	pF	$V_{DS}=28.0\text{ V}, f=1.0\text{ MHz}^*$
Output Capacitance	C_{OSS}	-	14	pF	$V_{DS}=28.0\text{ V}, f=1.0\text{ MHz}^*$
Power Gain	G_p	10	-	dB	$V_{DD}=26\text{ V}, I_{DQ}=400\text{ mA}, P_{out}=80\text{ W}, F=960\text{ MHz}$
Collector Efficiency	η	50	-	%	$V_{DD}=26\text{ V}, I_{DQ}=400\text{ mA}, P_{out}=80\text{ W}, F=960\text{ MHz}$
Load Mismatch Tolerance	VSWR	-	3.0:1	-	$V_{DD}=26\text{ V}, I_{DQ}=400\text{ mA}, P_{out}=80\text{ W}, F=960\text{ MHz}$

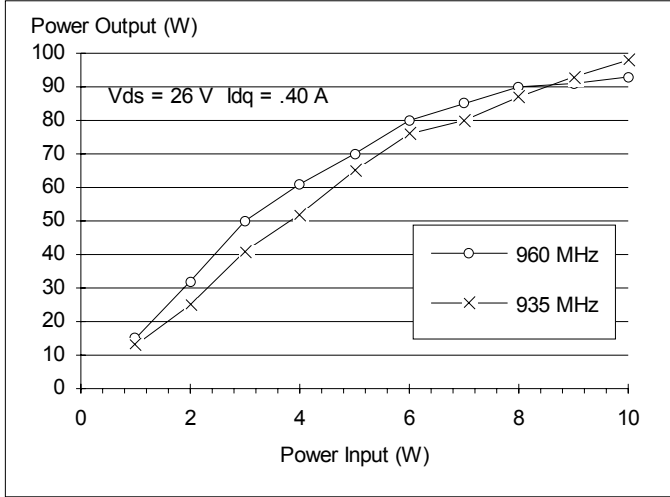
TYPICAL OPTIMUM DEVICE IMPEDANCE

F (MHz)	$Z_{in} (\Omega)$	$Z_{load} (\Omega)$
935	$4.6 + j8.0$	$2.3 + j3.1$
960	$4.7 + j7.8$	$2.4 + j3.1$

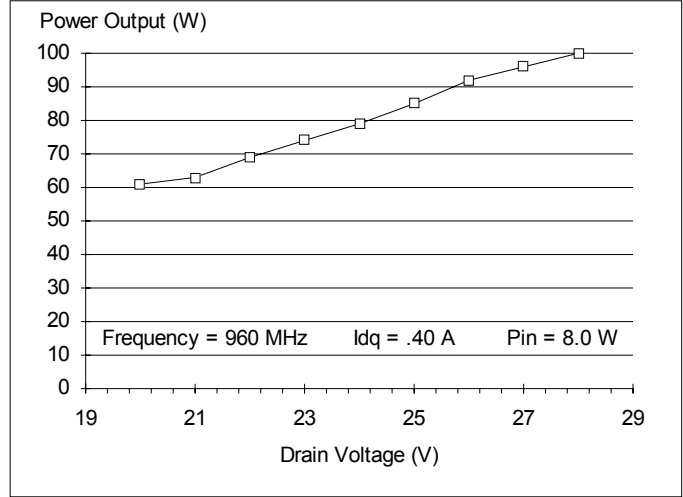


TYPICAL BROADBAND PERFORMANCE CURVES - UF28150J

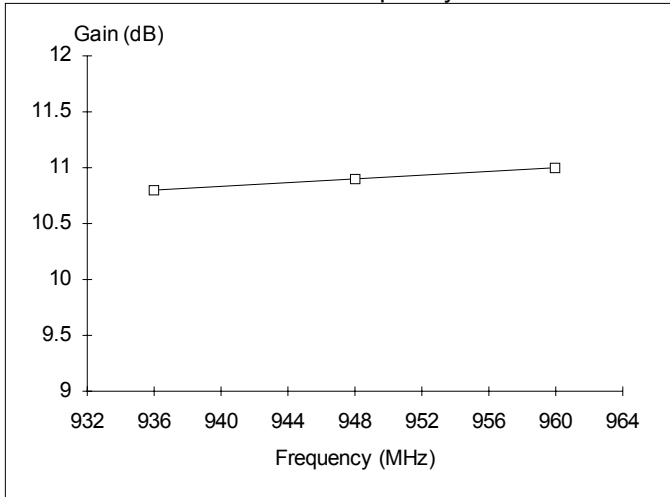
Output Power vs Input Power



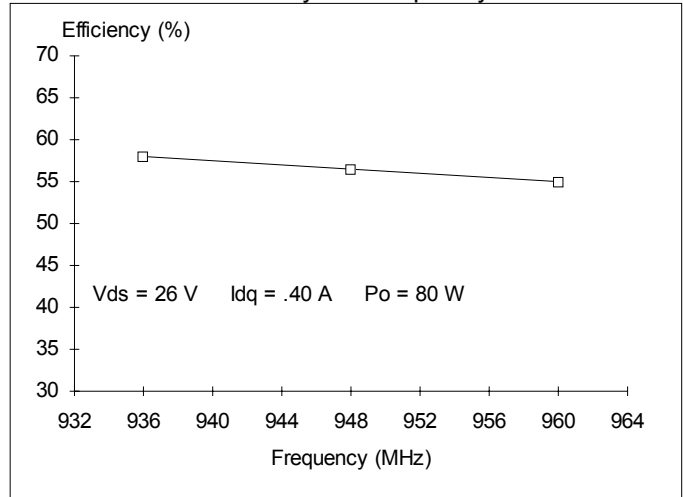
Output Power vs Drain Voltage



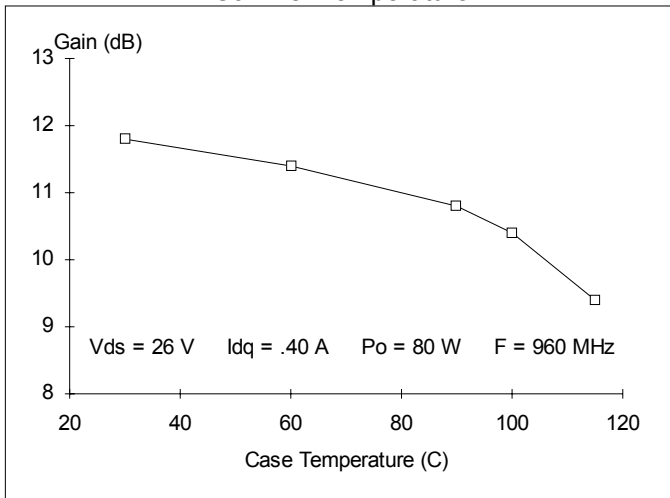
Gain vs. Frequency



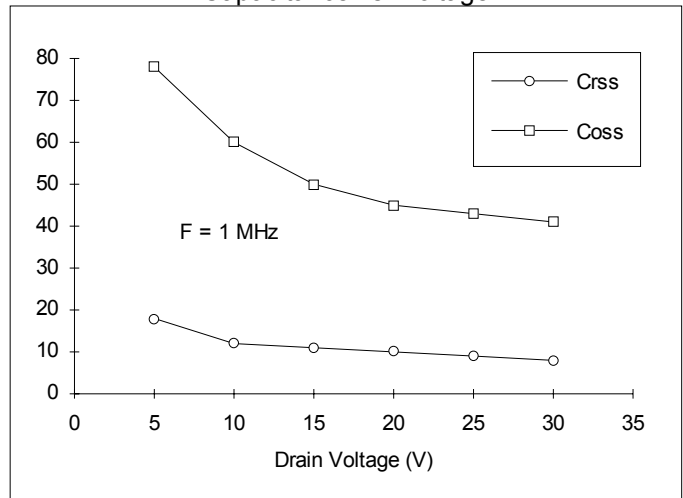
Efficiency vs. Frequency



Gain vs. Temperature



Capacitance vs. Voltage



M/A-COM POWER TRANSISTORS • 1742 CRENSHAW BLVD • TORRANCE, CA 90501
(310) 320-6160 • FAX (310) 618-9191

Typical Device Impedance

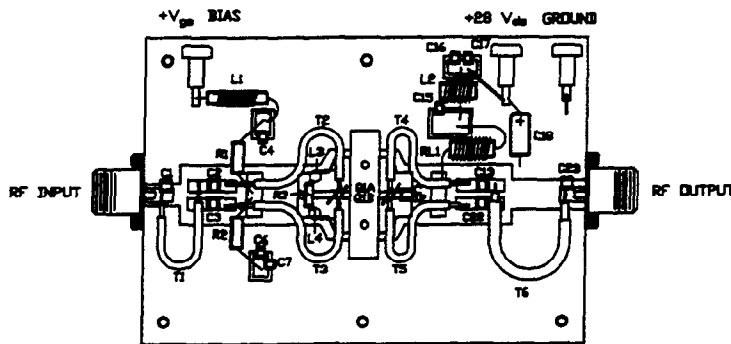
Frequency (MHz)	Z _{IN} (OHMS)	Z _{LOAD} (OHMS)
100	3.7 - j 5.9	3.0 - j 0.7
300	2.7 - j 5.8	2.6 - j 0.55
500	2.5 + j 2.9	2.5 - j 0.5

V_{DD}=28 V, I_{DD}=400 mA, P_{OUT}=150.0 Watts

Z_{IN} is the series equivalent input impedance of the device from gate to gate.

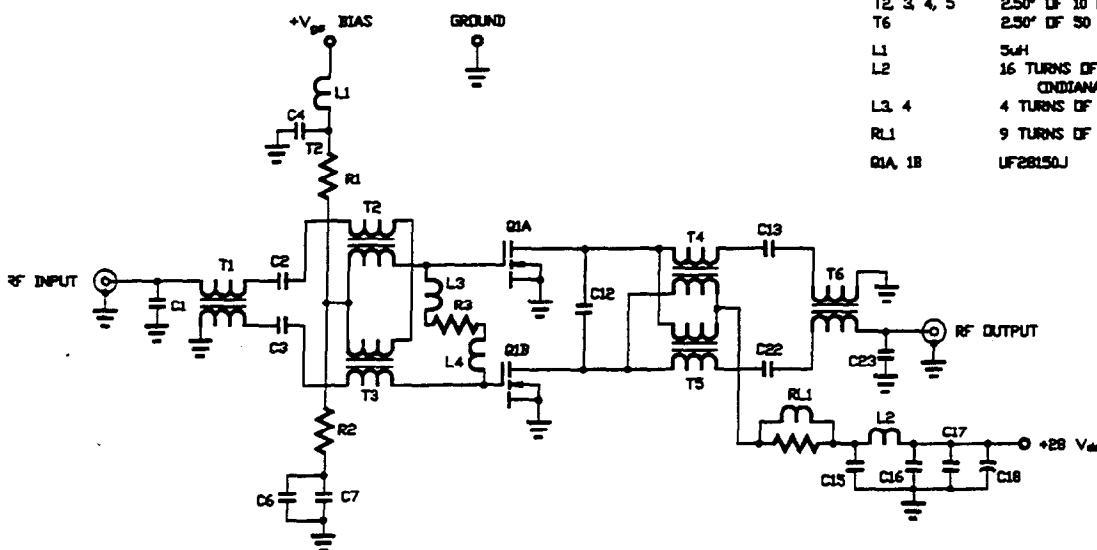
Z_{LOAD} is the optimum series equivalent load impedance as measured from drain to drain.

RF Test Fixture



PARTS LIST

- C23 1.0pF
- C1 9.1pF
- C12 11pF
- C2, 3, 13, 22 270pF
- C7, 16 680pF
- C4, 6, 15, 17 .015uF
- C18 50uF 50 V.
- R1 11K OHM 25 V. 10%
- R2 47 OHM 50 V. 10%
- R3 12 OHM 25 V. 10%
- T1 2.50' OF 50 OHM (.085" O.D) SEMI-RIGID CABLE
- T2, 3, 4, 5 2.50' OF 10 OHM (.070" O.D) SEMI-RIGID CABLE
- T6 2.50' OF 50 OHM (.141" O.D) SEMI-RIGID CABLE
- L1 5uH
- L2 16 TURNS OF NO. 18 AVG ON TOROID CORE
INDIANA GENERAL F6278-QD
- L3, 4 4 TURNS OF NO. 18 AVG ON .125" DIAMETER
- RL1 9 TURNS OF NO. 18 AVG ON 15 OHM 2 V. 10% RESISTOR
- Q1A, 1B UF28150J



Specifications Subject to Change Without Notice.

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